

# A Delay Discounting Model of Psychotherapy Termination

*Joshua K. Swift & Jennifer L. Callahan*

## Abstract

Delay discounting (DD) procedures are emerging as an important new method for psychotherapy researchers. In this paper a framework for conceptualizing existing, seemingly discrepant, research findings on termination is introduced and new directions for research are described. To illustrate the value of a DD framework, the common psychotherapy problem of premature termination is addressed. First, a DD framework for how premature termination may be defined is presented. Second, common variables that have long been linked to premature termination (expectancies, and preferences) are explored using DD procedures. These investigations demonstrate that DD procedures are a methodological advancement that can advance psychotherapy research and, potentially, improve client outcomes.

Keywords: delay discounting, psychotherapy, termination, attrition, model

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Delay discounting refers to the rate at which a reinforcer (e.g., money) is subjectively devalued over time as a function of delay to receipt (Myerson & Green, 1995; Wileyto, Audrain-McGovern, Eptein, & Lerman, 2004). For example, an individual may subjectively value the receipt of \$50 today as preferable to receiving \$75 one month from now. In this example the larger delayed reward (\$75 one month from now) is subjectively appraised as less valuable than the smaller immediate reward (\$50 today) as a result of having to wait longer until receiving the reward. The discounting rate takes the form of a hyperbolic function (Madden, Begotka, Raiff, & Kastern, 2003; Myerson, Green, & Warusawitharana, 2001) and can be determined by using the following formula, proposed by Mazur (1987):

$$V = A/(1 + kD)$$

where  $A$  is the amount of the award delivered after the delay,  $D$  is the amount of delay,  $k$  is the parameter that describes the discounting rate, and  $V$  is the subjective value of the delayed reward. This hyperbolic function has been widely accepted and used since its proposal (Madden et al., 2003).

Although different models have been suggested (Smith & Hantula, 2008; Tesch & Sanfey, 2008), the measurement of discounting typically involves finding the point at which individuals view the smaller immediate reward as equal to the larger delayed one; often called the 'indifference point'. An exact indifference point is found by systematically manipulating the value of the rewards (or the length of times) until the individual no longer shows a preference for one reward over another. The obtained indifference point can be used to determine an individual's discounting rate, which represents the value of the reward compared to the value of the delay in time. In the preceding example if the delayed reward were increased from \$75 to \$100, an individual may decide that they prefer the delayed reward suggesting that the indifference point lies somewhere between \$75 and \$100. See Table 1 for a worked through discounting example including the resultant indifference point.

Table 1. *Worked Example of a Delay discounting Task Using Money and Time*

Instructions: Imagine that you have just won a prize and you have the choice between two reward options. Indicate your choice by checking the box next to the option you prefer.

Which would you prefer?

\$200 right now  \$400 one month from now

Now which would you prefer?

\$200 right now  \$350 one month from now

Now which would you prefer?

\$200 right now  \$300 one month from now

Now which would you prefer?

\$200 right now  \$250 one month from now

Now which would you prefer?

\$200 right now  \$275 one month from now

Now which would you prefer?

\$200 right now  \$285 one month from now

Now which would you prefer?

\$200 right now  \$280 one month from now

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This individual's indifference point would be estimated at \$82.50 (half-way between \$285 and \$280) for a one month delay.

Delay discounting (DD) procedures have a history of use in the fields of economics and cognitive psychology (for reviews, see Chapman, 1996; Frederick, Loewenstein, & O'Donoghue, 2002; Green & Myerson, 2004). In the mental health field, DD procedures have frequently been used to provide greater understanding into addictive behaviors (Bickel & Marsch, 2001; de Wit, 2009; Gottdiener, Murawski, & Kucharski, 2008; Heil, Johnson, Higgins, & Bickel, 2006; Jaroni, Wright, Lerman, & Epstein, 2004; Ohmura, Takahashi, & Kitamura, 2005); as well as preventative health behaviors (Chapman et al., 2001; Critchfield & Kollins, 2001; Weller, Cook, Avsar, & Cox, 2008) and other clinical disorders (Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001; Crean, de Wit, & Richards, 2000; Dalley, Mar, Economidou, & Robbins, 2008). Researchers in the medical field have also used DD procedures to examine patient preferences and decision-making in terms of treatment options (Asenso-Boadi, Peters, & Coast, 2008; Chapman, 2002; Chapman, Nelson, & Hier, 1999; Hayman, Weeks & Mauch, 1996; Stavem, Kristiansen, & Olsen, 2002).

Table 2. *Worked Example of a Delay discounting Task Measuring Treatment Expectations*

Instructions: You have the option of choosing a treatment that has a 15% recovery rate after 1 therapy session and a treatment that has \_\_\_ recovery rate after 15 therapy sessions.

Which would you prefer?

- 15% recovery rate after 1 session                       20% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       30% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       40% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       50% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       60% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       70% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       80% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       90% recovery rate after 15 sessions

Now which would you prefer?

- 15% recovery rate after 1 session                       100% recovery rate after 15 sessions

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*This example would indicate an expectation of a 65% recovery rate for 15 sessions of treatment. Questions were repeated for 2, 4, 8, and 26 session scenarios.*

Recently, delay discounting has demonstrated utility in psychotherapy research (Swift & Callahan, 2008). Results of this recent investigation will be detailed later in this paper, but it is clear that DD procedures pose great potential for both process and outcome research. As illustration of this point, the purpose of this paper is to introduce a delay discounting conceptualization of a phenomenon that occurs in 100% of courses of psychotherapy treatment: termination.

#### *Determination of Termination Status*

Given that termination is an inevitable part of the course of treatment, perhaps it is surprising that the field lacks consensus on exactly what constitutes termination of a successful course of treatment. Each

of the authors of this paper, for example, can recall cases in which the client initiated termination feeling that treatment was a success although we believed more work remained. Similarly, we each can recall clients who we felt were progressing yet the client expressed concern over a perceived lack of progress. Our experiences are far from unusual, but draw attention to the fact that, at times, our perspectives are not congruent with those of our clients.

Studies on client-therapist congruence report that incongruence is common throughout the course of psychotherapy, including identification of presenting problems (Long, 2001; Swift & Callahan, in press), recall and interpretation of session events (Cummings, Hallberg, Slemon, & Martin, 1992; Dill-Standiford, Stiles, & Rorer, 1988; Kivlighan & Arthur, 2000, Martin & Stelmaczek, 1988), and ratings of the therapeutic alliance (for a recent meta-analysis, see Tryon, Blackwell, & Hammel, 2007). Indeed, the issue of client-therapist congruence has long been hypothesized as an important factor in psychotherapy (Pepinsky & Karst, 1964) that may serve as a precursor to other therapeutic consequences, such as the subjective determinations of therapy “success” or client “improvement.”

A delay discounting conceptualization allows for integration of incongruence, without suggesting that either the client or the therapist is “right”. For example, with respect to termination status incongruence, it can be expected that a client will seek to initiate termination when the subjective value of benefits resulting from continuing therapy are insufficient in comparison to the immediate benefits of termination. This discounting rate may not be consistent with the therapist’s rate of discounting. *When the client chooses to discontinue treatment before the therapist’s indifference point has been surpassed, the client may be labeled as having prematurely terminated by the therapist.* Although the opposite is also true, that a therapist may initiate termination prior to the client’s indifference point being surpassed, the literature suggests that premature termination is a far more common problem (Callahan, Aubuchon-Endsley, Borja, & Swift, in press; Garfield, 1994; Hansen et al., 2002; Wierzbicki & Pekarik, 1993).

#### *Who Decides?*

From a delay discounting perspective, the client and therapist perspectives on termination status are not mutually exclusive even if they are incongruent. Underscoring the problem of incongruence, in a meta-analysis by Wierzbicki and Pekarik (1993) it was found that treatment dropout rates varied significantly depending upon how termination status was decided. More recently, Hatchett and Park (2003) compared four differing methods of determining termination status (therapist judgment, missed-appointment, median-split procedure, and failure to return after intake) and concluded that only two of them (therapist judgment and missed-appointment) converged on the same phenomenon. Unfortunately, both of these methods are problematic from a DD framework.

Using the missed appointment method a client who misses the last scheduled appointment is categorized as having prematurely terminated, but this method does not consider that the client’s indifference point may have been surpassed. That is, the client may feel that sufficient improvement has already occurred and no longer consider therapy to pose sufficient value to be worth continuation. Thus, the client indifference point is not taken into consideration.

Similarly, therapist judgment, which historically has been considered the best method for determining termination status (Pekarik, 1985a), reflects the therapist DD rate and excludes consideration of the client DD rate. Typically, this method involves a simple dichotomous question (e.g., “In your opinion, did the client dropout from treatment?”) or is accomplished via a review of statements made by the therapist in termination notes. In recent years this popular approach to determining termination status has been criticized for its shortcomings (Barrett et al., 2008; Hatchett & Park, 2003). Specifically, it has been noted that this method (1) has the potential for low inter-rater reliability, (2) does not account for incongruence between client and therapist determinations of status at termination, and (3) does not account for therapists who are hesitant to recognize or report their clients as treatment dropouts, perceiving a sense of blame or possible failure.

From a DD framework, the best contemporary approach to categorizing termination status is to remove the influence of varying indifference points. The method described by Hatchett and Park (2003), which is based on attainment of clinically significant change (CSC) at termination, is useful in this regard. CSC is considered accomplished when (1) the client obtains a non-clinical range score on a standardized outcome measure [e.g., the Beck Depression Inventory (BDI-II: Beck, Steer, & Brown, 1996) or the Outcome Questionnaire-45 (OQ-45.2: Lambert, Hansen, Umpruss, Lunnen, Okiishi, & Burlingame, 1996)], and (2) the change in score reflects reliable improvement (Jacobson, Follette, & Revenstorf, 1984; Jacobson & Truax, 1991). Given research indicating that relatively few clients obtain CSC through therapy (Cahill et al., 2003; Hansen & Lambert, 2003; Hansen, Lambert, & Forman, 2002; Lambert & Ogles, 2004), a less stringent criterion based only on the second condition, that the client makes a reliable change (RC) indicative of improvement, may be merited. A client that discontinues treatment prior to attainment of RC (or CSC in the more stringent approach) is classified as prematurely terminating, while a client that has attained RC/CSC is considered a successful termination outcome. Thus, this method is consistent with the DD framework in that neither the client nor the therapist indifference point directly influences treatment outcome categorization.

In a recent study comparing methods of determining termination status, this method was found to be superior in accuracy (Swift, Callahan, & Levine, 2008). As would be expected from a DD framework and the influence of client and therapist indifference points, it was also found that the other popularly used methods for determining termination status frequently misclassified clients as treatment dropouts when recovery had occurred or as treatment completers when recovery had not occurred. Unfortunately, a very high rate of premature termination was also found (77%). In our opinion, the DD framework provides many opportunities for further understanding of the premature termination problem.

### *Understanding the Problem of Premature Termination*

Reviews on premature termination have indicated that somewhere around 20% to 56% of clients fail to return after an initial appointment, with the majority of clients attending less than five sessions of treatment (Baekeland & Lundwall, 1975; Garfield, 1994; Pekarik & Wierzbicki, 1986). These numbers seem especially problematic in view of the fact that the dose-effect literature indicates that around 15 sessions are necessary for 50% of clients to recover (Hansen, Lambert, & Forman, 2002; Lambert, Hansen, & Finch, 2001). Given the low levels of therapy attendance, not surprisingly, it has been found that approximately 40% to 60% of all clients discontinue treatment prior to making necessary improvements, with some studies reporting dropout rates as high as 80% (Callahan, Aubuchon-Endsley, Borja, & Swift, in press; Garfield, 1994; Hansen et al., 2002; Wierzbicki & Pekarik, 1993).

The deleterious effects of premature termination have been found to have an impact on a number of involved parties. For the client, premature terminators on average show worse treatment outcomes and greater severity of symptoms at follow-up when compared to treatment completers (Pekarik, 1983; Pekarik, 1992). Clients who terminate from therapy prematurely are also more likely to report dissatisfaction with services, specifically reporting complaints with the lack of treatment progress in a number of studies (Acosta, 1980; Garcia & Weisz, 2002; Hansen, Hoogduin, Schaap, & deHann, 1992; Pekarik, 1983). Further, Ogrodniczuk, Joyce, and Piper (2005) also indicate that clients who drop-out of therapy may not receive the full benefits of completing treatment, including a loss of gains that come from a worked-through termination.

Therapists also frequently experience negative impacts when their clients prematurely terminate from treatment. When faced with premature terminators, therapists may experience a sense of failure or demoralization due to the experience of perceived rejection by the client (Barrett, Chua, Crits-Christoph, Gibbons, & Thompson, 2008; Pekarik, 1985b; Ogrodniczuk et al., 2005). This demoralization may lead to the therapist experiencing painful emotional reactions and a threatened sense of self-worth; which may lead to decreased effectiveness when working with other clients and may even have carry-over effects

into the therapist's personal life (Ogrodniczuk et al., 2005). Additionally, when clients terminate by not showing up for scheduled appointments, therapists experience a loss of revenue and an underutilization of time (Barrett et al., 2008).

The negative effects of premature termination extend beyond the two parties specifically involved in the therapy relationship. Premature terminators who do not show for a scheduled appointment deny access to services for other clients, resulting in longer wait-list times (Barrett et al., 2008; Ogrodniczuk et al., 2005). It has also been found that clients who prematurely terminate from therapy at one time are more likely to be over-utilizers of mental health services in general (Baekeland & Lundwall, 1975). Clients who discontinue early from group therapy may disrupt group solidarity as well as lead to other group members following suit (Fieldsteel, 1996; Ogrodniczuk et al., 2005). Barrett et al. (2008) further point out that when a client drops-out of treatment, others who have a relationship with the client (i.e., family, friends, employers, etc.) are also negatively impacted by the client's continuation of symptoms and impairment.

A large amount of research attention has focused on identifying the variables related to this phenomenon. Reviews seeking to identify contributing variables however, have often produced mixed results. In a meta-analysis including 125 studies, Wierzbicki and Pekarik (1993) found that drop-out rates did not differ as a function of treatment mode (individual, group), setting (University, private clinic, public clinic, other), or type of client (adult, child, mixed). Wierzbicki and Pekarik further found that while the demographic variables of race, education, and SES were significantly (but only moderately) related, the variables of sex, age, and marital status did not play a role in client drop-out. Clarkin and Levy (2004) in their review of the literature similarly concluded that while age and other demographic variables are not related to early termination from treatment, social status, race, and a diagnosis of personality disorder may be associated with a higher risk. However, a number of others have identified inconsistencies in the literature when trying to link premature termination to any specific client demographic or symptom variable (Baekeland & Lundwall, 1975; Barratt et al., 2008; Garfield, 1994; Harris, 1998; Reis & Brown, 1999).

On the other hand, client variables of expectations and preferences for treatment have consistently been suggested to play a stronger role in determining whether a client will or will not drop-out prematurely from therapy (Baekeland & Lundwall, 1975; Barratt et al., 2008; Clarkin & Levy, 2004; Edlund et al., 2002; Garfield, 1994; Ogrodniczuk et al., 2005; Pekarik, 1991; Pekarik & Wierzbicki, 1986; Reis & Brown, 1999, 2006; Sheeran, Aubrey, & Kellett, 2007; Wierzbicki & Pekarik, 1993). Given this fact, a number of researchers studying the phenomenon of premature termination have suggested that instead of examining the role of client and therapist variables, "dropout researchers would better spend their time investigating other ... more complex variables, such as clients' intentions and expectations" (p. 194, Wierzbicki & Pekarik, 1993; see also Baekeland & Lundwall, 1975; Garfield, 1994; Reis & Brown, 1999). A DD framework is extremely promising in furthering such research and fostering new clinically relevant insights.

### *Client Expectations*

Client expectations refer to the pre-conceived notions that a client holds about the therapy encounter, and can be classified as either role expectations or outcome expectations (Arnkoff, Glass, & Shapiro, 2002; Dew & Bickman, 2005; Garfield, 1994; Goldstein, 1962). Role expectations are the behaviors that a client expects from therapy and may refer to the behaviors of the therapist, the client, or the therapy situation in general. For example, a client may expect the therapist to do most of the talking, the therapist to play an authority role, all of the therapeutic work to take place in-session, to attend sessions only when currently experiencing distress, to lie on a couch during sessions, etc. Outcome expectations, on the other hand, can be identified as the client's expectations for therapy efficacy. Examples of outcome expectations may include the expected likelihood of improvement, the expected



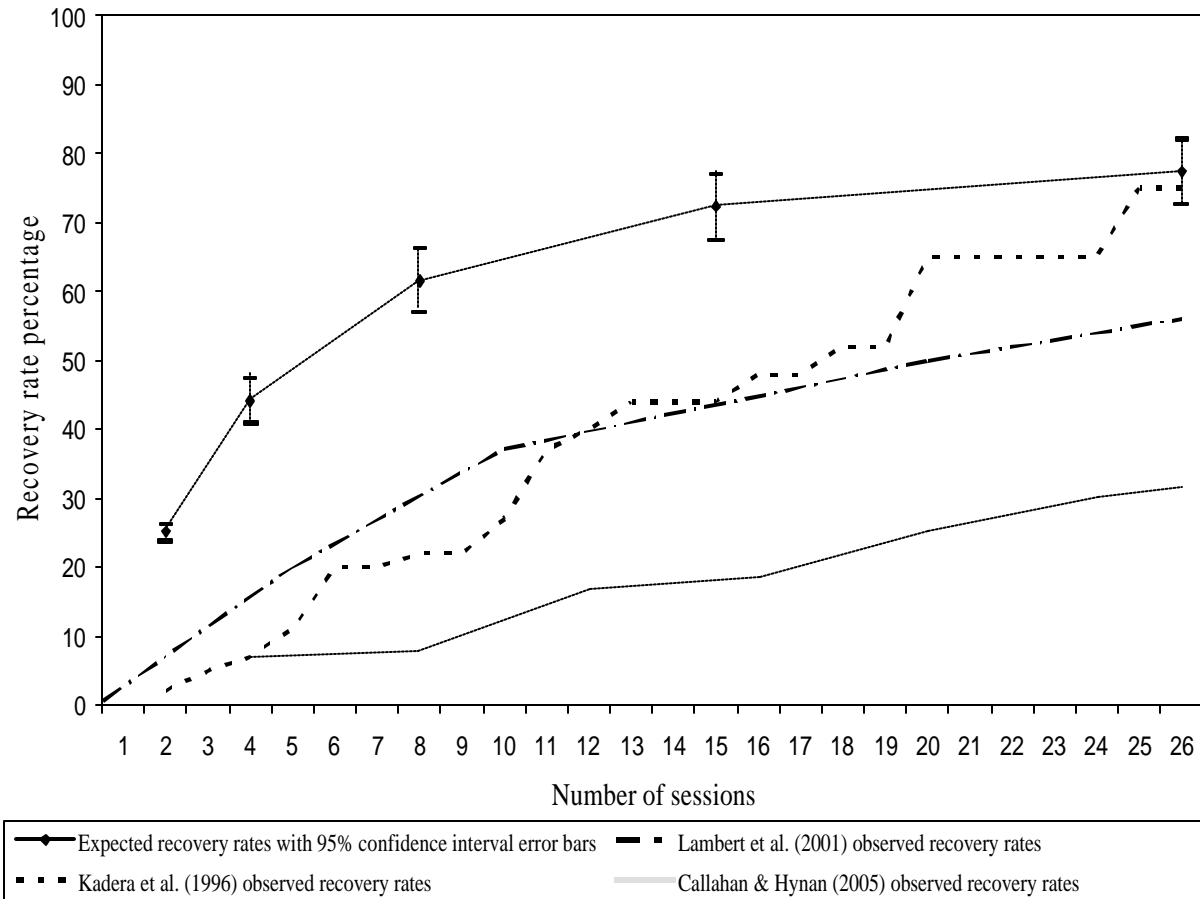
level of symptom reduction, the expected level of functional gains, the expected length of time needed before improvement is seen, etc.

Both unmet role and unmet outcome expectations have been found to be associated with premature termination (Reis & Brown, 1999). In general, dissatisfaction with treatment is often one of the primary reasons given by premature terminators for discontinuing services (Acosta, 1980; Gill, Singh, & Sharma, 1990; Pekarik, 1983), and is endorsed more often by premature terminators when compared to treatment completers (Garcia & Weisz, 2002; Hansen et al., 1992; McNeill, May, & Lee, 1987). Further, it has been found that clients who prematurely terminate from treatment are more likely to report that expectations had not been fulfilled (Hansen et al., 1992). Pre-therapy expectations, when not congruent with actual treatment, have also been found to predict drop-out status (Aubuchon-Endsley & Callahan, in press; Callahan et al., in press; Gunzburger, Henggeler, & Watson, 1985; Hardin, Subich, & Holvey, 1988; Nock & Kazdin, 2001; Rabin, Kaslow, & Rehm, 1985; Walitzer, Dermen, & Connors, 1999). Specifically examining expectations for the duration of therapy, Pekarik and colleagues have repeatedly found expected duration of treatment to be the best predictor of the actual number of sessions attended (Pekarik, 1991; Pekarik & Stephenson, 1988; Pekarik & Wierzbicki, 1986). Moreover, strategies aiming to lessen the discrepancy between client expectations and what actually occurs in therapy have consistently proven useful in decreasing treatment drop-out (Ogrodniczuk et al., 2005; Reis & Brown, 2006; Sheeran et al., 2007).

In order to adequately address unmet expectations, and in turn reduce treatment drop-out, it is important to first understand the nature of the expectations that clients hold. Studies attempting to identify both role and outcome expectations in clients have primarily done so by directly asking clients to state what they expect for therapy [e.g., Pekarik and Wierzbicki (1986) asked clients how many visits they thought they would attend]. However, this method of assessing expectations, particularly outcome expectations, may be inadequate due to the often multifaceted nature of the expectations that clients hold. For example, a client may be asked how many sessions of treatment he/she expects to attend. However, duration expectations may also be influenced by expectations for the effectiveness of treatment (e.g., “If the treatment used shows a 90% recovery rate, then I expect it to last XX number of sessions; if the treatment shows a 50% recovery rate, then I expect it to last XX number of sessions”) or the nature of the problem that is being addressed (e.g., “If the focus of treatment is on my relationship, then I expect to attend XX number of sessions; if the focus is on my drinking habits, then I expect to attend XX number of sessions”). In order to gain a better understanding of client expectations, methods that account for multiple expectations and variables are needed. Framing questions about expectations in the manner we use here directly lends itself to research from a DD framework.

#### *DD and Client Expectations.*

Recently, Swift and Callahan (2008a) used DD procedures to examine treatment duration expectations in combination with treatment effectiveness expectations. In this study participants were asked to choose between treatments that varied in both observed effectiveness and number of sessions. For example, participants were asked to choose between a treatment that lasted only one session and had a 15% recovery rate, and a treatment that lasted 15 sessions and had a 50% recovery rate (see Table 2 for complete example). Indifference points were then calculated across various treatment durations. Swift and Callahan interpreted these indifference points as efficacy expectations, or the effectiveness that a participant expects for a given length of treatment. Interestingly, the observed pattern of expectations followed a negatively-accelerated positive curve, similar to that found in the dose-effect literature (Hansen et al., 2002; Lambert et al., 2001). That is, the pattern indicated expectations of very rapid change early in treatment followed by a gradual leveling off of treatment gains. Despite the similar pattern, these expectations were considerably higher than typical treatment outcomes (see Figure 1). Swift and Callahan concluded that the exaggerated expectations for treatment may be one factor contributing to premature termination in therapy.



**Figure 1. Expected Recovery Rates Compared to Dose-Effect Recovery Rates**

*Note:* Graph reprinted with permission from Swift & Callahan, 2008 (p. 584).

DD procedures could be used to gain a further understanding of treatment expectations. Swift and Callahan (2008a) used this method to understand expected outcomes in terms of recovery rates; however, these methods could also be applied to measure expected outcomes in terms of amount of symptom alleviation, amount of distress relief, etc. For example, a client could be asked: “Would you prefer maintaining your current distress level and attending no sessions of therapy, or would you prefer attending 2, 4, 6, etc. sessions, resulting in a 40%, 60%, 80%, etc. reduction in your distress level?” Premature terminators could be hypothesized to be individuals who prefer remaining at their current distress level over attending any number of sessions, unless guaranteed a very high and unrealistic amount of distress reduction. Similarly, it could be hypothesized that individuals who are more likely to dropout of treatment and who hold unrealistically high expectations for treatment are individuals who discount at



a higher rate (in general preferring more immediate rewards) compared to treatment completers. Future uses of DD procedures can aid in our understanding of the multifaceted expectations that clients hold. Indeed, a DD framework allows for a more nuanced understanding of a range of variables related to termination status. To illustrate this point, we explore another common, but salient, variable: client treatment preferences.

### *Client Preferences*

Client preferences, as compared to client expectations, refer to behaviors or aspects of therapy that are valued or desired, as compared to expected (Arnkoff, Glass, & Shapiro, 2002). An important distinction is in whether the client thinks that the behavior/event *will* occur or *wants* the behavior/event to occur. For example, a client may prefer not to pay for treatment, but actually expects to pay a significant amount per session. Arnkoff et al. (2002) indicate that client preferences fall into three main categories: preferences concerning the roles played in therapy, preferences for the type of therapy (e.g., one type of psychotherapy vs. another, individual vs. group, etc.), and preferences for the type of therapist (e.g., female vs. male, experienced vs. novice, etc.).

A number of studies have indicated that clients do have preferences related to the treatment that they receive (Aita et al., 2005; Churchill et al., 2000; Ertly & McNamara, 2000; Gum et al., 2006; Priest, Vize, Roberts, Roberts, & Tylee, 1996; Schwartz & Rubel, 2005; Wong, Kim, Zane, Kim, & Huang, 2003). For example, Riedel-Heller et al. (2005) interviewed over 5,000 participants and found that when presented with a vignette of schizophrenia or depression, the majority of participants indicated that they would desire to be treated with psychotherapy compared to pharmacotherapy or other treatments. In another study, Wanigaratne and Barker (1995) asked 25 clients at a psychiatric day hospital to watch brief videos of role-played counseling sessions portraying five different therapy styles (cognitive-behavioral, humanistic, psychodynamic, focusing on external contributors to the problems, and the therapist playing the role of a friend). After watching all videos, included participants primarily preferred the cognitive-behavioral approach, indicating that they felt it would be most helpful. Further evidence for the existence and importance of preferences can be found in the fact that many clients refuse to participate in randomized-controlled trials. In a review of 32 randomized-randomized controlled trials, King et al. (2005) found that a significant number of recruited participants who at first accepted participation later refused randomization due to not wanting to risk being assigned a treatment that was not preferred (22% to 74% across studies, with over half of the studies reporting refusal rates above 50%).

Client held preferences have been found not only to impact treatment participation, but have also been found to have an effect on treatment outcome and therapy drop-out. In a recent review of the preference literature, Swift and Callahan (2009) examined outcomes across 26 studies comparing clients who received a preferred treatment to clients who received a non-preferred treatment. This meta-analysis found a small but significant outcome effect ( $r = .15$ ,  $CI_{.95}$ : .09 to .21) in favor of clients who received a preferred treatment. In addition, when looking at premature termination, a significant effect size ( $O.R. = 0.58$ ) was found; thus indicating that clients who received their preferred treatment were about half as likely to drop-out when compared to clients who received a non-preferred treatment.

Recognizing the importance of this factor in determining treatment participation and drop-out, it is also essential to more fully understand the nature of the preferences that clients hold. Studies that have attempted to assess client preferences have previously used overly simplistic methods (i.e., asking the client to simply endorse the treatment of choice). This method both ignores the multi-faceted nature of preferences and assumes that preferences are an all or none decision. For example, a client may prefer a treatment that is more problem-focused when seeing a male therapist and a treatment that is less problem-focused when seeing a female therapist, or vice-versa. As another example, a client may prefer a treatment that has been proven in the research to be highly effective, but her/his preference for an effective treatment may be relatively small compared to her/his preference for an empathetic therapist. In order to gain a better understanding of client preferences, methods that account for multiple preferences

as well as allow clients to assign values to their preferences are also needed. Because preferences directly reflect subjective valuing, they are exceptionally well-suited to a DD framework.

Table 3.

*Worked Example of a Delay discounting Task Measuring Treatment Preferences*

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Instructions: You have the option of choosing a treatment that has a 70% recovery rate where the therapist does most of the talking, and a treatment that has \_\_\_ recovery rate where the client does most of the talking.

Which would you prefer?

- 70% recovery rate , therapist talks                       70% recovery rate, client talks

Now which would you prefer?

- 70% recovery rate , therapist talks                       60% recovery rate, client talks

Now which would you prefer?

- 70% recovery rate , therapist talks                       50% recovery rate, client talks

Now which would you prefer?

- 70% recovery rate , therapist talks                       40% recovery rate, client talks

Now which would you prefer?

- 70% recovery rate , therapist talks                       30% recovery rate, client talks

Now which would you prefer?

- 70% recovery rate , therapist talks                       20% recovery rate, client talks

Now which would you prefer?

- 70% recovery rate , therapist talks                       10% recovery rate, client talks
- 

This example would indicate preference value of 25% for the client to do most of the talking (i.e., the client would be willing to receive a less effective treatment by 25% to ensure that he/she does most of the talking in session).

*DD and Client Preferences*

Swift and Callahan (2008b) have also used a DD model to examine client preferences for treatment in greater detail. Specifically, in this study clients were asked to compare a treatment that was relatively high in efficacy, but was missing some therapy related variable, to a treatment that had altering rates of recovery with the same therapy related variable present. For example, participants were asked to choose between a treatment that has a 70% recovery rate, but is delivered by a therapist that is described as cold and distant, and a treatment that has a 30% recovery rate, but is delivered by a therapist that is described as warm and empathetic (see Table 3 for complete example). All things being equal, one would expect participants to prefer the more effective treatment. However, using these methods participants

could assign a value to their preferences for certain variables over others (e.g., clients may be willing to receive a treatment with a 55% lower recovery rate in order to ensure an empathetic therapist, but only willing to receive a treatment with a 10% lower recovery rate in order to ensure a more experienced therapist). Swift and Callahan concluded that this more in-depth understanding of client preference could be used to provide clients with more individually tailored treatments, and thus reduce treatment drop-out.

DD procedures can further be used to increase our understanding of client preferences for treatment in a number of other areas as well. Swift and Callahan (2008b) had clients compare a treatment with a therapy variable present to a treatment without that variable present, in order to determine the relative value that clients place on the specific variable. However, the procedures could easily be adapted to simultaneously compare two variables to each other. “Would you prefer a treatment that is high in empathy and low in directiveness and shows a 30%, 50%, 70%, etc. recovery rate, or a treatment that is low in empathy and high in directiveness and shows a 30%, 50%, 70% etc. recovery rate.” Similarly, a client could be asked “Would you prefer a cognitive-behavioral treatment for your depression which has been found to have a 60%, 70%, 80%, etc. recovery rate, or a medication treatment for your depression which has been found to have a 60%, 70, 80%, etc. recovery rate. Similar to expectations, using DD procedures to examine client preferences would also aid in our being able to recognize the multifaceted nature of client preferences in the complete therapy context.

### *Conclusions*

A delay discounting model for conceptualizing termination holds great research and clinical promise. In this paper, we posit that the DD framework carries important implications for how termination status should be determined and also provides a method for informative, nuanced psychotherapy investigations on variables related to termination. To illustrate how such investigations may be carried out, we focused on a very common psychotherapy problem (premature termination) and two common variables: client preferences and expectations. In the overviewed studies, we find compelling evidence that the DD framework is highly useful in fostering an understanding of the role of these variables in treatment outcomes. However, we strongly believe that this method can also be applied to investigate specific variables associated with discrete treatments and contribute to the evidence-base for such interventions.

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Address correspondence to:

Jennifer L. Callahan PhD ABPP,  
Department of Psychology,  
University of North Texas,  
1155 Union Circle #311280,  
Denton TX 762093-5017.  
Phone: 940-369-8229;  
FAX: 940-565-4682;  
E-mail: [jennifer.callahan@unt.edu](mailto:jennifer.callahan@unt.edu)

Joshua K. Swift  
Oklahoma State University