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PRELIMINARY RESULTS OF A NEW INSTRUMENT TO ASSESS PATIENT MOTIVATION FOR TREATMENT IN COGNITIVE-BEHAVIOUR THERAPY

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Abstract. The Nijmegen Motivation List 2 (NML2) is a new instrument to assess patient motivation for psychotherapy. A previous version of the instrument was associated with positive treatment outcome in cognitive-behaviour therapy in several studies but its psychometric properties were poor. The present study investigated the NML2's factorial structure, psychometric properties, and predictive value for treatment outcome. The NML2 was completed by 133 outpatients. Three factors were found: preparedness, distress, and doubt. Internal consistencies and re-test reliabilities of the factors were reasonable. The NML2 total score and preparedness were associated with proximal treatment helpfulness and with treatment drop-out. Distress and doubt were not. These findings corroborate those found with the earlier NML version. Rather than assuming that the relationship between motivation factors and treatment outcome is mediated by the amount or quality of treatment or homework compliance, it is proposed that motivation for treatment is the first step in the patient's change process itself.

Keywords: Drop-out, behaviour therapy, predictors, test-construction, questionnaire, psychotherapeutic processes, treatment motivation.

Introduction

Over the years, patient motivation for treatment has been considered to be vital to psychotherapy progress and outcome. In cognitive-behaviour therapy, considerable attention has been paid, for instance, to ways of motivating patients to comply with treatment techniques and homework assignments (e.g., Curtis, 1984; Horvath, 1993; Miller, 1985). Since the 1960s, various attempts have been made to measure patient motivation and to establish its relationship with treatment outcome. This line of research has been seriously hampered, however, by problems of definition of the concept. In the present article, we present a brief overview of the literature, focusing in particular on empirical studies conducted in cognitive-behaviour therapy, and introduce a new instrument to measure patient motivation.

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In a discussion of reluctant patients, Dean (1958) noted that a proportion of patients who seek psychotherapy are at that stage still unprepared for change and still unable to acknowledge their problems in full. These patients are in a pre-therapy stage. Dean devised a continuum to judge the patients' stage of preparedness for treatment. He reasoned that in order to properly treat the unprepared patients, therapists had to first guide them carefully towards the in-therapy stage.

Krause (1967) developed an instrument to assess patient motivation based on Festinger's cognitive-dissonance-theory. The instrument assesses the patient's acceptance of the patient-role. Indices for patient motivation included, for instance, compliance with treatment scheduling and the patient's readiness openly to discuss personal matters.

In the 1970s, several motivation instruments were developed by psychodynamic therapists (Keithly, Samples, & Strupp, 1980; Kernberg et al., 1972; Sifneos, 1972). The criteria for patient motivation were, for instance, curiosity to understand oneself, desire to change, preparedness to make reasonable sacrifices, introspection, and degree of autonomy. In contrast to Dean (1958), patient motivation was not considered as a changeable state of readiness but as a patient characteristic. Patient motivation was used to determine which patients were able to profit from psychodynamic treatment and which were better referred for other forms of psychotherapy. Appelbaum (1972) and Rosenbaum and Horowitz (1983) demonstrated that many of the criteria included in these motivation instruments were reflective of patients' psychological well-functioning rather than of patient motivation for treatment. They warned against the use of patient motivation as a selection criterion for excluding less intelligent, less introspective or sicker patients from proper treatment.

Duivenvoorden (1982) encountered similar validity problems when investigating the way in which therapists' assessment of patient motivation was arrived at. He found that patients whom their therapists considered to be motivated for treatment tended to be more attractive, more insight-oriented, more verbally oriented, and more emotionally stable than their unmotivated counterparts. It thus appears that the therapists' assessment of patient motivation can easily be clouded by patients' psychological well-functioning and interpersonal attraction. Furthermore, the factor-analytic studies by Appelbaum (1972), Duivenvoorden (1982), and Rosenbaum and Horowitz (1983) demonstrated that patient motivation is not a one-dimensional construct, but is multifaceted and extremely difficult to grasp empirically. Operationalizations and instruments in studies over the past 30 years have produced 24 to 36 grossly different criteria for patient motivation (Hoogduin & Schaap, 1989; Rosenbaum & Horowitz, 1983).

In cognitive-behaviour therapy, several researchers conceptualized patient motivation, as had Dean (1958), as a state of readiness for change prior to the introduction of treatment interventions. Conceptualized in this way, it included, for example, the acknowledgement of problems, level of distress, commitment for change, or credibility or acceptance of psychological treatment (e.g., Kanfer & Grimm, 1980; Miller & Rollnick, 1993; Nelson & Borkovec, 1989). Other researchers, similar to Krause (1967), focused on criteria for patients' actual participation, cooperation, or compliance during the course of treatment. Considering the fact that complaint reduction is principally attributed to the patients' accomplishment and implementation of new and more effective coping behaviour, one might expect that treatment compliance is a more direct predictor of cognitive-behavioural treatment outcome than initial patient motivation.

In fact, it might be assumed that the effect of patient motivation at the start of treatment is mediated by treatment compliance during treatment: the more motivated for treatment a patient is, the more the patient will comply with treatment techniques that lead to behavioural change.

These assumptions are not clearly tested, however. Empirical data are not in line with the assumption that patients' initial motivation affects treatment outcome in cognitive-behavioural treatment via homework compliance. In the majority of studies investigating patient initial motivation in cognitive-behaviour therapy, significant relationships with outcome were found (de Haan et al., 1997; Hoogduin & Duivenvoorden, 1988; Keijsers, Hoogduin, & Schaap, 1991, 1994a, b; Keijsers & Kampman, 1998; Nelson & Borkovec, 1989; Schefft & Kanfer, 1987; Simpson & Joe, 1993). In a minority of studies – several of them lacking adequate instruments to measure patient motivation – relationships with outcome were nonsignificant (de Beurs, 1993; Mathews, Johnston, Shaw, & Gelder, 1974; Mathews et al., 1976; Mawson, Marks, & Ramm, 1982). High initial motivation appears associated with better treatment outcome and lower drop-out rate. Significant associations between outcome and amount or quality of homework compliance have been reported in four studies (Burns & Nolen-Hoeksema, 1991, 1992; Neimeyer & Feixas, 1990 [but not at follow-up]; Persons, Burns, & Perloff, 1988), but not in seven others (Barlow, O'Brien, & Last, 1984; Edelman & Chambless, 1993; Fals-Stewart & Lucente, 1993; Kornblith, Rehm, O'Hara, & Lamparski, 1983; Lax, Başoglu, & Marks, 1992; Nelson & Borkovec, 1989; Startup & Edmons, 1994). In addition, correlations between homework compliance and initial motivation factors were moderate or absent (Burns & Nolen-Hoeksema, 1991, 1992; Edelman & Chambless, 1993, Lax et al., 1992; Nelson & Borkovec, 1989; Startup & Edmons, 1994). These findings may be due to measurement problems. However, it cannot as yet be concluded that patient motivation affects treatment outcome via homework compliance. Its impact on outcome in cognitive-behaviour therapy is unclear.

Despite its lack of a clear conceptual background and its moderate psychometric properties, there is one motivation instrument that repeatedly has been found to predict cognitive-behavioural treatment outcome. The instrument is called the Nijmegen Motivation List (NML). Its first version was a 9-item rating scale based on criteria of patient motivation collected from the literature. In the study by Hoogduin and Duivenvoorden (1988) of 60 obsessive-compulsive patients, intakers completed the rating scale. The instrument significantly differentiated between the improved and nonimproved patients. De Beurs (1993) used the same rating scale in panic disorder patients, but was unable to find significant relationships with any of the outcome measures.

Keijsers et al. (1991) converted the rating scale into a self-report questionnaire to be completed by patients prior to the start of treatment. The NML now consisted of 12 items, 5 constituting the factor "willingness to participate", 3 the factor "level of distress", and 3 the factor "pressure from others". For 53 patients suffering from anxiety disorders, half of the items taken conjointly, predicted outcome (Keijsers et al., 1991; Keijsers, 1994). The NML total score and willingness to participate predicted treatment outcome in four subsequent studies with anxiety disorder patients (de Haan et al., 1997; Keijsers & Kampman, 1998; Keijsers et al., 1994a, b). Significant correlations (Pearson's r, Kendall's τ, multiple correlation coefficients R) with treatment outcome across these five studies ranged between .20 and .38. In the study by de Haan et al. (1997),

low scores on willingness to participate were also significantly related to treatment drop-out. The NML's fairly consistent relationship with treatment outcome may be due to the fact that it is the only motivation instrument that has repeatedly been used in similar studies in a comparable way. Furthermore, it is one of the few self-rating instruments to be completed by patients and not by clinicians. This may be of considerable importance because patients' evaluations have also tended to be more consistent predictors of outcome in studies that addressed related process variables, such as the quality of the therapeutic relationship (e.g., Gurman, 1977; Keijsers, 1994).

Despite its apparent potential to predict treatment outcome, the psychometric properties of the 12-item self-report questionnaire were unsatisfactory. Two of its subscales consisted of three items only, internal consistencies ranged between .53 and .66, and test–retest reliabilities were not available (Keijsers et al., 1991). The present study was conducted to test the psychometric properties of a new version of the NML, the NML2. We added new items to enlarge the item-pool of the original three NML-factors, and to add a fourth factor, ''expectancy''. The added items were derived from the literature (see Hoogduin & Schaap, 1989). Ten of the original 12 NML items were again included. The NML2 consists of 34 items, to be completed by patients in an early phase of cognitive-behavioural treatment. We sought to answer the following questions: (1) Is the NML2 made up of the presumed four factors, i.e., willingness to participate, distress, pressure from others, and expectancy? (2) What are the psychometric properties of the factors found? and (3) Are the factors found associated with treatment effect? Pre- and postmeasurements of patients' symptoms were not measured in the present patient sample; treatment effect, therefore, was operationalized in terms of proximal helpfulness and in terms of treatment continuation versus drop-out.

Method

Patients

Therapists in three outpatient treatment centres were given detailed information about the study and were asked to indicate which of their patients (1) were seen by them on a regular basis or at most two-weekly intervals, and (2) had received fewer than 10 treatment sessions or had been freshly assigned to them. These patients were contacted. The patients and therapists were asked to complete several questionnaires in the next two treatment sessions over a one-month data-collection period in spring 1995. Of the 157 questionnaire-sets administered, 18 (11.5%) were not returned: For 10 patients there were no appointments during the one-month data-collection period and for 8 patients, the therapist ($n = 5$), or the patient ($n = 3$) objected to completing the questionnaires during the session at that particular moment in treatment. No data on these patients were available.

Two of the remaining patients' responses to the NML2 were clearly suspect. Another four patients had missed more than three items. These six patients were excluded from the study. The remaining sample consisted of 133 patients; 75 (56.5%) were women, 58 (43.5%) were men. Mean age was 36.6 ($SD = 10.73$), ranging from 16 to 71 years. The levels of education of the patients included were : 21 (15.8%), university; 41 (30.8%), higher technical or administrative; 46 (34.6%), lower technical or administrative; 25 (18.8%), manual training or high school drop-out.

Table 1. DSM-IV (APA, 1994) Axis I and II diagnoses found in the sample, $N = 133$

	Frequency	Percentage
Axis-I		
—Anxiety disorders	73	54.9
—V-code: work-related problems or (work-related) adjustment disorder	26	19.5
—Somatoform disorder	9	6.8
—V-code: family/marital problems	7	5.3
—Mood disorder	6	4.5
—Eating disorder	5	3.8
—Other	5	3.8
—No diagnosis	2	1.5
Axis-II		
—No diagnosis	86	64.7
—Cluster C	36	27.1
—Cluster B	8	6.0
—Mixed	2	1.5
—Cluster A	1	0.8

The patients sought treatment for a variety of reasons. Table 1 presents an overview of DSM-IV (APA, 1994) Axis I and II diagnoses found in the sample. More than half of the patients were diagnosed with anxiety disorders and 19.5% with V-code "work related problems" (burnout[1]). Personality disorders to DSM-IV (APA, 1994) criteria were diagnosed in 35.3% of the patients.

Therapists

The therapists worked at three outpatient treatment centres, one general private practice, one specializing in the treatment of anxiety disorders, and one university outpatient centre. Nineteen were postgraduate therapists and seven were senior trainees. All the therapists endorsed cognitive-behavioural treatment; the treatments consisted of cognitive-behavioural techniques such as cognitive therapy, response prevention and exposure techniques, relaxation and stress-management, self-control procedures, and assertiveness-training. All treatments entailed symptom registrations and homework assignments. Most treatment sessions were held once a week and were of 45 minutes' duration.

Procedure

During the intake, five-axis DSM-IV (APA, 1994) diagnoses were made by therapists and checked by an experienced clinical psychologist or psychiatrist. The patients and therapists were given information on the study and were asked to cooperate. During

[1] Burnout was diagnosed when patients met criteria for ICD-10 (World Health Organization, 1992) neurasthenia and clearly indicated that their problems were work-related.

the first 10 minutes of the session, the patients completed the NML2. During the last five minutes of the session, patients completed the Session Report Patient-form (SRP). At the beginning of the following session, the patients were again asked to complete the NML2. The first administration of the NML was, on average, in the 5.1 ($SD = 2.9$) session.

Nine months after the data-collection period, the therapists were asked to report on the treatment progress of each of the patients. The therapists indicated by means of a questionnaire how many treatment sessions had taken place and whether: (a) treatment was still in progress; (b) the patient had prematurely dropped out of treatment without the consent of or discussion with the therapist; (c) the patient had prematurely discontinued treatment for reasons acknowledged by the therapist; (d) the patient had been referred to another clinic; or (e) the patient had completed treatment. The therapist responses were controlled by checking the information on the medical files. When the information did not confirm the therapist's responses (which happened infrequently), the progress of that particular treatment was discussed with the therapist.

Instruments

The NML2 consists of 34 statements (Table 2). The patients rate the extent to which each statement applies to them on a 6-point scale, ranging from 1, "not at all applicable" to 6, "very applicable". Ten of the original 12 NML-items were included. Twenty-four new items were added, 16 to enlarge the item-pool of the original three NML-factors, and eight to add a fourth factor, "expectancy".

Session Report Patient-form (SRP) was developed to assess whether the patients considered the particular treatment sessions helpful in resolving their problems. The instrument consists of six questions. Examples are: "Did you consider the conversation with your therapist helpful for you?" "Did the conversation help you to better handle your problems?" Each question is answered by choosing a response from a 5-point rating scale, ranging from 1, "very much" to 5, "not at all". Statistical analyses of the data obtained were performed by SPPS for Windows release 7.5.

Results

Factorial structure and psychometric properties of NML2

Data on the first administration of the NML2 were available for 132 patients. Because the items 2, 4, 8, 12, 15, 17, 19, 21, 22, 23, 25, 26, 27, 31, 32, and 34 were stated in an opposite direction, the item scores were reversed. As expected, 30 of 34 items showed a non-normal distribution (Kolmogorov–Smirnov test; $p < .05$). Twenty-two items showed negative kurtosis and flat frequency distributions. It was decided, therefore, to add scores 3 and 4 for each item. In addition, a normal, rank-order distribution was obtained by means of the SPSS procedure RANK (normal).

Items 2, 8, 15, 17, 19, 23, 24, 33, and 34 showed weak correlations with the remaining items (corrected item-total correlation $< .1$). The initial communalities of items 2, 8, 24, 33, and 34 were also weak ($< .35$). These items were excluded from further analysis. Principal Component Analysis using varimax rotation (PCA) was applied for the

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remaining 25 items. PCA was used instead of Principal Axis Factoring for reasons described by Stevens (1992). Based on Scree Test, three factors were extracted, accounting for 42.6% of the total variance.

Factor 1 accounted for 17.5% of the variance and included items 3, 5, 6, 7, 9, 11, 13, 16, 18, 28, and 30. Factor loadings, presented in Table 2, ranged from .41 to .68. The items were: (3) I will do anything to get rid of my problems; (5) I urgently need help in solving my problems; (6) I'm certain that I shall also practise at home the things I learn in treatment; (7) I expect to benefit more from therapy if I actively participate in it; (9) I'm willing to put work or other activities aside in order to attend treatment sessions; (11) I keep my appointments, no matter what; (13) I'm prepared to work on myself for a while; (16) I'm willing to postpone other appointments to attend treatment; (18) I made the right decision in attending therapy; (28) I believe that this treatment will help me get rid of my problems; (30) I'm known as someone who perseveres. These items express the patient's preparedness to actively invest in treatment and to make sacrifices. We labelled this factor *preparedness*. Characteristically, all items included in this factor were positively skewed prior to the rank-order distribution: A low score "not applicable" or "not applicable at all" on each of these items is remarkable and therefore appears to offer a strong indication that the patient is unprepared to actively engage in treatment.

Factor 2 accounted for 13.7% of the variance and included items 1, 10, 14, 20, 29, and 32. Factor loadings, presented in Table 2, ranged between .57 and .65. The items were: (1) My problems make me profoundly unhappy; (10) My problems make me feel ashamed; (14) I think I'm difficult to treat; (20) My problems make me a nuisance to others; (29) Other people notice that I'm functioning less well; (32) Despite my problems I can function well in daily life. These items appear to tap the concept of *(level of) distress*. In contrast to the factorial structure of the previous NML version, the items relating to pressure by others and distress merged together into one factor.

Factor 3 accounted for 11.4% of the variance and included items 4, 12, 21, 26, 27, and 31. Factor loadings, presented in Table 2, ranged between .51 and .68. The items were: (4) I do not believe that this is the right treatment for me; (12) I'm not very optimistic about the outcome of the treatment I'm about to begin; (21) I do not know whether I'll find sufficient time to carry out homework assignments as well; (26) I can't help having problems; (27) I think it's a nuisance having to carry out homework assignments as well; and (31) I don't get much support from those around me. These items express doubt about the investment in treatment, the treatment itself, and the possibility of gaining from it. We labelled this factor *doubt*.

Internal consistencies of the three factors were calculated. Cronbach's *alphas* were .81 for Factor 1 after removing item 30, .72 for Factor 2 after removing item 14, and .69 for Factor 3 after removing item 26. Internal consistencies were satisfactory (>.70, Nunnally, 1978, p. 245) with Factor 3 somewhat lower. Intercorrelations between the factors were as follows: Preparedness and distress, $r = .15$, $p < .05$; preparedness and doubt, $r = -.26$, $p < .01$; distress and doubt: $r = .23$, $p < .01$.

PCA using varimax rotation was also applied for the second administration of the NML2. Data were available for 124 patients. Items 2, 8, 15, 17, 19, 23, 24, 33, and 34 were excluded from the analyses. Three factors were extracted. The factors accounted for 45.2% of the total variance. The yielded factor-solution appears similar to those

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Table 2. The 34 original NML2 items, 1st and 2nd administration rotated factor loadings of the 25 items included in PCA, and percentage variance and eigenvalues of the three factors

	1st administration (n = 132)			2nd administration (n = 124)		
	F1	F2	F3	F1	F2	F3
% variance	17.5	13.7	11.4	18.9	13.2	13.1
Eigenvalue	4.36	3.41	2.86	4.54	3.18	3.13
Items						
1. My problems make me profoundly unhappy.	0.31	0.61	–0.20	0.39	–0.23	0.62
2. Because of my problems a number of people are extra nice to me.	—	—	—	—	—	—
3. I will do anything to get rid of my problems.	0.65	0.20	–0.10	0.66	0.04	0.23
4. I do not believe that this is the right treatment for me.	0.13	–0.25	0.52	0.07	0.65	–0.13
5. I urgently need help in solving my problems.	0.57	0.45	–0.11	0.64	–0.17	0.32
6. I'm certain that I shall also practice at home the things I learn in treatment.	0.66	0.12	0.13	0.74	0.19	0.11
7. I expect to benefit more from therapy if I actively participate in it.	0.41	0.02	0.26	0.71	0.12	0.11
8. Actually, I embarked upon therapy on the insistence of other people.	—	—	—	—	—	—
9. I'm willing to put work or other activities aside in order to attend treatment sessions.	0.68	0.07	0.13	0.71	0.06	0.02
10. My problems make me feel ashamed.	0.03	0.58	–0.12	0.09	–0.33	0.62
11. I keep my appointments, no matter what.	0.52	–0.29	0.25	0.43	–0.02	–0.40
12. I'm not very optimistic about the outcome of the treatment I'm about to begin.	0.32	–0.36	0.59	0.31	0.60	–0.29
13. I'm prepared to work on myself for a while.	0.67	0.05	0.05	0.49	0.42	0.05
14. I think I'm difficult to treat.	0.20	–0.53	0.30	0.02	0.54	–0.40
15. I can really talk about my problems with a number of people.	—	—	—	—	—	—
16. I'm willing to postpone other appointments to attend treatment.	0.67	0.06	0.08	0.75	0.17	–0.04
17. The cause of my problems lies primarily in my circumstances.	—	—	—	—	—	—
18. I made the right decision in attending therapy.	0.61	0.08	0.31	0.64	0.25	–0.08
19. I can only be helped by the very best therapist.	—	—	—	—	—	—
20. My problems make me a nuisance to others.	–0.02	0.65	–0.05	0.16	–0.29	0.55
21. I do not know whether I'll find sufficient time to carry out homework assignments as well.	0.14	–0.07	0.68	0.14	0.73	–0.05
22. My problems will disappear of their own accord.	0.34	0.35	0.43	0.10	0.12	0.54
23. Previous treatment did *not* help me.	—	—	—	—	—	—
24. I've tried everything to get rid of my problems.	—	—	—	—	—	—
25. My problems do *not* bother me.	0.06	0.46	0.50	0.13	0.38	0.56
26. I can't help having problems.	–0.24	0.03	0.55	–0.25	0.26	0.18
27. I think it's a nuisance having to carry out homework assignments as well.	0.38	0.01	0.51	0.27	0.66	0.13
28. I believe that this treatment will help me get rid of my problems.	0.44	–0.30	0.18	0.47	0.20	–0.36
29. Other people notice that I'm functioning less well.	0.17	0.62	–0.09	0.09	–0.08	0.48
30. I'm known as someone who perseveres.	0.44	–0.31	–0.01	0.20	0.25	–0.39
31. I don't get much support from those around me.	–0.07	–0.34	0.51	0.05	0.42	–0.25
32. Despite my problems I can function well in daily life.	0.04	0.65	–0.23	–0.04	0.12	0.71
33. There are more quarrels at home because of my problems.	—	—	—	—	—	—
34. If there was medicine that was as effective for my problems as therapy, I would prefer to take that.	—	—	—	—	—	—

Note: Subscale scores were calculated as follows: Preparedness: item scores of items 3 + 5 + 6 + 7 + 9 + 11 + 13 + 16 + 18 + 28 were added. Distress: item scores of items 1 + 10 + 20 + 29 + 32 were added. Doubt: item scores of items 4 + 12 + 21 + 27 + 31 were added. Of the items 4, 12, 21, 27, 31 and 32 the scores were reversed.

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yielded for the first administration of the NML2 (Table 2). This was further investigated by Perfect Congruence Analysis (PECON; Ten Berge, 1986): PCA of the data of the second administration of NML was applied, using component weights obtained from PCA of the first data-set. PECON resulted in a loss of variance accounted for of only 1.81. Internal consistencies for the three factors were reasonable again, Cronbach's *alphas* ranging between .71 and .84.[2]

To calculate re-test reliabilities, the items for each factor (Table 2) were added. Pearson product correlations were calculated between the corresponding factors of the first and second administration of the NML2. Re-test reliabilities were: preparedness: $r = .69$, $p < .0001$, $n = 124$; distress: $r = .78$, $p < .0001$, $n = 124$; doubt: $r = .73$, $p < .0001$, $n = 124$.

Relationships between NML2 and Session Report Patient-form and drop-out

To investigate the predictive value of the NML2 for treatment response, in this study two dependent variables were used, namely proximate treatment helpfulness using SRP and treatment drop-out versus nondrop-out.

SRP. SRP was completed by 133 patients. PCA yielded a one-factor solution with factor-loadings ranging between .65 and .81. Percentage variance was 57.6, eigenvalue was 3.45. Internal consistency (Cronbach *alpha* = .95) was excellent.

Pearson correlations between the total score on the NML2 (preparedness + distress + doubt) and SRP were significant ($r = -.27$, $p < .01$). In a subsequent backward regression analyses, the NML2 factors preparedness, distress, and doubt were entered as independent variables. SRP was significantly predicted by preparedness (*beta* = –.34, $t = -4.07$, $p = .0001$); distress or doubt did not contribute significantly any further to the SRP prediction obtained.

Drop-out. Table 3 presents the figures relating to treatment progress obtained from the therapists nine months after the administration of the NML2. Although we were not sure at that time whether it was wise to differentiate between drop-outs without the consent of or discussion with their therapists and patients who discontinued treatment for "acceptable" reasons, our data do appear to indicate that these are different kinds of patients. Reasons for early termination noted by the therapists were pregnancy, moving house, or long travel time. A careful study of patient reasons for early drop-out or termination was not conducted, however.

Loglinear regression analyses were conducted to predict drop-out ($n = 14$) versus nondrop-out ($n = 111$). Referrals were excluded from further analyses. Consistent with SRP-data, the total NML score significantly predicted drop-out ($r = -.39$, *Wald* =

[2] Recently, the data of a new patient became available for statistical analysis. Eighty-four patients diagnosed with panic disorder were treated according to the manualized treatment of Craske and Barlow (1993). Patients completed the NML2 at intake, prior to the first treatment session. PCA was conducted for the 25 NML2 items in the same way as in the present study. The yielded three-factor-solution is similar to the one found in the present study. PCA of the new data-set with component weights obtained from the first NML2 administration of the present study (PECON, Ten Berge, 1986), resulted in a loss of variance accounted for of only 2.18, indicating that the factorial structure of the first NML-administration of the present study reappeared again in the new data-set (Keijsers & Kampman, 1998).

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Table 3. Treatment progress groups, nine months after administration of NML2; Number of patients, number of sessions, percentage females, average age, number of Axis-II disorders, and average of NML2 preparedness, distress, and doubt ($N = 129$)

	Number of patients (%)	Number of sessions (*SD*)	Number of females (%)	Age (*SD*)	Number Axis-II diagnosis (%)	Preparedness (*SD*)	Distress (*SD*)	Doubt (*SD*)
Still in treatment	61 (46.2)	23.3 (8.6)	39 (63.9)	34.2 (9.4)	19 (31.1)	41.7 (4.5)	16.4 (4.0)	19.0 (3.7)
Treatment drop-out	14 (10.6)	8.2 (4.1)	6 (42.9)	35.4 (10.9)	6 (42.9)	34.1 (6.0)	14.1 (3.4)	17.8 (2.9)
Early discontinuers	4 (3.0)	10.3 (4.6)	1 (25.0)	33.0 (10.0)	0 (0)	45.8 (3.8)	13.3 (7.4)	21.5 (1.7)
Referrals	7 (5.3)	14.5 (3.0)	5 (71.4)	43.0 (14.1)	3 (42.9)	44.2 (5.0)	17.9 (3.1)	13.8 (5.5)
Treatment completers	46 (34.8)	14.1 (7.2)	24 (52.2)	39.5 (11.4)	19 (41.3)	42.4 (5.2)	16.5 (4.3)	19.3 (3.7)

14.63, $p < .0001$). Next, preparedness, distress, and doubt were entered as independent variables in loglinear regression analysis. Again, consistent with SRP data, preparedness was a significant predictor of drop-out ($r = -.39$, $Wald = 14.61$, $p < .0001$). Distress or doubt did not contribute significantly any further to the drop-out prediction obtained. Discriminant analysis of the same data revealed identical results, yielding a canonical correlation of .46 for preparedness. An identical correctly predicted classification of drop-outs versus nondrop-outs was obtained from loglinear regression analysis and discriminant analysis. Ninety-eight percent of the patients were correctly classified as nondrop-outs, whereas only 23% of the patients were correctly classified as drop-outs. Given the large group size difference between the drop-out and nondrop-out group, however, a correct classification of patients based purely on chance ((111–14)/111 = 87%), cannot easily be improved upon.

Discussion

The purpose of this study was to test a new version of the NML. Based on studies using the earlier NML version, we had constructed an itempool presumed to reflect four different factors of patient motivation, namely active participation (12 items), distress (7 items), pressure from others (6 items), and expectancy (9 items). The presumed factors pressure by others and expectancy were not supported by PCA in this study. Four items of the former and three of the latter were removed because of low eigenvalues. The items of both presumed factors appeared to be too heterogenous or unclear.

Of the three factors yielded, Factor 1, preparedness, corresponded with the presumed factor active participation. Based on the factor-loadings, however, we decided to change its name. As has been noted above, its items were all positively skewed. They may therefore reflect social desirability responses. We do not feel, however, that this is a problem. Social desirability may be a facet of the patient's attitude towards treatment

that we are interested in. An item such as "I will do anything to get rid of my problems" appears an almost open door. Most patients tend to agree. On the other hand, a more reserved answer is conspicuous, indicating doubt about the patient's preparedness to take an active stance towards treatment.

In contrast to its content, the restricted response variance of the scale does constitute a problem for statistical analyses. Correlations with other variables may be low due to a lack of sufficient variance. Based on our experience with the same sort of skewed data from the previous version of the NML, we tried to solve this problem by increasing the range of response possibilities of the NML2 items from five to six. The response variance hardly increased, however.

The second NML2 factor corresponded with the presumed factor distress. The items are interesting because they indicate that distress as a consequence of the patients' problems is particularly felt in an interpersonal context. Patients feel ashamed or feel that they fail in their duty towards those around them.

The third NML2 factor, doubt, was unexpected. The factor includes items that were presumed to be part of active participation and expectancy. The items show a reserved attitude towards treatment, its requirements, or the possibilities of benefiting from it. Although it may be reasonable to assume that these items are positioned at the opposite side of the preparedness continuum, correlations between both factors, although negative and significant, are rather moderate, suggesting that both factors are conceptually different, or are at least responded to differently. In other factorial studies too, that of Rosenbaum and Horowitz (1983) for example, separate factors were found for motivation items stated in a positive way and motivation items stated in a negative way.

Despite the fact that the presumed factorial structure could only partially be confirmed, the three-factor solution obtained was stable and could be replicated by the data from the second administration of the NML2. Internal consistencies and re-test reliabilities of the three factors were reasonable, though not perfect. No data on construct or criterion validity were available in the present study. No instrument was available that could serve as an appropriate criterion measure for patient motivation. The predictive validity of the NML2, however, was supported by the current data.

It should be noted that the data obtained in the current study were by no means intended to offer conclusive answers in regard to treatment outcome prediction. The study was not designed to test the predictive value of the NML2 thoroughly, but rather to get a first impression of its possible potential for predicting fairly general outcome ratings. Nevertheless, the findings are clear. The total score of the NML2 significantly predicted proximal treatment helpfulness rated by the patients, and predicted treatment drop-out. Of the three NML2 factors, preparedness, distress, and doubt, preparedness significantly predicted proximal treatment helpfulness and drop-out. Distress and doubt did not significantly contribute any further to the prediction of proximal treatment helpfulness or drop-out. Several of the significant relationships in the present study almost reached .40. For prediction studies in which associates are tested between different (predictor, outcome) variables spread over a longer period, these findings are quite reasonable.

The present findings corroborate those of previous NML studies. In several of them, the total NML score was related to better treatment results and in most of them active

participation, corresponding with the preparedness factor of the NML2, predicted outcome or drop-out (de Haan et al., 1997; Hoogduin & Duivenvoorden, 1988; Keijsers et al., 1991, 1994a, b).

The question of how patient motivation affects cognitive-behavioural treatment outcome still remains. Cognitive-behaviour therapists have paid a great deal of attention to ways of motivating the patient to participate actively in treatment. The required active stance of the patients in cognitive-behaviour therapy is understandable: complaint reduction is principally attributed to the patients' accomplishment and implementation of more adequate coping behaviour to deal with their problems. Patient motivation conceptualized in terms of the patient's readiness to change affected treatment outcome in a number of studies. There is no empirical basis thus far for the notion that its effect on treatment outcome is mediated by actual cooperative behaviour on the part of the patient, measured, for instance, by homework or scheduling compliance.

The following explanation may be offered in accordance with Prochaska and DiClimente's stage model of change (Prochaska, DiClimente, & Norcross, 1992): patient motivation is not so much an associated factor of treatment outcome, but rather its first step. Change, in Prochaska and DiClimente's model, is characterized as a five-stage process. The stage in which the patients engage in particular actions intended to bring about change is preceded by two necessary stages of preparation. It can be argued that a patient who is motivated to engage him or herself in a treatment program, has already achieved successful change. The patient has succeeded in a transition from a stage in which problems or responsibility for them were denied, in which the consequences had to be endured and control seemed impossible, to a stage of acknowledging the problem and having decided to look for appropriate change strategies. This transition implies a number of altered beliefs about their problems. These altered beliefs may have been formed prior to admission for treatment, or may have resulted from the first interactions with the therapist who offered a treatment rationale, an acceptable, and appropriate treatment and a supporting therapeutic relationship. An unmotivated patient is still in a stage in which problems are not or not fully enough acknowledged and control or change are considered inappropriate or impossible. It is perhaps rather typical of cognitive-behaviour therapy that the patient's relief and the reduction in their demoralization and distress, encountered frequently in early treatment sessions, are considered as something nonspecific; as motivation or hope, but not as change. It appears to be inconceivable to cognitive-behaviour therapists that considerable symptom reduction takes place prior to the formal introduction of cognitive-behavioural techniques.

A number of shortcomings in the present study have to be pointed out. Regarding the construction of the NML2, replication of the factor solution in another sample, and preferably by another research group, is necessary. This is especially important because the identified factors were derived at statistically and were not in accord with the presumed factors at the start of the study. We did not, for practical reasons, select a homogeneous patient sample and we included data gathered from the first to the tenth treatment sessions. From a methodological point of view, it would have been better to have used a homogeneous group of patients and to have administered the NML2 at a fixed point in time, preferably prior to the first treatment session.

For statistical reasons, we narrowed the range of the NML2 item responses by adding score 3 and 4 of each item. We would recommend the use of a 5-point scale in further studies using the NML2, but have regretfully to admit that the presently yielded three-factor solution would then have to be reconfirmed.

With regard to outcome prediction, the present findings may be viewed as encouraging at best. In future studies, firm criteria for outcome, measured at a fixed point in time, should be employed. In addition to treatment outcome, we would also advocate further studies looking at drop-out prediction. We would recommend a better registration of drop-outs than was used in the present study: that is, drop-outs should be tagged immediately and asked if they would be interviewed by an independent assessor in order to learn their reasons for early treatment termination.

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