



0306-4603(94)00072-7

## INITIAL MOTIVATIONS FOR ALCOHOL TREATMENT: RELATIONS WITH PATIENT CHARACTERISTICS, TREATMENT INVOLVEMENT, AND DROPOUT

RICHARD M. RYAN

University of Rochester

ROBERT W. PLANT

Child and Family Agency

STEPHANIE O'MALLEY

Yale University School of Medicine

**Abstract** — This study examines (a) the relation of initial treatment motivations to alcoholics' involvement in outpatient treatment and dropout and (b) the relations among patient characteristics, severity, alcohol expectancies, motivation, and treatment retention. A treatment motivation questionnaire (TMQ) was developed to assess both internalized and external motivations for treatment, as well as confidence in the treatment and orientation towards interpersonal help seeking. In Study 1, the TMQ was administered to 109 outpatients entering an alcoholism clinic. Based on these data the scale was revised and was administered to a subsequent sample of 98 subjects seeking treatment. Information about demographic variables, measures of substance use, alcohol expectancies, and psychiatric severity was also gathered. Eight weeks after intake, outcome was evaluated through attendance records and clinician ratings. Results revealed that internalized motivation was associated with greater patient involvement and retention in treatment. Subjects high in both internalized and external motivation demonstrated the best attendance and treatment retention while those low in internalized motivation showed the poorest treatment response, regardless of the level of external motivation. Problem severity was also related to a greater degree of internalized motivation. The importance of initial motivations in understanding treatment response and dropout is discussed.

Motivation is considered a critical component of a person's readiness for interventions intended to change behavior (Deci & Ryan, 1985; Prochaska & DiClemente, 1983). The fact that alcoholics often are perceived as poorly motivated by themselves (Coney, 1977) and their therapists (Nir & Cutler, 1978) suggests that motivational issues may be particularly formidable in alcohol rehabilitation programs. Indeed, lack of motivation is one of the most frequently cited reasons for patient dropout, failure to comply, relapse, and other negative treatment outcomes.

Despite the presumed importance of motivation to therapeutic outcome, the empirical evidence has been mixed. Some researchers (Finlay, 1977; Orford & Hawker, 1974) have failed to find a relationship between an alcoholic's willingness to partici-

This project was aided in part by grants from the National Institute of Child Health and Human Development (HD19914) to the Human Motivation Program at the University of Rochester; from the National Institute of Alcohol Abuse and Alcoholism (R1AA09538) to Stephanie O'Malley; and by funds provided by the Sterling Institute.

The authors would like to thank the patients and staff of the Connecticut Mental Health Center Alcohol Treatment Unit for their participation. Thanks also to Elizabeth Whitehead, Geof Williams, Ed Deci, and others for their input to this manuscript.

Requests for reprints should be sent to Richard M. Ryan, Department of Psychology, Meliora Hall, University of Rochester, Rochester, NY 14627.

pate in treatment and outcome, whereas others (Goldfried, 1969; Gossop, 1972; Smart & Gray, 1972) have found motivation to be related to outcome.

One reason the empirical literature does not uniformly corroborate what is viewed as intuitively correct may have to do with the way motivation is defined and operationalized. Gossop (1972) argues that the definition of motivation is often too global and theoretically unsophisticated to be of empirical value. Miller (1985), in a review of the literature, notes that motivation often is inferred from the client's behaviors (i.e., outcomes) that motivation is intended to predict. That is, the definition is circular. Such perspectives suggest that the predictive utility of motivational indices could be enhanced if approached with greater theoretical clarity.

The purpose of this paper, accordingly, is twofold. The first goal is to discuss a conceptualization of motivation based in self-determination theory (Deci & Ryan, 1985, 1991) that views motivation as stemming from both internal and external sources, and predicts differences in motivation as a function of its source. Secondly, we report on the development of a scale to assess treatment motivation, using this theoretical base, that we apply to the prediction of dropout in an outpatient alcoholism clinic. We turn first to theoretical issues and then to the current empirical endeavor.

### *Self-determination and motivation*

The most obvious motivational questions asked in the context of treatment are, "How much motivation does this individual possess?" or "How motivated is the patient for treatment?" However, the level or strength of motivation is only one aspect of motivational dynamics. A second question involves the source of the motivational influence, or why one is pursuing treatment. In the terminology of attribution theories, this why question concerns the *perceived locus of causality*<sup>1</sup> for behavior (deCharms, 1968; Ryan & Connell, 1989).

According to self-determination theory (Deci & Ryan, 1985) one has an *external* perceived locus of causality (PLOC) to the extent one sees forces outside the self as initiating, pressuring, or coercing one's action. Conversely, an *internal* PLOC is evident to the extent that one feels oneself to be the initiator and sustainer of one's actions. People with an internal PLOC thus feel self-determined in that they see their behavior as stemming from their own choices, values, and interests, whereas those with an external PLOC experience their behavior as controlled by some external event, person, or force.

As pointed out by Ryan and Connell (1989), the issue of perceived locus of causality is a matter of degree. At the extreme nonself-determined end of this continuum, one is *externally* propelled into action by the demands or controls of others. A somewhat less external, but yet not fully autonomous, form of motivation is represented by *introjection*, in which a person is motivated to act in accord with internalized demands and prescriptions that are based in approval needs. In introjection a person behaves in order to maintain self- and other approval and to avoid guilt or anxiety. On the self-determined end of the continuum, a person can be either *intrinsic*

<sup>1</sup>The concept of *perceived locus of causality* (PLOC) grows out of the attributional literature of Heider (1958) and concerns the perceived source of or impetus to action. PLOC should not be confused with the concept of *locus of control* (e.g., Rotter, 1966) which concerns whether one perceives a contingency between one's behavior and outcomes. Indeed, one could easily perceive oneself as being able to control an outcome and yet still feel that the impetus to action is external to oneself. Discussions of the relations between these constructs can be found in deCharms (1981) and Deci and Ryan (1985, 1987).

*cally motivated* (i.e., motivated by interest and challenge) or motivated through *identifications*, which represent personal values and commitments that one fully endorses as one's own. In both these cases, one has a perceived internal locus of causality, in that one sees one's actions as fully an expression of the self.

A large body of experimental and field research has supported the view that one's perceived locus of causality makes a functional difference for one's persistence and performance in various settings. Laboratory studies have shown greater persistence at and enjoyment of tasks when conditions support an internal PLOC (see Deci & Ryan, 1987, for a review). Additionally, a variety of studies in applied domains such as education (Ryan & Stiller, 1991; Vallerand & Bissonette, 1992), religion (O'Connor & Vallerand, 1990; Ryan, Rigby, & King, 1994); sports (Frederick & Ryan, in press); and work settings (Deci, Connell, & Ryan, 1989) have demonstrated that the nature of one's motivation and the outcomes accrued from it are influenced by the degree to which one experiences an internal as opposed to external PLOC.

A number of previous studies suggest that PLOC may be an important variable for understanding motivation in treatment studies. A few early studies demonstrated that conditions that induced an external perceived locus causality for behavior change (e.g., telling patients that changes were due to the action of a new drug) resulted in less maintenance of treatment gains (e.g., Davison & Rosen, 1972; Davison, Tsujimoto, & Glaros, 1973). More recently, Curry, Wagner, and Grothaus (1990) showed that smokers who cited more intrinsic rather than extrinsic reasons for quitting were more likely to evidence maintained abstinence. In a subsequent study, these same authors showed that a smoking intervention using extrinsic incentives, that theoretically induced an external PLOC for behavior change, resulted in less success than a more internally based motivational approach (Curry, Wagner, & Grothaus, 1991).

Such findings concerning perceived locus of causality converge with other recent perspectives on motivation and adherence in treatment settings, highlighting the importance of patient initiation and volition for treatment participation and outcome maintenance. For example, Miller and Rollnick (1991), discussing alcohol and substance abuse interventions, argue that an approach that emphasizes choice and elicits the patient's willingness and assent regarding treatment can significantly increase success rates. Kaplan (1984) has shown that "activated" patients, who are prepared to take responsibility in the context of treatment, show better outcomes from care for a variety of problems. Finally, Williams, Quill, Deci, and Ryan (1991) illustrated how physician interventions affect patients PLOC and thus affect outcomes.

In the alcoholism treatment literature, perceived locus of causality may be particularly relevant to practitioners. It is, for example, well documented that many alcoholics are coerced into treatment (i.e., referred under various contingencies) and that frequently the sources of coercion are the courts or other legal authorities (Greenberger, 1983; Shaw, Cartwright, Spratley, & Harwin, 1978). Although the effectiveness of such "coercive" referrals remains a debatable topic (Polk, 1984; West, 1980), the evidence generally indicates that patients self-referred for treatment show the lowest dropout rate and the best treatment outcomes, whereas those referred by impersonal sources such as the police or the courts have the highest dropout and poorest outcomes (Altman, Evenson, & Cho, 1978; Baekeland & Lundwall, 1975). In a review of the motivational forces involved in enforced treatment of alcoholics, Miller (1985) concluded that mere external initiation was not associated with in-

creased treatment retention and that increased compliance resulting from external pressure is not necessarily related to superior outcome. Furthermore, Miller noted that when contingencies are time-limited, not surprisingly, compliance lasts only as long as the contingency is in effect (i.e., there is little maintenance or transfer of treatment gains). This is consistent with Deci and Ryan's (1985) perspective, which argues that maintained success in treatment depends on the development of self-determination for change.

It is important to note, however, that external events, such as statements from relatives or legal directives to seek treatment, can promote an external or internal locus of causality and subsequently affect motivation depending on whether the event is perceived as providing information or as controlling (Deci & Ryan, 1985; Plant & Ryan, 1985; Ryan, 1982; Ryan, Mims, & Koestner, 1983). In the case of legal referral for treatment, for example, it is most likely that the threat of legal action will promote an external locus of causality and result in compliance, passive-aggressive acting out, or outright defiance. However, it remains possible that the threat of legal action could be perceived as information signaling that the alcoholic has reached "bottom." In this case, such an external impetus may coincide with an alcoholic's own internalized motivation to change and thus actually facilitate treatment participation. Thus, the *functional significance* (Ryan & Grolnick, 1986; Deci & Ryan, 1985) or meaning of the events prompting an individual to seek treatment must be taken into account when evaluating motivation.

The primary purpose of the present study is to examine how differences in perceived locus of causality for treatment may influence persistence versus dropout in an outpatient alcohol treatment program. Specifically, it is predicted that more self-determined motivation for entering a treatment program will be associated with greater persistence, whereas nonself-determined motives will not. It is also expected that motivational variables will mediate between participation outcomes and predictor variables that have often been used in the literature on alcohol treatment compliance (e.g., demographics, substance use variables, psychiatric severity, and alcohol expectancies). While some of the effects of these variables on dropout may be direct, most are expected to be mediated by motivation.

Two other constructs related to treatment initiation are also explored. One concerns patients' confidence in treatment, which we expect to be positively related to internal motivation and to persistence. Second, we examine patients' openness and willingness to receive interpersonal help. Again we expect that those with strong internal motivation for treatment will be more willing to accept help from others, whereas those who are more externally motivated will indicate resistance to interpersonal help.

To examine these hypotheses, two studies are presented. The first study represents an attempt to develop a psychometrically sound measure of PLOC for patients seeking alcohol treatment, as well as the confidence and help-seeking dimensions mentioned above. A second study replicates the questionnaire analysis and applies the new measure to the prediction of dropout in an outpatient treatment sample.

#### STUDY 1: PRELIMINARY QUESTIONNAIRE DEVELOPMENT

##### *Method*

*Subjects.* A sample of 109 consecutive admissions at an outpatient alcohol and drug treatment unit were administered the Treatment Motivation Questionnaire

(TMQ). The sample was predominantly male (76%) with an average age of 30.5 years. Sample characteristics are presented in Table 1.

*Procedures.* The TMQ was included in the standard packet of preintake forms subjects completed in the waiting room prior to their first screening appointment. Completion of the TMQ was voluntary and anonymous. Subjects seeking treatment for either alcohol or drug abuse were eligible to participate.

*Measures.* The TMQ was developed to assess levels of psychological internalization of the reasons for entering and remaining in treatment. Questionnaire construction is based on Deci and Ryan's (1985) work on the role of self-determination and internalization in motivation for psychotherapy. It is similar to questionnaires used successfully to evaluate school (Ryan & Connell, 1989), religious (Ryan et al., 1994), relationship (Blais et al., 1990), and sport (Vallerand & Reid, 1990) motivation among other issues (see Ryan, 1993). For the purposes of the current study, three types of motivation presumed to vary in terms of PLOC were conceptualized and items were developed to tap these types: (a) *external motivation* — characterized by seeking treatment out of a recognition of external forces demanding or pressuring involvement in treatment (e.g., "If I remain in treatment it will probably be because I'll get in trouble if I don't"); (b) *introjected motivation* — characterized by internal conflict whereby forces such as guilt or shame underlie the individual's treatment participation ("If I remain in treatment it will probably be because I'll feel very bad

Table 1. Sample characteristics for both Studies 1 and 2

	%	Mean	SD
Study 1 (n = 109)			
Sex (% male)	76		
Age		30.5	8.31
SMAST		4.9	4.22
BDI		15.7	13.34
Study 2 (n = 98)			
Sex (% male)	73		
Age		31.6	7.80
Education		12.25	1.75
BDI		8.06	8.98
SMAST		5.51	4.41
Marital status			
Married	16		
Separated	10		
Divorced	20		
Widowed	1		
Single	53		
Referral source			
Legal	63		
Self	19		
Family	2		
Employer	2		
Friend	14		
Race			
Caucasian	80		
African-American	19		
Hispanic	1		
Employment status			
Employed	66		

about myself if I don't"); and (c) *identified motivation* — characterized by less internal conflict and involving self-regulation through a personal identification with the goals of treatment ("If I remain in treatment it will probably be because it's in my best interest to complete treatment").

A number of additional items were included to examine two other variables deemed relevant to treatment persistence: (a) *confidence in treatment* — reflecting the patients' feelings of competence and expectancies of successful treatment outcome; and (b) *interpersonal help seeking* — the patient's willingness to relate and share concerns with others.

### Results

TMQ items were first sorted into the three a priori categories listed above to determine their fit with a quasi-simplex model (see Ryan & Connell, 1989). A strong association between items reflecting introjection and identification indicated a two-category structure to the motivation items. Accordingly, all TMQ items were subjected to a principal components analysis (varimax rotation). Factor loadings and labels are presented in Table 2. An item factor loading cutoff of .50 was employed. A four-factor solution was obtained, with no significant cross loadings, consisting of an 11-item internal-motivation factor, a 6-item interpersonal-help-seeking factor, a 3-item confidence-in-treatment factor, and a 4-item external-motivation factor.

The *internalized motivation* factor consisted of items reflecting identified and introjected motivational dynamics (e.g., "I came for treatment at the clinic because I really want to make some changes in my life;" "If I remain in treatment, it will probably be because I'll feel very bad about myself if I don't"). Thus, respondents tended not to distinguish between these two item types, both of which reflect internalized (but not necessarily fully self-determined) motivation. The *external-motivation* factor consisted of items reflecting the subject's perceived lack of choice in seeking treatment and the experience of external pressure to remain in treatment (e.g., "I don't really feel like I have a choice about staying in treatment"). The *interpersonal-help-seeking* factor measured motivation to share problems and relate to others during the course of treatment (e.g., "I look forward to relating to others who have similar problems"). The *confidence-in-treatment* factor consisted of items reflecting the subject's expectation of a positive treatment outcome (e.g., "I am confident this program will work for me").

After obtaining the factors described above, two items were written to add to the confidence in treatment factor ("I doubt that this program will help me solve my problem with alcohol;" "I am not convinced that this treatment will help me to stop drinking") in order to increase its reliability. The revised 26-item TMQ was administered in Study 2.

### Brief discussion

This initial foray into the development of a motivational assessment suggested that the most parsimonious structure of the questionnaire's motivational items might lie in two factors: namely, an *external* factor representing pressure or coercion by others to be in treatment and a "mixed" internalized factor, combining both introjected and identified reasons. This internalized factor thus contains reasons for treatment participation that reflect both a personal commitment to change and a desire to change based on guilt and anxiety concerning one's drinking. Whether or not the strong association between introjection and identification is common among alcohol

Table 2. Factor loadings of the TMQ items in Sample 1 (S1; *n* = 109) and Sample 2 (S2; *n* = 98)<sup>a</sup>

Abbreviated item content	Internalized motivation		External motivation		Help seeking		Confidence in treatment	
	S1	S2	S1	S2	S1	S2	S1	S2
Came for treatment because I want to make changes	.66	.61						
Won't feel good about myself unless I get help	.87	.76						
Came for treatment because I feel guilty	.81	.74						
Came for treatment because it's important to me personally	.69	.60						
Will feel bad about myself if I don't remain in treatment	.93	.86						
It's in my best interests to complete treatment	.82	.52						
Will feel like failure if I don't remain in treatment	.78	.79						
Remaining in treatment is the best way to help myself	.93	.69						
Came to treatment because I was interested in getting help	.82	.76						
I am responsible for this choice of treatment	.52	.52						
Chose treatment because it's an opportunity to change	.84	.61						
Referred for treatment by legal system			.71	.64				
Will get in trouble if I don't remain in treatment			.54	.51				
I don't feel I have a choice about remaining in treatment			.74	.77				
Came to treatment because I was pressured to come			.69	.76				
I want to relate with others in the program					.87	.79		
I want to share my concerns and feelings					.98	.73		
It will be important to work closely with others					.67	.78		
I look forward to relating to others with my problems					.87	.68		
Relief to share my concerns with others					.80	.81		
I accept the fact that I need help and support					.58	.64		
I am not sure this program will work for me							-.88	-.77
I am confident this program will work							.52	.57
I doubt program will help me stop drinking							n/a	-.56
I don't think program will help me solve my problems							n/a	-.74
Not confident I will get results from treatment this time							-.84	-.63

<sup>a</sup> Only factor loadings above .50 are listed.

treatment patients is a dynamic question that requires further study. Nonetheless, these internalized motives were distinguished from more direct external motivators to enter and stay in the program. The factor analysis also revealed separate factors for confidence in treatment and help seeking as described.

A major shortcoming of this factor analytic approach was the small number of patients involved. As a result, the factor analytic outcomes should be treated as tentative and in need of replication. Study 2 will attempt to provide such a replication and will apply derived factors to the prediction of patients' attendance and dropout status.

## STUDY 2: TMQ REPLICATION AND PREDICTION OF DROPOUT

### *Method*

*Subjects.* To examine the scale properties of the revised TMQ and assess the ability of the instrument to predict retention in alcoholism treatment, a second sample of 100 subjects was selected from patients seeking outpatient treatment for alcohol abuse. Only subjects deemed appropriate for treatment at the unit were included in the study, as determined by the unit clinician who performed the initial screening interview. Subjects were excluded from the study if at initial screening they (a) required detoxification from alcohol or drugs; (b) were immediately referred elsewhere for treatment; (c) could not speak English; (d) could not read; or (e) were intoxicated on alcohol at the time of the interview (blood alcohol content above 0.5%). Two subjects were dropped from the analyses due to incomplete data, resulting in a final sample of 98. Sample characteristics are presented in Table 1.

Descriptive statistics revealed that 57 (58%) of study participants dropped out of treatment and 41 (42%) had remained in treatment by the eight-week follow-up. None of the early dropouts were appropriate terminators. The mean number of sessions attended was 4.34 ( $n = 98$ ,  $SD = 2.66$ ) and the mean number of scheduled sessions missed was 1.63 ( $n = 98$ ,  $SD = 1.23$ ).

*Procedure.* Upon reporting to the clinic for the initial screening interview, all subjects filled out the BDI and the SMAST (see the next section, Measures) as standard clinic procedure. Each patient was then interviewed by a staff clinician who screened the patient for treatment appropriateness, collected clinic intake data, a breathanalysis, and a urine sample for toxicology screening, and then filled out the clinician rating form (CR-I). Subjects who were appropriate for treatment/evaluation at the clinic were immediately asked to participate in the study and then were given questionnaires and a structured interview. Due to a low rate of participation, procedures were changed after the first 23 subjects, so that subjects were offered \$10 for participating.

On each Friday during the eight-week follow-up, the primary clinician responsible for the subject's treatment at the unit completed a patient-attendance form. At eight weeks from the day of the initial screening interview, clinician ratings at follow-up (CR-F) were obtained.

### *Measures*

#### 1. Measures collected at intake

*Beck Depression Inventory (BDI).* The BDI is a widely used, reliable, and valid self-report measure of depression (Beck et al. 1961). The inventory contains 21

items, each consisting of a graded series of four to five statements. The statements are given numerical ranks from 0–3 based on the degree of severity of depression that statement represents. An impressive body of research supports the BDI's utility (Beck, Steer, & Garbin, 1988).

*Short Michigan Alcoholism Screening Test (SMAST).* The SMAST is a widely used 13-item paper-and-pencil measure of symptoms of alcohol abuse, which had been shown to be reliable and valid in screening for alcohol abuse problems (Selzer, 1971; Selzer, Vinokur, & Rooijen, 1975; Pokorny, Miller, & Kaplan, 1972). Scores on the SMAST may range from 0–13 with a score of 3 or more indicating a significant problem with alcohol.

*Treatment Motivation Questionnaire (TMQ).* The TMQ is a 26-item paper-and-pencil measure of a patient's motivation for treatment as described in Study 1.

*Addiction Severity Index (ASI).* The ASI (McLellan et al., 1980) is a structured clinical interview for the evaluation of alcohol and drug abuse. The index yields severity ratings and composite scores in each of seven areas: (a) alcohol abuse, (b) drug abuse, (c) medical condition, (d) psychiatric condition, (e) legal problems, (f) family functioning, and (g) employment and financial support. Evaluation of the instrument at three treatment centers supported its reliability and validity (McLellan et al., 1985). All interviewers in the study underwent three hours of training, which included rating of two mock interviews. Scale anchors were discussed for each rating until consensus was achieved. ASI interviews typically took 20–30 minutes.

*Alcohol Expectancy Questionnaire (AEQ).* The AEQ is a 90-item questionnaire assessing the anticipated positive consequences of alcohol use (Brown, Goldman, Inn, & Anderson, 1980). Six alcohol expectancies are measured: (a) global positive changes, (b) sexual enhancement, (c) social and physical pleasure; (d) social assertion, (e) tension reduction, and (f) arousal with feelings of power. The questionnaire has been shown to have adequate reliabilities (Brown & Goldman, 1981).

*Clinic information form (CIF).* Demographic data was collected on a clinic-generated information form. This form included data on referral source, chief complaint, pattern of substance use, treatment history, social and occupational stability, and demographic variables.

*Clinician ratings at intake (CR-I).* Clinicians completing the intake interview used a 1–7 scale anchored by "not at all true" and "very true" to rate each subject on (a) overall level of disturbance, (b) overall level of motivation, and levels of (c) external, (d) introjected, and (e) identified motivation.

*Blood Alcohol Content (BAC).* Subjects' BAC was measured with a noninvasive, digital electronic breathalyzer (ALCO-SENSOR, manufactured by Intoximeters Inc., St. Louis, MO), which provides a visual readout accurate to .005% of blood alcohol level).

*Other drug use.* The use of illicit drugs was assessed through subjects' self-reports and a urine toxicology screen for drugs of abuse. Urine samples were sent out to an independent laboratory for analysis utilizing high performance thin-layer chromatography (Ciantro, Jankovich, & Dhar, 1985) with positive test confirmation by the EMIT immunoassay technique. Drugs tested for in the standard screen include morphine, quinine, codeine, cocaine, amphetamine, barbiturate, benzodiazepine, and THC.

## 2. Outcome measures

*Attendance.* Measures of attendance were obtained from eight weekly patient attendance forms that included the number of therapy-evaluation sessions attended,

and sessions missed during an eight-week period beginning on the day of the initial interview.

*Treatment status.* Treatment status was determined eight weeks after the initial screening interview. Clinician ratings at follow-up and attendance records were reviewed and all subjects who remained in treatment were classified as treatment retainers. Those subjects no longer in treatment at the eight-week follow-up were classified as dropouts or appropriate terminators based on the judgment of the treating clinician.

*Clinician ratings at follow-up (CR-F).* The CR-F is a five-item scale completed by each subject's primary clinician at the time of follow-up. The clinician answered questions about the subject regarding: (a) whether they were still in treatment, (b) reason for termination, (c) degree of improvement, (d) current use of alcohol, and (e) level of involvement in treatment.

### Results

*Factor structure of the TMO.* Data from the administration of the revised TMQ ( $n = 98$ ) was analyzed in a principal components factor analysis (varimax rotation), using an item factor loading cutoff of .50. A four-factor solution that replicated the previous factor structure was obtained. The two items added during the revision fell on the confidence-in-treatment factor, as expected. Factor loadings and item labels are presented in Table 2. The factors were internally consistent with coefficient alpha levels ranging from .70 to .98. The final version of the TMQ was thus a 26-item scale with four factors: internalized motivation (11 items), interpersonal help seeking (6 items), confidence-in-treatment (5 items), and external motivation (4 items).<sup>2</sup>

Because the sample size in Studies 1 and 2 was low for a reliable factor analysis, the two samples were merged for purposes of a third principle components (varimax) analysis of all overlapping items. As would be expected, this factor analysis, representing 207 subjects, resulted in the same item loading patterns as those reported in Table 2 for the two samples separately.

*Other preliminary analyses.* A series of multiple-regression analyses were performed in which dropout status was regressed onto gender (orthogonally contrast coded), TMQ variables, and interaction terms. There were no gender effects or gender  $\times$  TMQ interactions. Data are collapsed across gender in subsequent analyses.

Several analyses were run to determine whether the change in experimental procedure (regarding payment for participation) that was instituted after the 23rd subject (see Method section) affected outcome, motivation, or clinician ratings. First, a series of one-way ANOVAs were run in which data from the first 23 and the last 75 subjects were compared on the Clinician Ratings at Intake and TMQ variables. A significant effect was found on the clinician rating of overall disturbance,  $F(1, 97) = 9.71, p < .01$ , indicating that the first 23 subjects received higher ratings on overall disturbance than did the last 75. All other ANOVAs were nonsignificant. A  $\chi^2$  analysis was run in which the dropout rate for the first 23 and the last 75 subjects was compared. This analysis was nonsignificant,  $\chi^2(1, n = 98) = .01, n.s.$  Data for the

<sup>2</sup>It is important to note that the typical relationship expected between external, introjected, identified, and intrinsic motives is not that of independent factors, but rather a simplex, or ordered correlation matrix in which motives more clearly aligned in terms of PLOC are more highly correlated (Ryan & Connell, 1989). However, the small number of motive categories did not support simplex modeling (Guttman, 1954) nor did correlational analysis support disaggregation of introject and identification scores within these samples, as also indicated in the analysis reported.

Table 3. Intercorrelations of TMQ factors and correlations of TMQ with clinician ratings (CR) of motivation and overall disturbance at intake

	Internalized	External	Help seeking	Confidence in treatment
TMQ external	-.29**			
TMQ help-seeking	.86***	-.30**		
TMQ confidence	.42***	-.48***	.39***	
CR disturbance	.28**	-.24*	.26**	
CR motivation	.67***	-.35***	.57***	.40***
CR external	-.59***	.41***	-.51***	-.38***
CR introjected	.37***	-.33***	.34***	.20*
CR identified	.64***	-.37***	.56***	.40***

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

first 23 and last 75 subjects were collapsed together for subsequent analyses.

*Correlations of TMQ scales with each other and with clinical ratings.* TMQ subscale scores were created by reversing the sign of items that loaded negatively and then summing the items within each factor. Table 3 presents the correlations between the TMQ scores and their correlations with clinician ratings.

In line with the a priori meaning of the TMQ factors, internalized motivation is significantly negatively related to external motivation and positively related to interpersonal help seeking and confidence in treatment. External motivation is negatively related to help seeking and confidence. TMQ help seeking is positively related to confidence in treatment.

Support for the construct validity of the TMQ is provided by the pattern of correlations between TMQ factor scores and clinician ratings at intake (19 of 20  $r$ s significant at  $p < .05$ ). TMQ internalized motivation and interpersonal help seeking show parallel relations with clinician ratings, being positively related to ratings of overall disturbance, overall motivation, identified motivation, and introjected motivation, and negatively related to ratings of external motivation. This pattern suggests that those individuals who perceive themselves as internally motivated for treatment are less likely to feel pressured and more likely to express a willingness to engage actively with others in the treatment program. As would be predicted, TMQ external motivation shows an opposite pattern of correlations. TMQ external motivation is positively related to clinician ratings of external motivation and negatively to overall motivation, introjection, identified motivation, and to overall degree of disturbance. TMQ confidence in treatment is unrelated to ratings of overall disturbance, negatively related to external motivation, and positively related to ratings of overall, introjected, and identified motivation. This pattern of scores suggests that individuals who perceive treatment as forced or pressured on them have little confidence that treatment will be effective and may either present themselves or be perceived as less disturbed than those who are more internally motivated.

The relations between TMQ variables and a variety of psychological indices relevant to addiction are presented in Table 4. The pattern of correlations between internalized motivation and severity measures (Beck, SMAST, and ASI Severity Ratings) suggests that greater problem severity is associated with higher levels of internalized motivation and interpersonal help seeking (12 of 16  $r$ s positive and significant, average  $r = .31$ ). In general, greater problem severity was negatively related to external motivation, although these relations were neither as strong nor as

Table 4. Correlations between TMQ factors and depression (BDI), alcoholism (SMAST), addiction severity (ASI), alcohol expectancy (AEQ), and other predictor variables

	Internalized	External	Help seeking	Confidence in treatment
BDI	.45***	-.21*	.35***	
SMAST	.42***	-.21*	.29**	
ASI legal		.28**		-.30**
ASI family	.29**		.23*	
ASI psychiatric	.37***	-.27**	.36***	
ASI medical			.24*	
ASI employment/supp.	.29**		.32***	
ASI ETOH	.54***	-.26**	.43***	
AEQ physical	.32***			
AEQ global	.50***		.39***	
AEQ assertion	.41***		.30**	
AEQ tension reduct.	.41***		.32***	
Referral source	.58***	-.50***	.56***	.26**
No. prev. txs				-.25*
Last use of ETOH		-.24*		.23*
AA or NA	-.30**		-.28**	

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

consistent as those found for internalized motivation, interpersonal help seeking, and problem severity.

Few of the demographic or substance use variables had significant associations with other variables of interest, including TMQ scores. Those variables that demonstrated a significant relation with the TMQ are also presented in Table 4.

*Relations between the TMO and outcome.* The relations between the TMQ and outcome variables were initially explored through correlational analyses. TMQ internalized motivation was, as hypothesized, positively related to the number of sessions attended, and to clinician ratings of the degree of involvement in treatment ( $r_s = .20$  and  $.23$ , respectively, both  $p < .05$ ). TMQ internalized motivation and dropout status were also related ( $r = -.23$ ,  $p < .05$ ) indicating that subjects with higher levels of internalized motivation were less likely to drop out. TMQ external motivation was unrelated to number of sessions attended, treatment involvement or dropout. However, external motivation was negatively related to the number of sessions missed while in the program ( $r = -.19$ ,  $p < .05$ ). TMQ interpersonal help seeking was positively related to the number of sessions attended ( $r = .18$ ,  $p < .05$ ) and involvement in treatment ( $r = .20$ ,  $p < .05$ ). Finally, the TMQ confidence in treatment factor was positively related to involvement in treatment ( $r = .24$ ,  $p < .05$ ) and negatively to dropout ( $r = -.19$ ,  $p < .05$ ).

To explore the interaction between internalized and external motivation as they affect outcome, both variables were orthogonally contrast coded using a median split and entered into a  $2 \times 2$  ANOVA with the composite outcome score as the dependent measure. Results of this analysis revealed the predicted main effect for internalized motivation,  $F(1, 95) = 8.71$ ,  $p < .01$ ; a marginal effect for external motivation  $F(1, 94) = 3.30$ ,  $p < .08$ ; and a significant internalized  $\times$  external interaction  $F(1, 94) = 3.42$ ,  $p = .05$ . A post hoc comparison of cell means using Duncan's Multiple Range Test revealed that the "high internalized-high external" cell mean was significantly different from all others, indicating that treatment retention is maximized when both

internalized and external motivation are high. The significance of initial motivation scores and the relative insignificance of the other predictors in relation to outcome highlights the importance of initial internalized and external motivation.

*Correlations between other intake variables and outcome.* Exploratory correlational analyses examined the effects of potential predictor variables on dropout and outcome. None of the correlations between dropout status and demographic variables reached significance. Similarly, measures of substance use as reflected by SMAST scores and number of positive drug screens were not predictive of dropout status, sessions missed, or number of sessions attended. Also, none of the measures of psychiatric severity (ASI-Psychiatric, BDI, CR-Disturbance) was significantly related to dropout or outcome. Of the AEQ factors, only the AEQ Global and Assertion of Power subscales were significantly related to risk for dropout ( $r = -.24$ ,  $p < .05$ ). Yet, contrary to previous research, subjects with more positive expectancies about the effects of alcohol were *more* likely to remain in treatment.

### *Path models*

To explore the relations between predictors, motivation, and outcome, a path model was proposed in which TMQ internalized and external motivation mediated between predictors (demographics, psychiatric severity, and substance use) and outcome variables. No direct relations between predictors and outcomes were posited, since predictors were expected to operate through their effects on motivation.

To facilitate these analyses it was first necessary to reduce the number of predictor and outcome variables. Three higher order factor analyses were conducted toward this end.

In the first analysis, all predictors that showed a significant relationship to motivation or outcome were transformed into z-scores and entered as items in a higher order factor analysis (varimax rotation). A .50 item-loading cutoff was used. A four-factor solution was obtained. Factor I, a five-item factor, was labeled a General Problem Severity Factor. A three-item legal-problems factor emerged as Factor II. Factor II was a four-item alcohol problem severity factor, and Factor IV was a two-item factor reflecting medical/employment problems. Variable content and factor loadings are presented in Table 5. Factor scores were created by multiplying individual scores by their factor weights and summing the items in each factor.

A second principal components factor analysis with varimax rotation was conducted on the three objective outcome variables. A single, three-item factor emerged (i.e., number of sessions attended, number of sessions missed, and dropout status). Factor scores were created by multiplying the factor scores by their factor loadings and then summing the items for each factor.

Utilizing the same procedure outlined above, a third factor analysis was performed on the clinician ratings at follow-up (CR-F). A single four-item factor emerged, and factor scores were obtained in the same manner as described above.

Having created three sets of composite scores, one for predictors and two for outcomes, a two-step regression analysis was performed. First the "independent" variables of TMQ-internalized, TMQ-external, and the four predictor variables (general severity, legal problems, alcohol severity, and medical/employment problems) were entered into two simultaneous regression analyses to predict the two composite outcome measures (objective measures and clinician ratings). Second, TMQ-internalized and TMQ-external were each separately regressed onto the four predictors, again using a simultaneous regression procedure. From these sets of regressions,

Table 5. Factor loadings from the higher order factor analysis of predictor variables

Item	Factor 1	Factor 2	Factor 3	Factor 4
	General severity	Legal problems	Alcohol problems	Medical/ employment problems
Beck	.60			
SMAST			-.70	
ASI-medical				-.87
ASI-employment				-.55
ASI-alcohol	.70			
ASI-drug	.60			
ASI-legal		.71		
ASI-family	.74			
ASI-psych.	.70			
Referral source		-.66		
Last use ETOH		-.61		
No. prev. Tx.			-.79	
AA or NA			.63	
Resid. stabl.			-.50	

standardized regression coefficients were obtained and tested for significance. Significant relations are depicted in Figure 1.

As predicted, there are significant relations between predictors and motivation and between motivation and outcome. Direct relations between predictors and outcome are in general nonsignificant, with the exception of a direct negative relation between legal problems and clinician ratings at outcome. General severity is positively related to internalized motivation which is in turn positively related to outcome. Legal problems are negatively related to internalized motivation, positively related to external motivation, and negatively related to clinician ratings at outcome. Interestingly, even though internalized and external motivation have opposite relations to legal problems, both motivational variables have significant positive relations to outcome. These findings suggest that there may be at least two processes contributing to compliance with treatment. Individuals who experience legal or other pressures to participate in treatment and those whose participation in treatment is more freely chosen and motivated by a concern over the severity of the problems they suffer are both motivated to comply with treatment, although presumably for different reasons.

#### DISCUSSION

A primary purpose of the study was to examine the influence of patients' perceived locus of causality for entering treatment on treatment persistence and involvement. In addition, background factors associated with differences in motivational orientation were also of interest. To examine these issues we attempted to construct a measure of initial treatment motivation that was conceptually based, had a stable factor structure and reasonable construct validity, and most importantly would be a significant predictor of treatment dropout. In these respects the study appears to have been successful. The final 26-item version of the TMQ consisted of four factors: internalized and external motivation; interpersonal help seeking; and confidence in treatment. Replication of the factor structure across both Samples 1

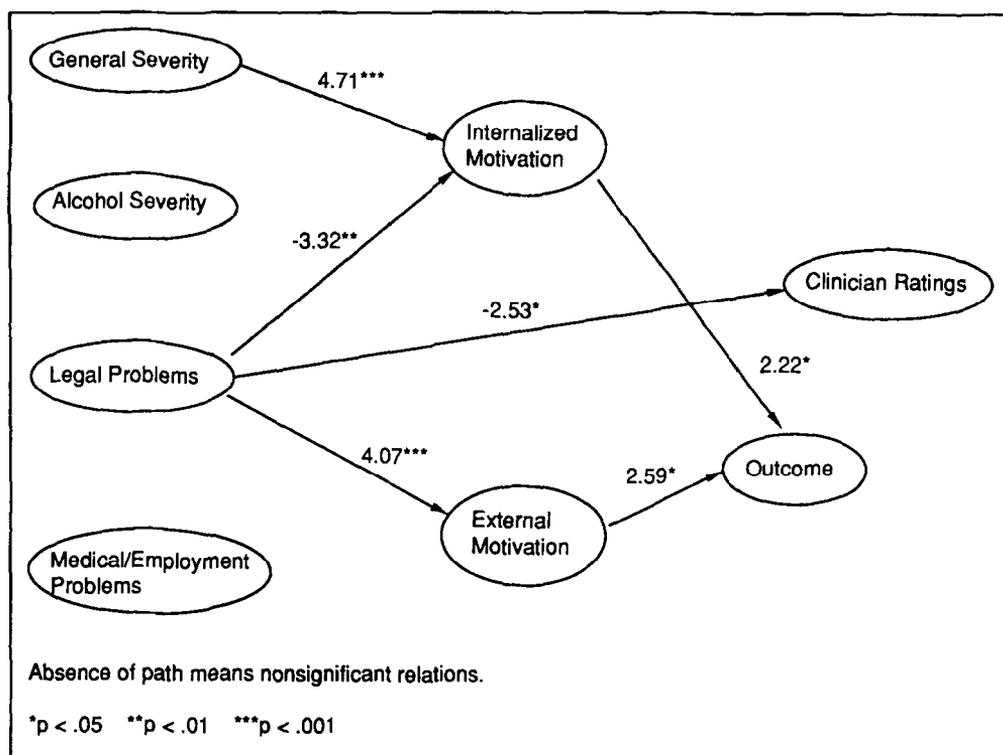


Fig. 1. Path model of relations among predictor variables, internalized motivation, external motivation, and outcome.

and 2 supported its stability, particularly for the internalized and external motivation factors. Also, the scale factors correlated meaningfully with each other and with various clinician ratings of motivation. Notably, internalized motivation was associated with both greater confidence in treatment and with an orientation toward interpersonal help seeking.

Contrary to our original expectations (e.g., Ryan & Connell, 1989), items selected for inclusion in the TMQ did not differentiate between introjected and identified sources of motivation. Items reflecting both introjected and identified motivation loaded on the same factor, accordingly labeled internalized motivation. Because in other domains introjection has been differentiated from identification, the potential substantive implications of this finding are intriguing. One possibility is that the experience of guilt and/or shame as a motive is relatively normative for those actively seeking treatment for alcoholism and thus accompanies and is intertwined with their sense of the importance and value of treatment. This hypothesis awaits further study.

As predicted, higher initial internalized motivation for treatment was positively related to outcomes at eight weeks. This reflects our reasoning that perceived locus of causality with respect to treatment is an important element in retention (Deci & Ryan, 1985). However, results also pointed to a complex relationship between internalized and external motives. Specifically, results revealed a significant interaction between internalized and external motivations, indicating that those who are *both*

internally and externally motivated are the most likely to persist in treatment. It is noteworthy, however, that external motivation appears to be positively related to outcome *only* when it is accompanied by internalized motivation. In treating alcoholics, then, it appears that external pressure in the form of a legal referral or family pressure is most likely to be effective when it co-occurs with internalized reasons for seeking treatment.

Unlike the TMQ variables, demographic indices generally did not show a direct relationship to outcome. Only legal referral versus other referral predicted outcome as measured by clinician ratings at follow-up. Legal referrals were rated more negatively than other referral sources on clinician ratings of improvement in psychiatric symptoms, alcohol use during treatment, and involvement in treatment. Legal referral was also negatively related to the composite measure of clinician ratings. The lack of significant findings regarding demographic variables parallels previous research in which demographic variables have been, for the most part, weak and inconsistent predictors of treatment outcome. Findings regarding legal referral may reflect clinician biases against those referred through the legal system, although it does not appear that these biases have a significant effect on more objective measures of outcome.

The influence on outcome of problem severity, legal involvement, and alcohol-related expectancies appears also to be largely indirect. The TMQ factor scores, for example, showed consistent univariate relationships to measures of problem severity and alcohol expectancies, suggesting that greater problem severity and more positive expectancies about the effects of alcohol are related to higher levels of internalized motivation and a willingness to seek interpersonal help in treatment. As shown in the path analysis, general severity and legal problems were related to measures of motivation, which in turn were related to outcome. Thus, some level of emotional distress, life problems, or psychiatric disturbance may be necessary in order for individuals who are appropriate for outpatient treatment of alcoholism to be sufficiently motivated to follow through with treatment recommendations. This confirms the "common wisdom" of Alcoholics Anonymous, which maintains that alcoholics must "hit bottom" before they are ready to begin recovery. Although each person's "bottom" may be different, these findings suggest that the severity of symptoms of anxiety, depression, or other forms of emotional distress may be a more significant measure of "hitting bottom" than drinking measures.

One limitation of this research is the limited amount of variance accounted for by the TMQ. However, it is important to note that the TMQ was designed to tap only patients' *initial* motivations for treatment. Obviously, many other factors ultimately represent additional sources of variance in patient attendance, involvement, and dropout, including the treatment climate, therapist variables, and changes in motivation during the course of treatment. For example, Miller, Benefield, and Tonigan (1993) recently showed that confrontive behavior by therapists (which we would assume promotes an external perceived locus of causality for change) predicted greater drinking at one-year follow-up among problem drinkers. Conversely, Williams et al. (1994) in a quite recent study of weight loss among morbidly obese patients found that more autonomy-supportive styles among the treatment staff predicted increased internalized motivation, which in turn resulted in greater maintenance of weight loss over a two-year period. Such studies indicate that the locus of causality for change continues to be a dynamic influence even after treatment begins. Yet despite the existence of multiple influences on participation and outcomes, initial

motivation was nonetheless a significant predictor of treatment retention and response, suggesting that efforts to enhance the patient's experience of internalized motivation may be helpful. Such efforts could focus on providing patients with choices, the opportunity for active participation in treatment planning, and an emphasis on their ongoing autonomy within the treatment process (Deci & Ryan, 1985; Miller & Rollnick, 1991; Williams et al., 1991).

In sum, this study examined the role of initial motivation in the alcoholic's response to treatment and outlined a method for measuring motivational constructs. It is hoped that this will encourage other investigations to further explore the perceived locus of causality issue with regard to substance abuse treatment as well as other domains. Dropout remains a significant problem in psychotherapy, substance abuse treatment, and health care. Understanding motivational dynamics is an important step in designing interventions to improve motivation, treatment retention, and ultimately the maintenance of treatment gains.

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