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## Factors affecting motivation during the first six weeks of treatment

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### Abstract

Since the new conceptualization of motivation as a product of interpersonal exchanges, clinicians and researchers have shown a growing interest in understanding the process of and identifying factors increasing motivation for treatment. Elaborated from the self-determination theory, a motivational model was tested among 140 participants (recruited in a public outpatient readaptation center for substance-related disorders) who persevered in treatment for at least 6 weeks. The results support the usefulness of the self-determination theory in the field of motivation for treatment of substance-related disorders, and suggest some recommendations to enhance motivation: therapists must pay attention to the progression toward goal attainment and foster the perception of competence of their clients; treatment centers should offer a context that supports autonomy and that involves significant others. © 2002 Elsevier Science Ltd. All rights reserved.

*Keywords:* Motivation for treatment; Self-determination theory; Substance abuse; Perseverance; Retention factors

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### 1. Introduction

“Motivation is the key to success.” Who has never heard such a statement? As part of our daily life, motivation also plays an important role in the treatment of substance-related disorders. It influences patients to seek, complete, and comply with treatment as well as to

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sustain long-term change in their consumption (DiClemente, Bellino, & Neavins, 1999). Not surprisingly, therapists and clients often cite lack of motivation as the main cause for dropping out of treatment (Miller, 1985; Ryan, Plant, & O'Malley, 1995). However, a literature review (Miller, 1985) concluded that initial motivation, often defined as a stable characteristic of the client, does not predict perseverance in treatment and favors moralistic attributions of blame when treatment fails. Consequently, one of the most important shifts in thinking during recent years has been the conceptualization of motivation as the product of interpersonal exchanges (Miller & Sanchez, 1994). In this view, settings and people someone interacts with both affect motivation.

This new conceptualization of motivation implies that, when faced with poorly motivated clients, clinicians still have a basis on which to promote an effective treatment, namely, their own influence on the motivation of the clients. This new conceptualization fostered many studies to better understand motivation and especially how to enhance it. However, these studies are difficult to compare because researchers used different definitions, models or theories, and various tools to assess motivation. Furthermore, the concepts of motivation for change and motivation for treatment are sometimes confounded (DiClemente et al., 1999). Though these concepts are surely correlated, they are not synonymous: Someone may be motivated to change without any intention to pursue a particular treatment. One can change by oneself, attend self-help groups, or choose another treatment setting. Conversely, another person can be very motivated to persevere in treatment because of external pressures without showing any intention to change.

According to Vallerand and Thill (1993), motivation is a hypothetical construct used to describe the internal or external forces producing the initiation, direction, intensity, and persistence of a behavior. Thus, motivation for treatment can be defined as the whole set of forces that determine entry, commitment, and perseverance in treatment. Moreover, motivation is a dynamic process, not a static condition; the strengths of motives fluctuate over time (Reeve, 1992). Accordingly, the assessment of motivation should be done more than once during treatment (Kludt & Perlmutter, 1999; Yahne & Miller, 1999).

### *1.1. Stages of change*

In the field of substance-related disorders, three main perspectives directed the research on motivation during the last decade: stages of change (Prochaska & DiClemente, 1986), social learning theory (Bandura, 1977), and motivational interventions (Bien, Miller, & Tonigan, 1993; Miller & Sanchez, 1994).

The model of motivation proposed by Prochaska and DiClemente (1986) is certainly one of the most popular among researchers and clinicians in substance-related disorders. This dynamic model described five stages through which change takes place: from being unaware of the problem to considering change, to making the decision to change, to following the planned action into sustained recovery. Overall, empirical studies support the model (Bergeron, Landry, Brochu, & Cournoyer, 1997; DiClemente & Hughes, 1990; Isenhardt, 1994). However, this model does not explain why some people change whereas others do not (Davidson, 1992; Prochaska & DiClemente, 1986).

More recently, De Leon (1996) proposed another model of stages of change, specific to the treatment of substance-related disorders, that includes six pretreatment and four during-treatment stages. Mainly tested in therapeutic communities, this model is also supported by empirical data (De Leon, Melnick, & Kressel, 1997; Joe, Simpson, & Broome, 1998).

### *1.2. Social learning theory*

According to social learning theory (Bandura, 1977), cognitive representations of future outcomes, which are elaborated from environmental events, can generate current motivation. For example, expectations of self-efficacy, a construct referring to the belief in one's own capacity to enact a specific behavior, determines whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of adversity (Bandura, 1977). Although social learning theory integrates situational factors, coping skills, and cognitive factors, the literature on substance-related disorders often presents each topic as if it stands alone (Maisto, Carey, & Bradizza, 1999).

Self-efficacy seems to be a favorite topic in this field: Many researchers trying to understand the motivation to drink, to stop drinking, and to relapse all evaluate self-efficacy as a means to better understand the phenomenon (see Maisto et al., 1999 for a literature review). Some data show that self-efficacy can be biased: Overconfidence in the capacity to cope can lead to premature dropout from treatment (DiClemente, Fairhurst, & Piotrowski, 1995). Despite a fair amount of empirical support for the utility of self-efficacy in the treatment of substance-related disorders, several problems remain unsolved: the conceptual and definitional heterogeneity of the construct, the existence of factors moderating the influence of self-efficacy, and the enhancement of self-efficacy by participation in treatment (Maisto et al., 1999).

### *1.3. Motivational interventions*

Motivational interventions have been studied and developed mainly by Miller and his colleagues. In order to enhance initial motivation, Miller developed a brief technique of intervention that yielded promising results (Bien et al., 1993). Comparing this technique with other efficient treatments, Miller and Sanchez (1994) identified six common elements that may induce change. These elements can be grouped under the acronym FRAMES:

- *F* for feedback: personal feedback regarding risk status,
- *R* for responsibility: emphasis on liberty of choice,
- *A* for advice: empathic advice for change,
- *M* for menu: choices of treatment approaches,
- *E* for empathy: reflective listening and accurate understanding,
- *S* for self-efficacy: increasing the client's beliefs about their ability to change.

Although empirical data support the efficacy of the technique (Bien et al., 1993; Noonan & Moyers, 1997; Project Match Research Group, 1997, 1998), the underlying mechanisms for change remain unknown (Miller, 1996).

#### 1.4. Other studies about motivation

In addition to these three main perspectives, many studies addressed motivation for treatment without any theoretical frame, and assessed the influence of numerous disparate variables on perseverance and outcomes. Nonetheless, because they have been replicated or can be explained by existing theories, some findings deserve consideration. Among the interesting findings, many variables have been found to predict perseverance in treatment: the treatment environment or the perceived utility (e.g., Fiorentine, Nakashima, & Anglin, 1999; Pfeiffer, Feuerlein, & Brenk-Schulte, 1991; Wilkinson & LeBreton, 1986; see also Stark, 1992 for a review), the characteristics of the therapist (e.g., Miller, Benefield, & Tonigan, 1993; Nelson-Zlupko, Dore, Kauffman, & Kaltenback, 1996; see also Miller, 1985 for a review), social support (e.g., Knight, Hood, Logan, & Chatham, 1999; Lang, Davidson, Bailey, & Levine, 1999; see also Stark, 1992 for a review), and the motives for seeking treatment (e.g., Cunningham, Sobell, Sobell, & Gaskin, 1994; Krampen, 1989; Pfeiffer et al., 1991).

#### 1.5. Self-determination theory

Recently used to predict perseverance in the treatment of substance-related disorders (Ryan et al., 1995; Simoneau, Bergeron, Brochu, & Landry, submitted), the self-determination theory (Deci & Ryan, 1985a, 1987, 1990) should be useful in understanding the dynamics of motivation during the course of treatment. This perspective has been applied in numerous studies in natural settings: in the field of education (see Deci, Vallerand, Pelletier, & Ryan, 1991 for a literature review), work (Blais, Brière, Lachance, Riddle, & Vallerand, 1993), sports (see Frederick & Ryan, 1995 for a literature review), gambling (Chantal, Vallerand, & Vallières, 1995), eating disorders (Williams, Grow, Freedman, Ryan, & Deci, 1996), smoking (Curry, Wagner, & Grothaus, 1990), and psychotherapy (Pelletier, Tuson, & Haddad, 1997).

Deci and Ryan (1985a) distinguish intrinsic motivation, extrinsic motivation, and amotivation. *Intrinsic motivation* refers to doing something for its own sake. When someone is intrinsically motivated, his activity itself represents his one and only source of motivation. He does not care about the results. He does it just to do it. Intrinsic motivation is linked to greater productivity, creativity, spontaneity, cognitive flexibility, and perseverance.

*Extrinsic motivation* means behavior done to gain something external to the activity itself. Deci and Ryan (1985a) postulated four types of extrinsic motivation, which can be located on a self-determination continuum. *External regulation* is at the lower end of the continuum. It means doing something in order to get a reward or to avoid a punishment. *Introjected regulation* involves an internal feeling of obligation, a need to act in order to avoid feeling guilty. So, even though the pressure stems from inside, the individual does not feel free regarding the behavior. *Identified regulation* pertains to doing something not for the activity itself but for the consequences that result directly from the behavior. In this case, the individual feels free to act, and valorizes the result. Finally, when somebody feels self-determined toward a specific behavior and when this regulation is coherent with the other schemas of his personality, the *regulation* is said to be *integrated*. In short, the types of

extrinsic motivation are, from the lowest to the highest level of self-determination: external regulation, introjected regulation, identified regulation, and integrated regulation.

*Amotivation* means acting without knowing why (Deci & Ryan, 1985a) or against one's own will (Deci & Ryan, 1990). The latter concept seems particularly pertinent to the study of addictive behaviors, often perceived as unintentional.

### 1.6. *Process of internalization*

According to Ryan (1995), most human behaviors are not intrinsically motivated. Many values and behavioral regulations are neither spontaneous nor pleasant. Nonetheless, the acquisition of such behaviors are necessary to the socialization and integration of the individual to his community. The self-determination theory (Deci & Ryan, 1985a) postulates the existence of innate needs of self-determination, relatedness, and competence in a biological manner, meaning that the organism tends to adapt to his environment. These needs allow the process of internalization, which offers the organism the possibility of integrating external contingencies. Progressively, individuals learn to enact behaviors with contingencies more and more distal, and eventually removed. They then understand the importance of doing the behavior to get the desired result. Finally, this identification with the results is integrated into the structure of the self. At that moment, social values are accepted as personal values.

Support for autonomy, competence, and relationship is a prerequisite to an optimal functioning of the process of internalization (Ryan, 1995). Depending on the type of support received during his first experiences, the child adopts a general orientation toward behavioral regulation: autonomous, heteronomous (controlled by external events), or uncontrollable and unexpected (impersonal) (Deci & Ryan, 1985a). These three relatively stable orientations explain individual differences concerning initiation and behavioral regulation.

According to the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997), the three types of motivation postulated by Deci and Ryan (1985a) exist at three levels of generality that influence each other: global (general causality orientations), contextual (toward a specific context), and situational (the "here and now" of motivation). This extension of self-determination theory implies that, for example, a person with an autonomous general orientation will be more often self-determined to a specific behavior, such as pursuing a treatment for alcoholism at a particular moment in his life (situational motivation).

However, the way a person acts in a particular setting cannot be attributed only to individual differences: Contextual variables also exert a significant influence (Ryan, 1995). Some of these facilitate the process of internalization. Deci, Eghari, Patrick, and Leone (1994) observed three points that promote internalization: (1) offering a rationale to adopt a specific behavior, (2) recognizing the internal conflict (usual tendencies vs. adoption of a new behavior), and (3) letting the person be free to choose. These three criteria constitute the characteristics of a context supporting autonomy. Whereas a change of behavior done in a controlling context (rewards and punishments) lasts only till the controlling events have disappeared, changes acquired in a context supporting autonomy are integrated to the personality and sustained (Deci & Ryan, 1985a). Deci and Ryan (1985a) also mention a

third kind of context: an amotivating context in which there is no contingency between a behavior and its consequences, situation that fosters a feeling of incompetence. The theory of cognitive evaluation (Deci & Ryan, 1985a) predicts that, more than the contextual factors per se, the functional significance of these factors for the individual determines the behavior.

In addition to the factors linked to the locus of causality (internal or external motives), everything that enhances the perception of competence increases intrinsic motivation (Deci & Ryan, 1985a). The feeling of competence grows from feedback inherent in the task (cues for objective success), social feedback (comments from others or comparisons to standards), and progression toward a distal goal (Harackiewicz, Manderlink, & Sansone, 1992).

Interestingly, Foote et al. (1999) noticed that the FRAMES elements identified by Miller and Sanchez (1994) are very similar to the factors facilitating the process of internalization (as predicted by the theory of self-determination). It is remarkable that two different approaches, the empirical method used by Miller and Sanchez and the theoretical frame proposed by Deci and Ryan, converge that much. These features suggest that self-determination theory should be very useful in the study of motivation for treatment. First, it provides a cogent theoretical basis for understanding motivation as an interpersonally mediated process (Foote et al., 1999). Second, this theory does not consider motivation as a unitary phenomenon. Thus, people can show not only different levels of motivation but also different types of motivation, each type leading to different consequences (Ryan & Deci, 2000). Third, the theory allows for an analysis of the psychological process of motivation as a mediator of change (Foote et al., 1999).

### 1.7. The present study

The objectives of the present study consist of: (1) meeting the need to assess motivation more than once during the course of treatment (Kludt & Perlmutter, 1999; Yahne & Miller,

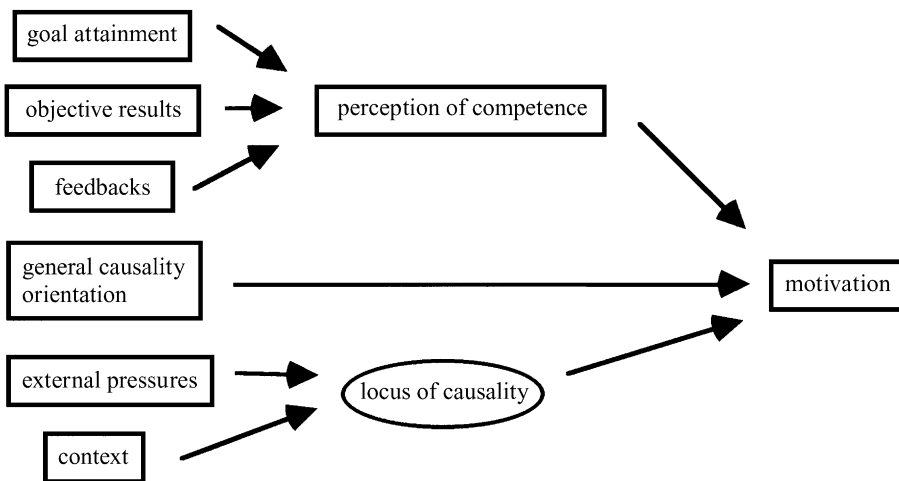


Fig. 1. Summary of the hypothesis of the present study. The model is elaborated from the theory of self-determination.

1999), (2) testing the usefulness of the self-determination theory to understand the dynamics of the process of motivation, (3) identifying retention factors (factors enhancing or sustaining initial motivation), and (4) helping clinicians adapt their interventions to the client's needs.

Elaborated from the theory of self-determination, Fig. 1 summarizes the hypothesis of the present study: (1) progression toward goal attainment, objective results, and feedback from others all predict the perception of competence, (2) along with the perception of competence, external pressures and the type of context predict motivation because these two factors are imputed to affect the locus of causality,<sup>1</sup> and (3) general causality orientation (motivation at the general level) also predicts contextual motivation.

## 2. Method

### 2.1. Participants

Participants were recruited at an outpatient public readaptation center for substance-related disorders located in Montreal, Canada. This center offers many psychosocial programs to match their French-speaking client's needs. Following an evaluation, the client is oriented toward the most appropriate program. The "adult program," for example, addresses the needs of the clients aged between 22 and 54 years who have neither legal nor mental health problems. In this program, an integration group precedes the beginning of the therapy itself.

Recruited during the integration groups of the "adult program" held between July 1998 and May 1999, 280 clients (72.5%) volunteered to participate in the present study. Since 29 were not reached, 251 actually completed the Time 1 battery of questionnaires. However, the data from one participant were rejected because they were incoherent. Except for a higher level of education, the sociodemographic characteristics of the present sample are very similar to those of a representative sample of the clients attending any program of the same center during the same period of recruitment (Guyon, Landry, & Desjardins, 2000).

The participants of the present sample ranged in age from 22 to 53 years, with a mean age of 35.6 years. All of them spoke French. Most of them (64.8%) were male. Over half (53%) were divorced or had lived maritally; 36% were currently married or living maritally, and 11% were single, never married. Over half (57.9%) were full-time or part-time workers, and 27.9% reported income from public assistance. Several participants indicated income levels of less than Can\$12,000 per year (39.7%), 38% reported yearly income between Can\$12,000

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<sup>1</sup> Note that the locus of causality has not been assessed in the present study. This concept, which grows out of the attribution literature, establishes a distinction between an internal locus of causality, in which the actor is perceived as an origin of his or her behavior, and an external locus of causality, in which the actor is seen as a pawn of heteronomous forces (deCharms, 1968). Because the addicted clients are aware that they need to seek treatment for themselves if they want to get through, a measure of the locus of causality has a high probability to be biased in such a sample. Thus, a measure of social desirability should have also been added to the battery of tests. However, in the present study, the addition of two more questionnaires would have overwhelmed the participants, therefore this variable was not assessed.

and Can\$30,000, and 22.3% earned over Can\$30,000. Half of them had between 8 and 12 years of education, and 47.6% had education beyond high school (compared with 42.7% for the general sample mentioned above). For 38.5% of the respondents, alcohol was the main problem substance, 37.2% reported that the consumption of one or more psychoactive drugs (licit or illicit) was problematic, and 23.5% had problems with both alcohol and at least one other drug. Reflecting the selection criteria of the adult program, most of them were in the program voluntarily: Only 8.1% were legally referred, and 3.6% were coerced into treatment by their employers.

By 6 weeks after initial assessment (Time 2), 59 individuals (23.5%) had dropped out of treatment. Among the 191 eligible persons (those still pursuing treatment), 50 were not reached in time (see the Procedure section), and one decided to stop participating. Finally, 140 out of 191 (73.3%) completed the Time 2 battery of questionnaires, and they did so in an average of 48.35 days (S.D.=9.55) after the initial assessment.

## 2.2. Measures

### 2.2.1. Objective results

Problems associated with alcohol and drug misuse were assessed through L'indice de Gravité d'une toxicomanie (ASI/IGT), a French version of the Addiction Severity Index (McLellan, Luborsky, Woody, & O'Brien, 1980), which is a structured clinical interview translated and validated by Bergeron, Landry, Ishak, Vaugeois, and Trépanier (1992). The Bergeron et al. study (1992) reveals that the psychometric properties of the translated instrument are satisfactory and similar to those of the original version. The index yields composite scores from 0 to 1 in each of seven areas: (1) alcohol abuse, (2) drug abuse, (3) medical condition, (4) psychiatric condition, (5) legal problems, (6) family functioning, and (7) employment and financial support. Whereas the integral version addresses the whole life of an individual and the last 30 days, the short version (mostly used for follow-up) measures change that happened during the previous 30 days.

### 2.2.2. Feedback of competence

Elaborated especially for the present study, this questionnaire comprises two scales: one addresses the feedback offered by significant others, and the other refers to feedback from the treatment staff. Each scale contains six items such as: "The treatment staff helps me realize that I have what is needed to persevere in treatment" and "People around me believe that I won't never get through." The respondent indicates on a 5-point scale how much the item reflects his own situation. By adding the scores of items fostering competence and the reverse scores of the items fostering incompetence, a global score is calculated for each scale. Cronbach's alphas were .72 for the feedback from significant others and .46 for those from the treatment staff.

### 2.2.3. General causality orientations

The general causality orientations were assessed through L'échelle des orientations générales à la causalité (ÉOGC), a French version of the General Causality Orientations



Scale (Deci & Ryan, 1985b)). This questionnaire presents 12 vignettes describing a situation (finding a job, going to a party, etc.). Three responses followed each vignette: one that is believed to be autonomy oriented, one control oriented, and one impersonally oriented. The respondents indicate on a 7-point scale the extent to which the response would be characteristic of them in that situation. The 36 items (3 responses for each of 12 vignettes) yield three scores: (1) autonomy orientation, which reflects the extent to which a person initiates and regulates his behavior with a feeling of choice and self-determined goals, (2) control orientation, which reflects the perception that behaviors are directed by rewards and punishments, and (3) impersonal orientation, which describes the extent to which people believe they are unable to attain some goals. Globally, the construct validity, internal consistency, and temporal stability of the translated version are satisfactory and similar to those of the original version (Vallerand, Blais, Lacouture, & Deci, 1987).

#### 2.2.4. *External pressures*

External pressures are identified with a French adaptation of the Reason for Seeking Treatment Questionnaire, developed at the Addiction Research Foundation (now the Center for Addiction and Mental Health) in Toronto, Canada (Sobell, 1991). This tool identifies three external and seven internal motives, which represent situations experienced during the preceding year that led the client to seek treatment. At Time 2, a short modified version is used to assess only the three external pressures for the period included between the two assessments (last 6 weeks). The external pressures assessed by these three questions: “Did you receive any advice or threat from your spouse or another significant person about your alcohol or drug consumption?” “Did anyone from the legal system (a judge, lawyer or Director of Youth Protection) confront you with your alcohol or drug problem?” “Was your job threatened because of your alcohol or drug problem?” A dichotomous variable is created in the following way: NO, if the individual did not experience any external pressure or YES, if the individual experienced one or more external pressures.

#### 2.2.5. *Context*

The perception of the context is also evaluated by a new two-scale questionnaire. Each scale (context of the treatment center, and context of life settings) is subdivided into three subscales: autonomy supporting context, controlling context, and amotivation context. The respondents indicate on a 5-point scale the extent to which each of the five items of the six subscales corresponds to their situation. The following examples illustrate the kinds of items found in each scale: (1) autonomy supporting context: “The treatment staff left me free to define my objectives in treatment,” (2) controlling context: “The treatment staff tries to convince me that my problem is more severe than I believe,” and (3) amotivating context: “People around me believe that therapy is useless.” By adding the score of the five items, a score is obtained for each of the six subscales, and a global score is calculated for each scale (context of the treatment center, and context of the life settings) in the following way: the score of autonomy supporting context times three, minus the score of controlling context, minus twice the score of the amotivation context scale. Thus, a positive score indicates a positive context, and a negative score a negative one (controlling or amotivating). For the

context of the treatment center, Cronbach's alphas were .68 (autonomy supporting), .53 (controlling context), and .51 (amotivating context). For the life context, these coefficients were .60 (autonomy supporting), .64 (controlling context), and .61 (amotivating context).

#### 2.2.6. *Goal attainment*

Goal attainment is evaluated by a single question asking the participant to indicate, in percentage, to what extent he has progressed toward the objectives he had set when seeking treatment.

#### 2.2.7. *Perception of competence*

As previously done elsewhere (Vallerand & Reid, 1988), a questionnaire dealing with competence-related affects is utilized to assess the perception of competence. While thinking of the possibility of staying in treatment till they reach their goal, the respondents indicate on a 9-point scale to what extent they currently experience the following affects: ashamed/proud, insecure/confident, stupid/intelligent, strong/weak, incompetent/competent, inadequate/adequate, and ineffective/effective. A global score is obtained by summing the results of the seven affects. Cronbach's alphas were .90 for Time 1 and .88 for Time 2.

#### 2.2.8. *Motivation*

Motivation was assessed by the Questionnaire de Motivation au Traitement des Toxicomanies (QMTT) (Simoneau et al., submitted). Elaborated according to the self-determination theory, this 15-item questionnaire measures four types of motivation: identified regulation (e.g., "I am here because I believe that it is the best way to get through"), introjected regulation (e.g., "I have to do something, my life does not make sense anymore"), external regulation (e.g., "I want to avoid problems with people surrounding me, my employer, or the legal system"), and amotivation due to success ("I had good reasons, but now I have already reached my goal"). The psychometric properties of the instrument are quite satisfactory: the QMTT shows a factor structure corresponding to the types of motivation postulated by the self-determination theory, a good construct validity, a fair predictive validity, and an acceptable internal consistency. The QMTT also conforms to a simplex correlation structure, in which variables are ordered in terms of their conceptual similarity, such that those deemed to be more similar correlate more highly than those deemed to be more discrepant. So, the simplex pattern supports the idea that the different types of motivation postulated by the self-determination theory are located along a continuum (e.g., external motivation correlates more highly with introjected motivation than with identified motivation).

A global score, the coefficient of internalization, is calculated in the following way: (twice the score of the identified regulation) plus (the score of the introjected regulation multiplied by 4/3 to compensate for the fact that this scale comprises only three items instead of four) minus (external regulation) minus (twice the score of amotivation due to success). Thus, a positive score indicates an internalized motivation whereas a negative score reflects externalized motivation or amotivation. Although a single score does not indicate which type of motivation is the best predictor of various consequences, Vallerand (1997) recommends using this kind of coefficient to test a theoretical model with several variables.

### 2.3. Procedure

At the end of the integration group meeting, a research assistant explained the goals of the research and asked for voluntary participants. Prospective participants were told that the research team was independent of the treatment center, that a refusal would not change their current treatment, and that their answers would be kept confidential (even the staff will not have access to their answers). Respondents signed a consent form and, if they could, completed the first battery of questionnaires immediately after the end of the group meeting. If unable to stay at that time, they made an appointment to complete the first assignment during the following week.

Six weeks later, they were contacted by telephone. If they were still in treatment, they were asked to take an appointment to complete the second battery. If participants were not reached after 4 weeks (10 weeks after they completed the first battery), the research assistant stopped trying to reach them. A 6-week interval was adopted because (1) the dropout rate is high among clients in treatment for substance-related disorders; the greater the delay, the fewer the number of participants still in treatment, (2) many treatment groups offered by the center where the participants were recruited last between 4 and 6 weeks, and (3) results from motivational interventions show that changes occur within a 6-week delay (Miller et al., 1993).

Participants were paid Can\$10.00 for each assessment. At Time 1 (after the integration group meeting), they completed the ÉOGC, the QMTT, the goal attainment, the perception of competence, and the Reasons for Seeking Treatment. Since the ASI/IGT is part of the evaluation of this treatment center, the results of the ASI/IGT were taken from the file of the clients, with their authorization. At Time 2, they completed the QMTT, the goal attainment, the perception of competence, a short modified version of the Reasons for Seeking Treatment, the Feedback of Competence, the Perception of the Context, and the short version of the ASI/IGT administered by a trained interviewer. Each time, they completed additional questionnaires for another study. Time 1 assessment lasted about an hour and a half, and Time 2 around an hour.

## 3. Results

### 3.1. Preliminary analyses

Before testing the hypothesis, some preliminary analyses were done. Table 1 presents, for the two moments of assessment, the mean, standard deviation, and the possible range for all the variables of the expected model. Although the mean of the coefficient of internalization of the QMTT (global score of motivation) seems to decrease 6 weeks after the first assessment (33.84 vs. 32.57), this difference was not significant:  $t(137)=-0.093$ ,  $P=.93$ . Thus, in the sample taken as a whole, the mean change of motivation does not differ from zero. However, the distribution of frequencies of this difference, illustrated in Fig. 2, indicates that as many clients increase as decrease their motivation for treatment. Therefore, the mean score of the

Table 1  
Mean, standard deviation, and possible range for the variables of the expected model

Questionnaire	Scale	Range	Time 1 ( <i>n</i> =250)		Time 2 ( <i>n</i> =138)	
			Mean	S.D.	Mean	S.D.
QMTT	Identified	4–28	22.09	4.71	22.54	4.27
	Introjected	4–28	20.55	5.65	17.93	6.41
	External	4–28	12.90	5.49	11.75	5.45
	Amotivation due to success	4–28	9.01	4.78	9.35	4.62
	Global score	–72 to 72	33.84	15.27	32.57	16.66
Perception of Competence		7–63	48.06	8.91	49.79	7.16
ASI	Alcohol	0–1	0.38	0.28	0.28	0.23
	Drug	0–1	0.15	0.12	0.10	0.10
	Psychiatric	0–1	0.25	0.20	0.24	0.22
	Medical	0–1	0.15	0.26	0.19	0.30
	Family	0–1	0.29	0.24	0.19	0.21
	Employment	0–1	0.53	0.33	0.46	0.34
	Legal	0–1	0.04	0.11	0.02	0.08
GCOS	Autonomy	12–84	66.82	8.6		
	Control	12–84	50.22	9.8		
	Impersonal	12–84	41.12	10.8		
External Pressure		0 or 1 (dichotomous)	0.72	0.45	0.28	0.45
Goal Attainment Feedback		0–100%	41.53	23.2	48.41	20.38
Context of the Center	Center	6–30			23.28	2.49
	Significant others	6–30			22.69	4.46
Life Context	Autonomy supporting	5–25			20.12	3.35
	Controlling	5–25			8.98	3.27
	Amotivating	5–25			7.25	2.70
	Global score	–60 to 60			36.90	13.58
Life Context	Autonomy supporting	5–25			17.35	4.04
	Controlling	5–25			8.97	3.60
	Amotivating	5–25			8.13	3.06
	Global score	–60 to 60			26.81	15.99

difference leaves the false impression that nobody changes. A *t* test of the absolute value of the difference confirms that, either positive or negative, a real change occurs at the individual level:  $t(137)=14.96$ ,  $P<.001$ , with a 95% confidence interval that the difference stands within 10.22 and 13.34.

Several *t* tests on demographic and Time 1 variables were conducted to search for differences between the participants who were still in treatment 6 weeks after the initial assessment and those who had quit by that time. Since there were 23 tests to do, an alpha of

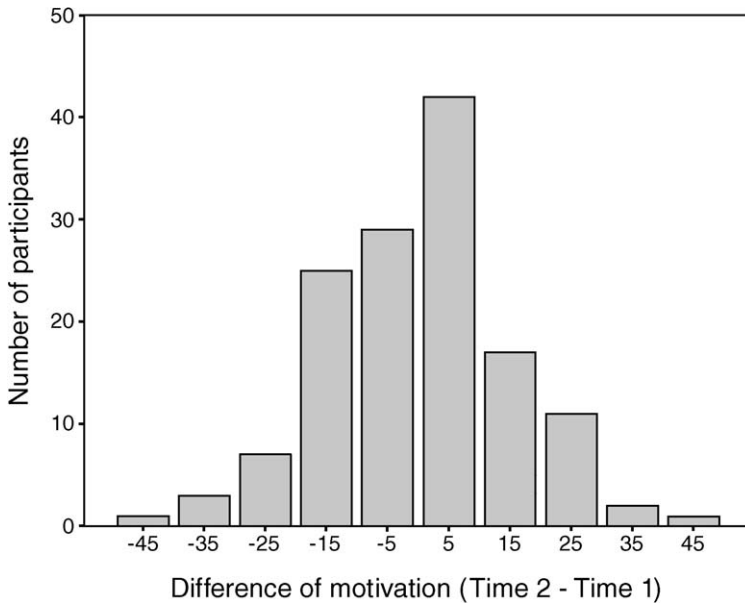


Fig. 2. Distribution of change in motivation from Time 1 to Time 2 (6 weeks later), as assessed by the QMTT.

.01 was considered a significant difference. No significant difference was found, but the scale of amotivation due to success, which is the best predictor of perseverance (Simoneau et al., submitted), almost reaches significance,  $t(78.9)$ ,  $P < .02$ . Three variables distinguished the participants who were still in treatment and reached on time from those not reached for the Time 2 assessment: The individuals not reached show a higher perception of competence,  $t(189) = 3.80$ ,  $P < .001$ , less medical problems (ASI/IGT),  $t(145.5) = -3.46$ ,  $P < .001$ , and received less external pressure during the preceding year,  $t(76.9) = -3.06$ ,  $P < .01$ .

### 3.2. Path analysis

To test the proposed model, a path analysis consisting of a series of multiple regression analyses was conducted (see Judd & Kenny, 1981; Li, 1975 for a description of the method). Fig. 3 shows the results of these analyses. As expected, progression toward goal attainment, objective results (reduction of drug problems), and feedback from significant others all predict the perception of competence. In addition to the initial perception of competence, which explains 29% of the variance, these three variables account for an extra 12% of the variance (adjusted  $R^2$ ). Yet, neither the other objective results (the six other scales of the ASI/IGT) nor the feedback from the treatment staff add to the prediction of the perception of competence.

Also confirming the hypothesis, the perception of competence, the context of the treatment center, autonomy and impersonal causality orientations all predict motivation. Nevertheless, the impersonal orientation (the tendency to act as if life were uncontrollable and unpredictable) is positively linked to motivation, which is in the opposite direction of the prediction.

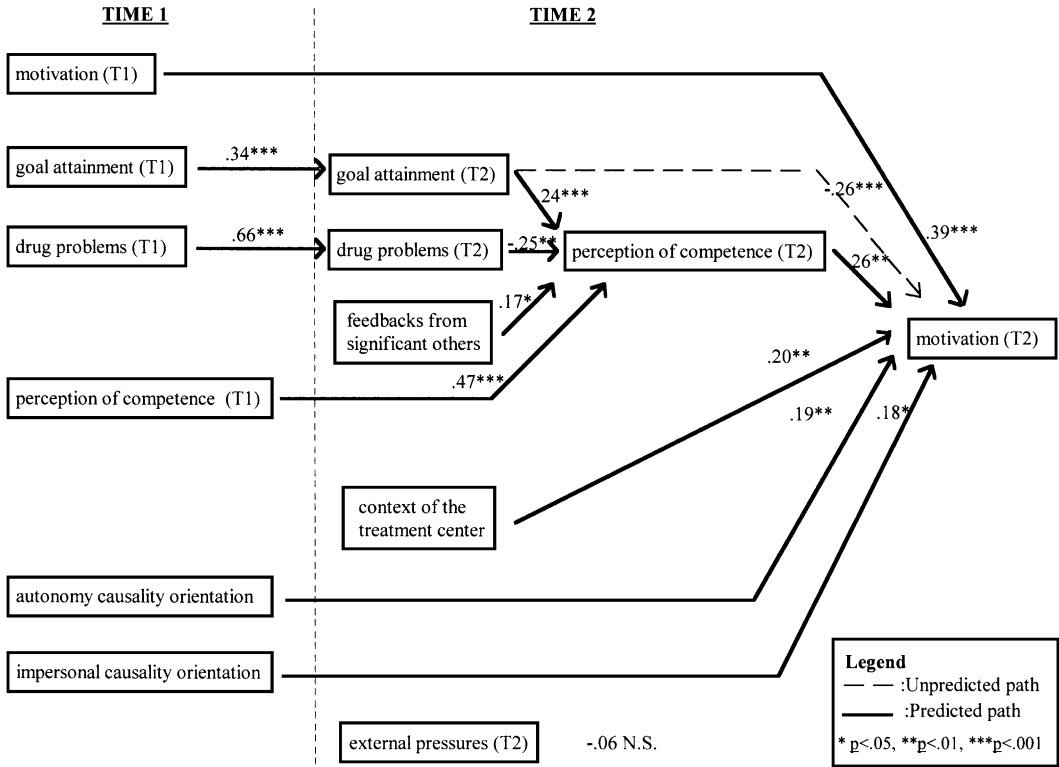


Fig. 3. Path diagram of the motivational model. Standardized regression coefficients are written above path arrows.

Also contrary to the hypothesis, external pressures, context of life settings, and control orientation do not predict motivation. Furthermore, goal attainment at Time 2 presents a direct negative path to motivation that was not predicted. Elaborated from the results of 133 participants out of 140 (7 had data missing), the whole model explains 46% of the variance of motivation at Time 2 (adjusted  $R^2$ ): Initial motivation accounts for 29%, the indirect variables add 5%, and the five direct variables (goal attainment, perception of competence, context of the treatment center, autonomy and impersonal orientations) add 11%. No demographic variable adds to the percentage of explained variance.

Table 2 presents the correlations between Time 1 variables, and Table 3 between Time 2 variables. These data show that most of the variables not included in the model correlate with variables showing significant path. For example, context of life settings (Table 3) correlate with four out of the seven scales of the ASI/IGT, with the perception of competence, the context of the treatment center, and feedback from significant others as well as feedback from the treatment staff. Another clear example comes from the ASI/IGT scales (Tables 2 and 3), which present many intercorrelations, especially at Time 2. These two tables also reveal a complex relationship for goal attainment: at Time 1, this variable correlates negatively with drug problems, but at Time 2 correlates (also negatively) with alcohol problems.

Table 2  
Correlations between Time 1 variables (participants still in treatment at Time 2,  $n=151$ )

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Coefficient of internalization	–													
2. Goal attainment	.13	–												
3. Perception of competence	.15	.33***	–											
4. Alcohol problems	.06	–.14	–.04	–										
5. Drug problems	.06	–.23**	–.03	–.41***	–									
6. Medical problems	.01	.11	–.06	.03	–.03	–								
7. Family problems	.02	.00	–.07	.10	–.02	.01	–							
8. Psychological problems	.17*	–.07	–.05	.19*	.00	.24**	.37***	–						
9. Employment problems	–.13	.00	–.05	–.18*	.09	.11	–.06	–.03	–					
10. Legal problems	–.06	–.11	–.07	.16*	–.05	.04	.16*	.11	.15	–				
11. Autonomy causality orientation	.20*	.15	.29***	.06	–.11	–.04	–.17*	–.08	–.06	–.10	–			
12. Control causality orientation	.03	–.03	.01	.04	.08	–.01	–.07	.03	.09	–.03	.24**	–		
13. Impersonal causality orientation	.07	–.04	–.28***	.09	.00	.10	.01	.16*	.06	–.08	–.05	.52***	–	
14. External pressures	–.08	–.01	–.12	–.12	.00	.03	.08	–.05	.14	.05	–.17*	.08	.08	–

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .001$ .

Table 3  
Correlations between Time 2 variables ( $n=136$ )

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Coefficient of internalization	–														
2. Goal attainment	-.20*	–													
3. Perception of competence	.20*	.32***	–												
4. Context of the treatment center	.37***	-.04	.29***	–											
5. Context of life settings	.06	.11	.32***	.32***	–										
6. Feedbacks from significant others	.09	.13	.37***	.33***	.58***	–									
7. Feedbacks from the treatment staff	.27***	.15	.28***	.51***	.35***	.44***	–								
8. External pressures	-.10	.01	-.15	-.22**	-.16	-.25**	-.06	–							
9. Alcohol problems	.12	-.24**	-.27**	-.13	-.10	-.18*	-.06	.09	–						
10. Drug problems	.03	-.13	-.29***	-.22**	-.31***	-.22**	-.22**	.05	.01	–					
11. Medical problems	.19*	-.09	.01	.10	-.23**	.01	-.05	-.03	.03	.19*	–				
12. Family problems	.05	-.05	-.12	-.06	-.28***	-.34***	-.20*	.43***	.18*	.20*	.26**	–			
13. Psychological problems	.08	-.15	-.12	-.07	-.27***	-.20*	-.18*	.27***	.16	.31***	.25**	.39***	–		
14. Employment problems	-.02	.07	.03	.10	-.07	.04	.07	.05	-.14	.19*	.31***	.03	.13	–	
15. Legal problems	.05	-.08	.03	-.04	-.01	-.11	-.18*	-.05	.07	.05	.03	.04	.03	.07	–

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .001$ .



Overall, the results of the present study support the hypotheses: (1) progression toward goal attainment, objective results (reduction of drug problems), and feedback from significant others all predict perception of competence, (2) the context of the treatment center, along with the perception of competence, predicts motivation, and (3) motivation at the general level (autonomy and impersonal causality orientations) also predicts contextual motivation.

#### **4. Discussion**

Since the present study supports the main hypothesis, it confirmed the usefulness of the theory of self-determination to understand the process of motivation during the course of treatment for substance-related disorders. With the exception of external pressures, all the concepts derived from the theory influence motivation as predicted. Nevertheless, not every variable assessing the same concept is included in the model: For example, only one measure of objective result (drug problems), one measure of feedback (feedback from significant others), one measure of context (treatment center), and two measures of causality orientations show a significant path. The pattern of correlations of these variables explains the findings: since many of these variables are correlated, including more than one measure of the same concept would convey redundant information.

According to the theory, external pressures should foster an external locus of causality, which should decrease internal motivation. It is possible that the dichotomous nature of this variable or the homogeneity of the population studied (it included few people coerced into treatment) induced a weaker correlation than expected between external pressures and motivation. Since the locus of causality was not assessed in the present study, it is also possible that external pressures do not have a direct effect on motivation but only an indirect influence via the locus of causality. Further research should address this issue. Indeed, a complete test of the theory of self-determination should integrate all three mediators of motivation (innate needs of human beings): competence, locus of causality, and relatedness.

In addition to the path predicted by the self-determination theory, progression toward goal attainment shows a complex relationship with motivation. As expected, progressing toward a goal increases the perception of competence, but it also directly decreases motivation. This finding suggests that motivation for treatment is instrumental: People seek and persevere in treatment for an extrinsic motive so that their motivation decreases as they progress toward their goal attainment. Another complex relationship pertains to the correlations between goal attainment and problems: at Time 1 assessment, goal attainment correlates negatively with drug problems but 6 weeks later, it correlates negatively with alcohol problems. Except for the fact that a goal changes with time (Austin & Vancouver, 1996), we can only speculate about this puzzling finding: perhaps people seek treatment mostly because of their drug problems, and the treatment raises their consciousness about their alcohol problems.

Another unexpected finding, the impersonal causality orientation shows a significant path, but in the opposite direction of the hypothesis. Hence, believing that life is uncontrollable and unpredictable seems to enhance motivation for treatment. This result can be compared with the results of Pfeiffer et al. (1991) who also found that the subjective loss of control over the

current life situation is one of the most important predictors of entry to treatment. These findings might be attributed to the loss of control linked to alcohol and drug consumption reported by addicted people (Alcoholics Anonymous, 1953; Edwards & Gross, 1976; Nadeau, 1990), which could induce an internal pressure to get back control over their life.

In short, the present study supports the usefulness of the self-determination theory in the field of motivation for treatment of substance-related disorders. With the exception of external pressures, all the concepts derived from the theory influence motivation as predicted. Furthermore, as did many studies from different domains (Deci, Koestner, & Ryan, 1999), this study confirms the mediating role of the perception of competence. The present study also contributes to a growing body of literature (Kowal & Fortier, 2000; Williams et al., 1996) supporting the hierarchical model of intrinsic and extrinsic motivation proposed by Vallerand (1997): as expected, contextual motivation (motivation at Time 2) is predicted by the global level of motivation (general causality orientations), and by contextual variables (e.g., context of the treatment center).

#### *4.1. Clinical implications*

The present study confirms the dynamic nature of motivation: Initial motivation explains only 30% of the variance of motivation 6 weeks later. Therefore, 70% of this variance is explained by variables other than initial motivation, including those proposed here, which account for 20%. Among these significant predictors of motivation, goal attainment, perception of competence, and perception of the context of the center can all be modified. Consequently, therapists and treatment centers can do something to enhance motivation. When they interact with their clients, they are active agents of change; they are not helpless at all (Miller, 1999).

First of all, therapists must be aware of the progression toward goal attainment of their clients, an important predictor of motivation that seems to fluctuate. Since clients often attribute treatment termination to having resolved the problem, early dropouts may misjudge that their problems are solved, and place themselves at high risk for relapse (Stark, 1992). Discussing this topic with the clients can help them make choices that are in their best interests. Furthermore, “the process of talking about and setting goals strengthens commitment to change” (Miller, 1999, p. xxii). Further research should also address this issue: How do goals evolve during the course of treatment? What are the main goals of the clients? What influences goal setting and transformation?

Secondly, the present study suggests that therapists can foster motivation by increasing the perception of competence. Although conceptual differences exist between the perception of self-efficacy and the perception of competence, Sonstroem and Morgan (1989, as cited in Kowal & Fortier, 2000) propose that they both share a common dimension of competence. Consequently, the work done in the field using the concept of self-efficacy should also apply here. To increase competence (or self-efficacy), therapists must believe that the client can succeed, focus on the client's strengths, affirm the small steps that are taken, and reinforce any positive change (Miller, 1999). According to the clients, a good counselor believes in them (Nelson-Zlupko et al., 1996). The following citation from a client clearly shows how

important such support could be: “Thank you for believing in me until I was ready to believe in myself” (Yahne & Miller, 1999, p. 245).

The fine art of motivational therapy consists in reinforcing the client for every small step taken while providing advice to help him recognize what has been done as well as what still needs to be done. Developing a realistic perception of progression toward goal attainment can be facilitated within a context supporting autonomy. The Rogerian concept of empathy (Rogers, 1959), which is also part of the six common elements of effective treatments (Miller & Sanchez, 1994), figures as a key element of such a context.

Since the perception of the context of the center is an important source of motivation, not only therapists who work to establish a therapeutic alliance with their clients but also all the treatment staff can influence motivation for treatment. The first contact with the treatment center, whether a phone call, an information group or an evaluation of the client, should highlight choice and liberty, and instill hope. For both women and men, the perceived utility of treatment is among the strongest predictors of client engagement in treatment (Fiorentine et al., 1999).

In addition to therapists and the other members of the treatment staff, significant others also exert a nonneglectable influence on motivation by providing feedback of competence, for example. Though the present model cannot specify the nature of these links, the context of life settings correlates with many variables in the model (drug problems, family problems, psychological problems, perception of competence, context of the treatment center, etc.), suggesting that life settings may also play an important role in motivation. These findings all argue in favor of involving significant others in the treatment program. Being informed, they can provide feedback of competence and emotional support in a context of autonomy. Findings from several studies also support the involvement of significant others in treatment (Miller, 1999).

To summarize, the present study demonstrates that motivation fluctuates, and suggests some ways to enhance motivation: Therapists must pay attention to the progression toward goal attainment and foster their clients’ perception of competence; treatment centers should offer a context that supports autonomy and that involves significant others.

#### *4.2. Limitations and concluding remarks*

When interpreting the present findings, some limitations must be considered. First, the small number of participants ruled out the possibility of using structural equation modeling (SEM), which is a more rigorous statistical method than the method of multiple regressions used here. Second, the sample seems to be biased: The clients reached to complete Time 2 assessment differ significantly from those who were not on three variables. Thus, it is possible that the results would have emerged differently if all participants were included in the analysis. Finally, the sample is very homogenous: Everyone was recruited from the same program at the same treatment center. The present findings should be reproduced within inpatient treatment, with clients showing comorbidity or legal problems.

Despite these limitations, the present study supports many assumptions of the self-determination theory (Deci & Ryan, 1985a), and also supports the idea that motivation is

the product of interpersonal exchanges and that it fluctuates (Miller & Sanchez, 1994). Furthermore, this study provides some hints for enhancing motivation so that therapists can be more certain of their influence and efficacy when facing clients with poor motivation. However, with so many questions regarding motivation still unanswered, increasing our understanding of motivation for treatment remains a formidable challenge that should be the goal of further research.

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