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Validation of the observational version of the motivation for treatment scale

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In this study, the psychometric properties of a clinician's observation version of Motivation for Treatment (MfT-O) were assessed and compared with the patient's version (MfT). The sample was composed of 243 inpatients that started inpatient treatment for substance dependence in The Netherlands. The EuropASI and the Motivation for Treatment (MfT) scales were administered to patients while the MfT-O was completed by clinicians during the first week of treatment. With minor adjustments, the MfT-O replicated the factorial structure of the MfT. The items were distributed into four scales: General Problem Recognition (PR1), Specific Problem Recognition (PR2), Desire for Help (DH), and Treatment Readiness. The MfT-O had an adequate reliability for all the scales (all $\alpha > 0.72$). The MfT-O was related to the severity of problems as assessed by the EuropASI. The DH MfT-O scale was more predictive of time in treatment than the DH MfT scale.

Keywords: *Motivation-for-treatment, clinician, assessment, substance dependence, validation, treatment*

INTRODUCTION

The role of motivation has been extensively documented in the alcohol and drug abuse treatment literature (Groshkova, 2010). The Motivation for Treatment (MfT) Questionnaire was developed by Simpson and Joe (1993) to assess motivation perceived as recognition of drug-related problems, desire for help, and treatment readiness. A low initial motivation for treatment has been related to failure of individuals to enter, continue in, comply with, and succeed in treatment (Broome, Joe, & Simpson, 2001; Hiller, Knight, Leukefeld, & Simpson, 2002; Simpson & Joe, 1993). There is also an important evidence that motivation is associated with other aspects of the treatment process such as the formation of better therapeutic relationships, more favorable perceptions of counsellors competence and support from peers, and increased session attendance (Broome, Simpson, & Joe, 1999; Nosyk et al., 2009; Simpson & Joe, 2004; Simpson, Joe, & Rowan Szal, 1997; Simpson, Joe, Rowan Szal, & Greene, 1997). However, some studies found no association between pre-treatment motivation and subjective reasons for dropout or treatment outcomes (Burke & Gregoire, 2007; Carroll et al., 2006; Gryczynski, Schwartz, O'Grady, & Jaffe, 2009; Ledgerwood & Petry, 2006; Nosyk et al., 2009).

Motivation has been operationalized to include the recognition of problems caused by drug and alcohol use, a readiness to change the behaviour, an interest and desire for help in making changes, and readiness to enter in a formal process to guide change and action steps that will help carry out the plan for change (De Leon, Melnick, & Tims, 2001; DiClemente, Schlundt, & Gemmell, 2004; Prochaska & DiClemente, 1992; Simpson & Joe, 1993). Research on

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motivation has focused on two concepts of readiness that, although related, have discrete aspects: readiness to change and readiness for treatment (DiClemente et al., 2004).

The transtheoretical model proposes five stages of motivational readiness to change: precontemplation, contemplation, preparation, action, and maintenance (Prochaska & DiClemente, 1992). DiClemente views readiness as preparedness, which he describes as a more pragmatic indicator of motivation. De Leon (1996) conceptualizes motivation in six pre-treatment stages: denial, ambivalence, extrinsic motivation, intrinsic motivation, readiness for change, and treatment readiness (De Leon, 1996). On the basis of De Leon's pre-treatment stage conceptualization, Simpson and Joe (1993) developed the Motivation for treatment (MfT) Questionnaire to assess three different motivation stages in drug abusers. The motivation scales included in the MfT are: recognition of drug-related problems, desire for help, and treatment readiness. The motivational steps described in Simpson and Joe's model concern motivation for treatment. For DiClemente (1999), treatment is a time-limited event that interacts with a larger process of change. Although conceptually different, motivation for change and motivation for treatment have similar progressive levels of change. For example, the Problem Recognition (PR) scale is related to movement from precontemplation to contemplation of change. The Desire for Help (DH) scale represents further cognitive movement towards an Action stage. Finally, the Treatment Readiness (TR) scale refers more closely to a decision for action in the form of specific commitments to formal treatment (DiClemente, 1999; DiClemente et al., 2004).

The MfT has been used to assess stages of treatment readiness and to predict outcomes for drug abuse treatment populations. Pre-treatment motivation, assessed by the PR and TR MfT scales, was related to retention in long-term residential, outpatient methadone, mandated residential, prison-based therapeutic community, and outpatient drug free treatments (De Leon, Melnick, & Kressel, 1997; De Leon, Melnick, Thomas, Kressel, & Wexler, 2000; Hiller et al., 2002; Joe, Simpson, & Broome, 1998). Higher TR was also significantly related to early therapeutic engagement in each modality (Joe et al., 1998). In addition, treatment readiness predicted treatment retention during 6-month and 1-year periods (Longshore & Teruya, 2006; Simpson & Joe, 2004).

A cross-cultural study in The Netherlands showed that the MfT scale was a valid instrument for measuring treatment motivation, both in drug and in alcohol-dependent patients (De Weert-Van Oene, Schippers, DeJong, & Schrijvers, 2002). However, the PR scale was found to have two dimensions, the recognition of general drug-related problems and the recognition of specific drug-related problems, instead of one as in the original MfT. Exploratory and confirmatory factor analysis replicated the factorial structure of the DH and TR scales as in the original version.

An alternative approach to assess stages of motivation is to use clinical judgment. Studies have found that clinicians are a key factor influencing treatment outcome and retention, accounting for more variance in patient outcomes than do differences between treatments or patients' baseline characteristics (Najavits, Crits-Christoph, & Dieberger, 2000; Najavits & Weiss, 1994). Clinicians often determine a client's motivational readiness through observation, without formal assessment. Although clinical judgment of motivation has been found to be predictive of outcome (Brown & Miller, 1993), it is often imperfect and inaccurate. Moreover, clinicians' confidence in their judgments has been found to be unrelated to the accuracy of the judgment (Garb, 1989). However, the judgment of clinicians concerning motivation is often a starting point in treatment. One of the major limitations is the absence of structured assessment formats, which are recommended to improve the clinical judgment.

An additional argument for a clinician-based assessment of motivation is the level of (dis)agreement between the clinician's and the patient's reports on motivation. Careful assessment at treatment entry, as well as monitoring throughout the treatment process provides meaningful feedback to both patient and clinician (Harmon, Hawkins, Lambert, Slade, & Whipple, 2005; Lambert, Harmon, Slade, Whipple, & Hawkins, 2005). Studies have found that assessment with feedback in routine practice improved adherence to treatment in patients with multiple substance use disorder (Raes, De Jong, De Bacquer, Broekaert, & DeMaeseneer, 2011). Comparing the outcomes of both subjective and objective assessments provides material for discussion between patient and clinician as they seek mutual agreement on treatment objectives and expectations. Such agreement has been found to be a necessary prerequisite for positive treatment outcomes in substance abuse patients (Joosten, 2009; Joosten, De Jong, De Weert-Van Oene, Sensky, & van der Staak, 2009; Joosten, De Weert-Van Oene, Sensky, van der Staak, & De Jong, 2011).

Additionally, in view of the contradictory results in studying the predictive value of patient's motivation for compliance with treatment, it could be worth exploring whether or not a more objective assessment of motivation by the clinician might be a better predictor of treatment retention.

Based on the motivational model of Prochaska and DiClemente (1992), Hodgins (2001) developed a clinician version of the Readiness to Change Questionnaire. Although the internal consistency was adequate, the factorial structure of this instrument was not evaluated (Hodgins, 2001). Hodgins compared the clinician's report with the patient's self-report of the RCQ and found a rather good agreement ($r = 0.43–0.82$) in stages of change in continuous measures but not in the assignment to categorical

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stages (kappa = 0.35). However, the author did not relate clinician's and patient's reports to the duration of treatment.

To date, there is not a clinician version of the MfT based on the motivational model of Simpson and Joe. In the Netherlands, a treatment modality was initiated by the mid-1990s, called Inpatient Treatment Motivational Centres (IMC). These IMC offer a 3-months program for long-term drug users who are considered to be therapy-resistant. IMC's offer a low-threshold facility where these patients can recover and reinstate themselves. The program is concentrated around motivating the patients for further treatment. To assist these centers in their program, a clinician observational version of the MfT was developed in order to assess the motivational treatment readiness of drug-dependent patients on the basis of clinical report and to give feedback to the patients to get them involved in their own motivational process (Holsbeek, De Weert-Van Oene, Roomer, & De Jong, 2010). The aims of this study are twofold: to assess the psychometric properties of the MfT-O, and to compare this observational version with the patient's self-report (MfT), particularly in relation to the prediction of the duration of treatment.

METHOD

Sample

The sample was composed of 243 inpatients who consecutively started treatment for substance dependence in two IMC's in The Netherlands (Iriszorg $n = 100$ and Novadic-Kentron $n = 143$). The main problem for all patients was drug dependence. The most consumed substances were: cocaine (82.2%), heroin (74.7%), alcohol (56%), and cannabis (54.7%). 68.2% of patients were poly drug users. Demographic data and characteristics of the patients are presented in Table 1.

Instruments

Motivation for treatment

For this study, the version for alcohol and drug abusers adapted in The Netherlands was used (De Weert-Van Oene et al., 2002). The scale assesses the motivation for treatment that the patient manifests to have through 22 items that are distributed into three main scales: Problem Recognition (PR), Desire for Help (DH), and Treatment Readiness (TR). The PR scale includes four items that address the recognition of general problems (PR1) and five items that address specific problems related to substance abuse (PR2). The DH scale is comprised of five items that assess general interest in getting help for dealing with substance problems. The TR scale consists of four items that describe outside pressure and four items that refer to internalized motivation for treatment. In the three scales, the answers are scored on a five-point Likert scale, ranging form strongly disagree to strongly agree. Higher scores

Table 1. Demographic data and patient characteristics.

Characteristic	$N = 243$
Gender (%)	
■ Female	21.8
Age, mean (SD)	38.2 (7.5)
Marital status (%)	
■ Single	92.6
■ Married	6.1
■ Other	1.3
Ethnicity (%)	22.2
■ Non-Dutch ethnicity	
History of substance use (%)	
■ <5 years of consumption	7.0
■ 5–10 years of consumption	12.3
■ ≥10 years of consumption	71.6
ASI severity scores, mean (SD)	
■ Physical health	2.82 (2.2)
■ Education and employment	4.44 (1.68)
■ Alcohol use	2.65 (2.73)
■ Drug use	5.81 (1.74)
■ Legal	4.28 (2.09)
■ Social/family	4.31 (1.67)
■ Psychological health	4.55 (1.85)
Number of substances used, mean (SD)	4.65 (2.11)

in each scale reflect greater motivation. The scale was found to have adequate factorial validity (exploratory and confirmatory), construct validity, and internal consistency in drug abusers and alcohol-dependent patients (De Weert-Van Oene et al., 2002).

Motivation for treatment-observational

It is based on the MfT for alcohol and drug abusers in The Netherlands (De Weert-Van Oene et al., 2002). The MfT-O was composed of 22 items with responses ranging from *strongly disagree* to *strongly agree* on a five-point Likert scale. Higher scores in each scale reflect greater motivation. Items were modified to be appropriate for observation. For example MfT-item 1 ''Taking substances or gambling constitutes for me a problem'' was changed in the MfT-O into ''I think that taking substances or gambling is experienced by my patient as a problem.'' All items were kept in the same order as in the MfT version. The MfT-O was formed using four scales: General Problem Recognition (PR1 four items), Specific Problem Recognition (PR2 five items), Desire for Help (DH five items), and Treatment Readiness (TR eight items). Items for each scale are presented in Table 2.

EuropASI

The European version of the Addiction Severity Index (McLellan, Luborsky, Woody, & O'Brien, 1980) is a semi-structured questionnaire for the assessment of the severity of drug and alcohol dependence in six areas of functioning: physical health, employment, alcohol and/or drugs use, legal, family/social, and psychiatric.

Table 2. EFA of MFT-O in patients with drug problems.

	PR1 EV: 3.12	PR2 EV: 1.22	DH EV: 2.51	TR EV: 2.86
In my opinion, taking substances or gambling is experienced by my patient				
1. As a problem	0.78			
2. As more trouble than it's worth	0.65			
3. As causing problems with the law		0.32		
4. As causing problems in thinking or doing his/her work		0.71		
5. As causing problems with his/her family or friends		0.54		
6. As causing problems in finding or keeping a job		0.49		
7. As causing problems with his/her health		0.62		
8. As making his/her life become worse and worse	0.52			
9. As going to cause his/her death if he/she does not quit soon.	–			
Desire for help				
10. My patient needs help in dealing with his/her drug/alcohol use or gambling habits			0.69	
13. It is urgent that my patient finds help immediately for his/her drug/alcohol use or gambling habits			0.74	
15. My patient is tired of the problems caused by drugs/alcohol/gambling			0.66	
21. My patient wants to get his/her life straightened out			0.63	
18. My patient can quit using drugs/alcohol or gambling without any help			–	
Treatment Readiness				
11. My patient has too many outside responsibilities now to be in this treatment program				0.54
12. This treatment program seems too demanding for my patient				0.44
16. This kind of treatment program will not be very helpful to my patient				0.49
17. My patient plans to stay in this treatment program for a while				0.54
19. My patient is in this treatment program because someone else made him/her come				0.49
20. This treatment program can really help him/her				0.72
22. My patient wants to be in a drug/alcohol/gambling treatment program				0.65
14. This treatment program may be his/her last chance to solve his/her drug/alcohol/gambling problems				–
Explained variance	21.52	19.38	39.40	31.65

Note: EV = eigenvalue.

The severity scores on the subscales range from ''0'' (not really a problem, treatment not necessary) to ''9'' (extremely serious problem, treatment necessary). The instrument proved to have reliability and replicate the original factorial structure in Dutch alcohol-dependent individuals and in a drug abuser population (DeJong, Willems, Schippers, & Hendriks, 1995; Hendriks, Kaplan, Van Limbeek, & Geerlings, 1989).

Duration of treatment
This variable refers to the total number of days the patient stayed in treatment.

Procedure
The MfT scale and the EuropASI were completed by the patient after signing a written informed consent during the first week of treatment. The administration of the EuropASI was performed by a trained interviewer who had received the official training in The Netherlands for the EuropASI. The MfT-O scale was completed by a clinician who was working with the patient in the inpatient unit during the first week of the patient's treatment. In this study, 21 clinicians (14 female and seven males) were involved in the data collection. The clinicians participating in the study represented a variety of disciplines including mental health practitionersing ($n = 1$), nurses ($n = 7$), and social workers ($n = 13$). Each clinician had been working in addiction treatment for a minimum of 2 years. No special training on the assessment tool or the stages of change was provided for this study. Each clinician assessed approximately 16–20 cases. Clinicians were blind to the patient's MfT in order to keep their observational assessment independent.

Data analyses
The analysis of data followed the procedure of the validation of the MfT in The Netherlands (De Weert-Van Oene et al., 2002). The SPSS 15.0 program was used in the data analyses (SPSS for Windows, 2006). The sample size was adequate for the number of variables involved in the study. Nunnally (1978) recommended having 10 times as many participants as variables (Nunnally, 1978). In this research, there were 243 patients and 22 variables so the criterion was clearly fulfilled.

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First, item-scale correlation was calculated to check the discriminative power of items, correlations greater than 0.30 were considered capable of discriminative power. Then, exploratory factor analysis (EFA) was applied to each scale using principal axis factor as the extraction method and VARIMAX rotation. For the EFA, eigenvalues greater than 1 were chosen to determine that an extracted factor accounted for a reasonably large proportion of the total variance. Factor loadings of 0.40 or greater were considered for item retention.

Confirmatory factor analysis was conducted using Amos 5 (Arbuckle, 2003) to test the scale's composition as previously found in the exploratory analysis. Competing models were also tested with the original items of each scale to evaluate the model that best fit the data. Once the final composition of the MfT-O scale was defined, descriptive statistics, intercorrelation of the scales and reliability analyses were calculated.

Bivariate correlations were carried out between the MfT-O and the ASI scores. Paired t-tests and bivariate correlation were used to compare the MfT-O and MfT. Finally, a stepwise linear regression was performed with the duration of stay in treatment measured in days as dependent variable. MfT-O and MfT scores, patients' age, ASI severity scores, and the difference between MfT-O and MfT scores in the DH and TR scales were included as independent variables.

RESULTS

Exploratory and confirmatory factor analysis
A discriminant analysis of items of the MfT-O was performed for each of the factors separately. Item 9 of the PR scale (...*as going to cause his/her death if he/she does not quit soon*), was removed due to its low discriminative power. With the remaining items, an EFA was carried out. Principal axis extraction in each of the three dimensions separately was used for factor identification with VARIMAX rotation. The results of the EFA are presented in Table 2.

The PR scale was found to have two factors that explained 40.9% of the variance. Item 3 (...*as causing problems with the law*) did not load satisfactorily (>0.40) onto factor 2. Thus, the first factor Problem Recognition-General retained three items while the second factor Problem Recognition-Specific retained four items. Confirmatory factor analysis demonstrated a good fit of the two factor solution with the items 9 and 3 excluded ($\chi^2 = 14.90$, df $= 13$, $p > 0.31$, χ^2/df ratio $= 1.14$, NFI $= 0.95$, CFI $= 0.99$, TLI $= 0.98$). The model including items 9 and 3 was also tested but did not have a satisfactory fit ($\chi^2 = 72.45$, df $= 26$, $p > 0.001$). Considering that the original MfT found a one-factor model to be the best fit for the PR scale, a single factor model was tested for the MfT-O but the fit was not satisfactory ($\chi^2 = 13.66$, df $= 27$, $p > 0.001$).

The DH scale proved to be unidimensional, explaining 39.40% of the variance. Item 18 (*my patient can quit using drugs/alcohol or gambling without any help*) did not load satisfactorily (>0.40), thus only the remaining four items were included in this scale. Confirmatory factor analysis supported the four-item model ($\chi^2 = 5.54$, df $= 2$, $p > 0.06$, χ^2/df ratio $= 2.77$, NFI $= 0.97$, CFI $= 0.98$, and TLI $= 0.89$). The five-item solution was also tested but the model did not fit satisfactorily ($\chi^2 = 13.56$, df $= 5$, $p > 0.01$).

The TR scale was also found to be unidimensional for an eight-item solution that explained 31.65% of the variance. Item 14 (*this treatment program may be his/her last chance to solve his/her drug/alcohol/gambling problems*) did not load satisfactorily (>0.40) in the EFA. The confirmatory factor analysis was first tested with the seven items but the model did not fit the data adequately ($\chi^2 = 35.08$, df $= 14$, $p > 0.03$). The eight-item model was then tested showing a satisfactory fit although near the level of significance ($\chi^2 = 31.30$, df $= 20$, $p > 0.05$, χ^2/df ratio $= 1.56$, NFI $= 0.90$, CFI $= 0.95$, TLI $= 0.91$).

After the removal of two items from PR1 and one item from the DH scale, the MfT-O was found to have the same factor structure as the MfT for the DH and TR but had a two-item solution for the problem Recognition scale. The MfT-O scales were finally formed as: Recognition of General Problems (PR1, three items), Recognition of Specific Problems (PR2, five items), Desire for Help (DH, four items), and Treatment Readiness (TR, eight items).

Internal consistencies mean scores and interscale correlations
Internal consistencies of the new scales were calculated using Cronbach's alpha. All scales had adequate reliability (all $\alpha > 0.72$). For the complete scale, the alpha coefficient was 0.87. Internal consistency coefficients are presented in Table 3, as well as means and standard deviations of the four scales.

Overall scale means were computed by first reverse scoring the negative items, then calculating a total score for the items and dividing them by the number of items in the scale. The item scores ranged from 0 to 4. The mean scores for the four scales ranged from 2.47 in the PR2 scale to 2.98 in the PR1 scale.

Inter-scale correlations were computed and are presented in Table 3. All scales were significantly correlated. In particular, the DH scale showed a high correlation with PR1 ($r = 0.76$) and TR ($r = 0.72$). In general, adjacent scales had higher correlations, as is consistent with the theory of stages of motivation (Simpson & Joe, 1993).

MfTO and EuropASI
In order to assess the correlation between the MfT-O scales and the EuropASI severity scores, the Pearson bivariate correlations were calculated. Results are presented in Table 3. The severity of drug use (area 4) was

Table 3. Interscale correlations, scale reliability of MfT-O, and correlation with the ASI severity scales.

	PR1	PR2	DH	TR
PR1	–			
PR2	0.43**	–		
DH	0.76**	0.27**	–	
TR	0.57**	0.18*	0.72**	–
ASI scales				
Physical health	−0.03	0.10	0.09	−0.11
Education and employment	−0.03	0.13	−0.12	−0.07
Alcohol use	0.01	−0.07	−0.01	0.08
Drug use	0.12	0.10	0.13	0.24**
Legal	0.02	0.02	−0.01	0.16
Social/family	0.19*	0.18*	0.28**	0.28**
Psychological health	0.14	0.11	0.22*	0.07
Cronbach's alpha	0.74	0.72	0.77	0.75

Note: *$p < 0.05$; **$p < 0.01$.

Table 4. Correlations, paired t-tests, and mean scale scores of MfT-O and MfT.

Scales	MFTO		MFT		r	t
	Mean	SD	Mean	SD		
PR1	2.97	0.66	2.99	0.80	0.12	−0.33
PR2	2.47	0.76	2.57	0.84	0.22*	−1.11
DH	2.90	0.64	3.19	0.59	0.12	−4.40*
TR	2.67	0.48	3.12	0.50	0.08	−8.21*

Note: *$p < 0.01$.

associated with the observed TR. The most important associations were found for the social and family severity (area 6), being correlated with all MfT-O scales. The severity of Psychological Health (area 7) was associated with DH. No significant correlation was found for the Education and Employment area with any of the MfT-O scales.

MfT-O and MfT

In order to assess the association between the motivation for treatment observed by clinicians (MfT-O) and the motivation for treatment reported by patients (MfT), bivariate correlations were computed between the MfT and MfT-O. Both measurements were administrated in the first week of treatment. Means and standard deviations for both instruments are presented in Table 4.

No significant correlations were found in the Recognition of General Problems PR1 ($r = 0.12$), the DH ($r = 0.12$), and the TR ($r = 0.08$) between clinicians' and patients' reports. However, a significant correlation was found for the PR2 ($r = 0.22$, $p = 0.01$), although the correlation coefficient was rather weak.

In addition, paired t-tests were performed to compare MfT and MfT-O scale scores. Significant differences were found for DH ($t = −4.40$, $p < 0.001$) and TR ($t = −8.21$, $p = 0.00$), with means significantly higher in the patients' reports.

MfT-O and MfT and the prediction of duration of stay in treatment

The mean duration of stay in treatment was 44.32 days (SD = 33.97) with a minimum of 2 days and a maximum of 130 days. A Stepwise Linear Regression analysis was carried out using the MfT, MfT-O, and the severity of drug-related problems measured by the ASI scores as independent factors and the total days in treatment as the dependant variable. Since the age of patients was the most significant covariant in the study of Joe, Simpson, and Broome (1998), it was also included as an independent variable. In addition, considering the differences previously found between patients' and clinicians' scores in the DH and TR subscales, they were included as new variables in order to test whether these differences were relevant predictors of duration of treatment.

A significant model emerged for the duration of stay in treatment ($R^2 = 0.08$, $F = 7.78$, df = 91, $p < 0.001$) with the MfT-O DH scale as the only significant predictor ($B = 12.41$, $t = 2.79$, $p < 0.001$). Although the prediction of duration was not high (only 8%), the DH observed by clinicians in the first week of treatment was found to be the best predictor of treatment retention.

DISCUSSION

In this study, the psychometric properties of the MfT-O, a clinicians' report of motivation, was analyzed for drug abusers in inpatient treatment in The Netherlands. The MfT-O with minor modifications was found to replicate the same factorial structure as the MfT in The Netherlands and the original MfT formulated by Simpson and Joe (1993). From the original 22 items, three items were removed. The General Problem Recognition scale is comprised of three items that address the clinician's observation of the patient's recognition of general problems. The Specific Problem Recognition scale is comprised of four items to assess the clinician's observation of the patient's recognition of substance abuse problems. The Desire for Help scale includes four items that refer to the clinician's observation of the patient's general interest in getting help for dealing with substance problems, and the Treatment Readiness scale contains eight items that describe the clinician's observation of the patient's external motivation from outside pressures for staying in treatment, as well as internalized motivation.

The MfT-O shows adequate reliability for all the scales (all $\alpha > 0.72$), thereby exceeding reliability scores of the original MfT (alphas from 0.64 to 0.90). In addition, alphas of the MfT-O were higher than the

ones found in the Dutch version of the MfT (from 0.55 to 0.76). Perhaps, because the study was based on patients with different severity of drug addiction, some of them received short-term treatments but others were referred to medium-term and long-term treatment units (De Weert-Van Oene et al., 2002). In this study, observations were made during the first week of a 3-month program for long-term drug users. The shared time of assessment, type of program, and homogeneity of the patient population may have contributed to the better internal consistency.

The MfT-O scores were found to be related to the severity of drug-related problems as assessed by the EuropASI. The more significant relations were found between ASI Social and Family Problems (area 6) and TR and DH scales, and between ASI Drug Use (area 4) and TR scale. Previous studies using the MfT found that patients who had problems in ASI Education and Employment (area 2) had higher scores on PR2 (De Weert-Van Oene et al., 2002; Simpson & Joe, 1993). Simpson and Joe (1993) suggested that the association between problem severity and MfT DH and TR is less significant because DH and TR reflect a more complex cognitive assessment. In an observational version, however, a more complex assessment of motivation can be expected. It should be noted that, although correlations between MfT-O and EuropASI were not strong (ranging from 0.18 to 0.28), they are similar to the ones reported between MfT and ASI in previous studies (De Weert-Van Oene et al., 2002; Simpson & Joe, 1993). This implies that the severity of addiction problems is weakly associated to both the observed and perceived motivation for treatment.

An additional finding is that in the first week of treatment, the motivation for treatment reported by the patient and the one observed by the clinician are different. Patients perceive themselves as more motivated than their clinicians do. In other words, the motivation reported by patients and the one observed by clinicians is not statistically associated in the first week of treatment. This is in concordance with the view that MfT and MfT-O provide different perspectives on motivation for treatment. Clinicians observed significantly lower desire for help and treatment readiness of their patients, than the patients did.

To date, there was no study that compared perceived and observed motivation for treatment in relation to the duration of stay in treatment. In many studies, motivation for treatment has been found to be a predictor of treatment retention; however, the present results do not support such prediction. This study supports those studies that found no association between pre-treatment motivation and dropout or treatment outcomes (Ball, Carroll, Canning Ball, & Rounsaville, 2006; Burke & Gregoire, 2007).

Nevertheless, in this study the observed motivation was the only significant predictor of the total days of treatment. The explained variance found in this study was rather low (8%), however it was similar to the results of other studies concerning the contribution of motivation to treatment outcome (Demmel, Beck, Richter, & Reker, 2004). This brings to question whether observed motivation should be used as a significant predictor of the duration of stay in treatment, and suggests that future studies of observed and perceived motivation should focus on other variables related to the patient's progress in treatment. It is also possible that time in treatment is not a good outcome measure since it depends on both patient and program characteristics. Although the intended duration of the IMC program was 3 months, some patients stayed up to 5 months. In some cases, this was the result of unavailability of follow-up facilities and had no association with patient's motivation or severity of drug problem. For this reason, the way of leaving (i.e., dropout, stepout, referred to a new treatment modality, and completers) may be a more appropriate outcome measure to use in future studies.

Concerning the MfT-O, it would also be important to examine the validation of the instrument for patients in other types of treatment and substances of abuse (i.e., alcohol), since the MfT-O was only validated for patients in a medium-term inpatient drug-related treatment in The Netherlands. The sample used in this study was composed mainly of male patients who have been consuming drugs for over 10 years. Future studies should investigate the validation and use of the instrument in other type of substance abuse patients and treatment modalities.

In addition, the consistency of observer rating of motivation with patient report is needed to systematically demonstrate before its implementation in the motivational treatment process. It would also be relevant to control for the different backgrounds and experience of clinicians which may have affected the reported observations in this study. Providing a formalized rater training for the MfT-O may be necessary to close this gap.

Another point to mention is the fact that data were collected from two different IMC's, so organizational factors may have influenced treatment outcomes. Future studies should analyze similarities and discrepancies in outcomes among facilities.

Although, in practice, the observed motivation is considered and many times included as a starting point for treatment, this is usually an informal and unsystematic assessment. This study provides a structured and valid instrument to assess the clinician's observed motivation for treatment of the patient, being equivalent in format and conceptualization to the patient's self-report of motivation.

The assessment of both subjective patient-reported motivation and objective clinician-reported motivation should be included in treatment planning since they provide additional information of patient's motivation for treatment, supporting the process of shared-decision making. Clinicians often have informal assumptions about the reasons, why patients apply for help and

orient their therapeutic work based on those assumptions. However, in many cases these assumptions do not reflect the patient's actual motivation. The awareness of clinician's assumptions about patient motivation is also of importance because clinicians may be more positive, engaging, and tend to have different attitudes towards patients whom they perceive to be more motivated at the start of treatment. This may be the mechanism by which they influence treatment outcome as already mentioned in the Section ''Introduction'' (Najavits et al., 2000). Results of this study found that clinicians observed a significantly lower desire for help and treatment readiness than the patients reported. If clinicians are unaware of the actual motivational goals of patients and make assumptions without investigating or verifying these assumptions, patients and clinicians may be working toward very different goals. In that case, a premature and unsuccessful treatment may be expected (Raes et al., 2011). Discrepancies in observed and reported motivation could be a good subject of discussion in the patient–therapist treatment process and in the motivational process (Joosten, 2009). The inclusion of both instruments of assessment would facilitate the motivational treatment process.

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