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Volume Number 5

Consolidated Issue Number 5-3 & 5-4

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ISSN 1555 - 7855

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# **International Journal of Behavioral Consultation and Therapy**

**VOLUME NO. 5, ISSUE NO. 3 & 4 Consolidated**

**ISSN: 1555 - 7855**

**Published: February 3, 2010**

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The International Journal of Behavioral Consultation and Therapy (IJBCT), is published quarterly by Joseph Cautilli and BAO Journals. IJBCT is an online, electronic publication of general circulation to the scientific community. IJBCT's mission is to provide a focused view of behavioral consultation and therapy for the general behavioral intervention community.

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# **International Journal of Behavioral Consultation and Therapy**

*ISSN: 1555 - 7855*

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ISSN: 1555 - 7855

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## Repeated measures in case studies relating social competence and weight loss in two obese adolescents

*Sonia Beatriz Meyer, Phd., & Debora Regina Barbosa, MS*

In individual behavior therapy two clients were evaluated using behavior categories created by the therapist. Both clients were observed to improve in terms of social competence. One demonstrated a significant inverse correlation between improvement of social competence and weight loss during treatment (16 sessions) and lost weight. The other required longer treatment (40 sessions), but also demonstrated the same tendency of results at the end of intervention. Based on this evaluation, it was postulated that behavior therapy targeted to issues of social competence could be part of treatment for weight loss, and be combined with other therapeutic modalities.

Keywords: Case study, repeated measures, relations among responses, behavior therapy, obesity; social skills; adolescent; social competence.

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Obesity has gained more attention due to its high incidence, as well as the difficulties and failures related to its various treatments. Work with obese adolescents is critical, given the likelihood of becoming an obese adult (Jelalian & Saelens, 1999, Neinstein, 1996).

Obesity is a complex problem whose origins are based on a number of interrelated factors. Inadequate emotional response, and social and psychological difficulties are invariably cited as part of the general problematic that involves obesity; these include rejection by a peer group, dating difficulties, isolation, depression, aggressiveness, anxiety, and low self-esteem.

All these aspects have great importance for the healthy development of an individual, especially during adolescence, and a satisfactory and adjusted performance in these social fields presupposes the development of certain social abilities.

Recently, a number of avenues of research in behavior therapy have dealt with questions associated with relations among variables and among responses. Functional analysis is the instrument used for deciding which behaviors should be targeted during intervention, since it is common for the presented complaint to be part of a complex of interrelated behaviors – a response class – which will be discovered during therapy, as well as its function and incompatibilities (Meyer, 1997).

In the case of overeating, functional analysis must indicate the behavioral function, in other words, what are the consequences reinforcing the overeating. It also has to identify if there are any other behaviors in the behavioral repertoire of the individual that have a similar function to overeating but that are not harmful to the individual. If not, new behaviors may need to be installed. These other behaviors can involve directly or indirectly a variety of social abilities and would be then differentially reinforced. Thus, if the generic function of overeating is the avoidance of difficult social situations for the client, the procedure derived from this analysis may be educating or strengthening behaviors that may transform social approaches in pleasant occasions, instead of feared. If the main maintaining consequence of excessive caloric ingestion is the attention from the family, the change strategy which derives from this analysis may be reinforcing direct communication forms. In this case, the client can start to request attention in a direct form and no longer in an indirect and inadequate form, namely overeating.

Multiple behaviors have been emphasized in clinical research (Sturmey, 1996) and the complex question of which behaviors require treatment during therapy has been much debated, since the majority of clients present multiple and interrelated problems. Novel forms of treatment must deal with this

question and try to discover and develop more adequate and important new replacement behaviors, which could become concurrent responses “against” the behavioral problem and favor adaptation.

The relation between responses was also pointed out by Craighead, Kazdin and Mahoney (1994); many behaviorists believe, they note, that behavioral problem alteration may result in improving other aspects in the individual’s life, or that beneficial treatment effects may be generalized for other behaviors.

Dow (1994) presented a planned behavioral intervention based on the relations between responses; he argued about the possibility of success in treating depression without directing the attention to the depression complaints. The clients entered in a program of social-abilities training, which led them to an improvement in the behaviors related to the depression and which showed the importance of developing adequate alternative behaviors.

Thus, a review of the literature on obesity indicates that obesity is often interrelated with non-physiological variables, including emotional, familial, and social. Functional analysis of clinical problems also frequently indicates that behavioral problems are related to others parts of the individual’s behavioral repertoire, especially with the absence of a social repertoire. It seems useful, then, to analyze the relations between responses, which may permit to modify one or few interrelated behaviors, and then to observe changes in many of them.

This form of analysis and intervention was proposed for the present study instead of other behavioral treatments for obesity already tested. Other traditional treatments, which target diet and exercise, although they promote weight loss, do not assure that it will be maintained. Thus, the study intended to verify if a treatment that targeted other behaviors related to excessive eating, selected through functional analysis, and that did not target the behavioral patterns of eating and exercise, also would lead to weight reduction. By determining and understanding the complex inter-relationship between the different behavioral changes accompanying weight loss, a more complete and tailored form of treatment may than be developed.

The objective of this research was to identify behaviors related to excessive eating in obese adolescents, to promote changes through a behavioral therapeutic process, and to verify if changes in these related behaviors would be followed by a change in weight

## Method

### Participants

Two obese adolescents participated in this study. They presented other behavioral complaints such as anxiety, chronic headache, shyness, as well as difficulties with familial and social relationships. During treatment they agreed not to participate in any other type of psychological treatment, or in any other weight-loss treatment.

The first client, female, 13 years and 10 months old at the beginning of treatment, was in the seventh grade, from a low socioeconomic stratum. Her body mass index<sup>1</sup> was 32.1, which is considered obese, and she weighed 85.2 kg. The second client, male, 16 years and 6 months old at the beginning of treatment, was in the eighth grade, also from a low socioeconomic stratum. His body mass index was 33.8, which is also considered obese, and he weighed 111 kg.

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<sup>1</sup> Body Mass Index is (B.M.I.) is obtained through the formula: weight in kilograms/height<sup>2</sup>. Individuals with B.M.I. between 25 and 30 are considered overweight, between 30 and 40 are considered obese and superior than 40 are considered morbid obese (Halpern, 1998).

### Procedure

The clients were treated in individual therapy, weekly, at the Behavioral Therapy Laboratory at the Psychology Institute at University of São Paulo. All sessions were videotaped with the permission of the client and his/her parents. The psychological treatment, as discussed with the clients, was based on general objectives related to the various behavioral complaints and were not focused directly at the obesity problem. The therapist analyzed functionally, with each client, the problem-situation brought for the sessions searching an understanding and possibilities of changes in the established relations between the client's responses and the environment variables.

By reviewing the videos of the sessions, the therapist created categories of behavior for each client, which allowed a continuous evaluation of the change process, following thus, the single subjects design principle of collection of repeated measures. The categories of desirable and undesirable behaviors were elaborated and described, and ended up practically identical for both clients. For each session, the occurrence or non-occurrence of each category was recorded (only once per session). Two graduate students in psychology made the same register with a sample of sessions and got a reliability measure of 85%.

### **Categories of undesirable behaviors**

1. *Anxiety (A)*: Sweating, snapping of the fingers, body movements, and gesticulation during the session;
2. *Dependence on the mother (D)*: indicators of dependence, such as seeking aid in routine daily tasks, attention from and frequent company of the mother;
3. *Avoidance/Isolation of colleagues (AV)*: do not seek, or actively avoid contact with others, poor interaction at school or other places;
4. *Lack of assertiveness with colleagues (IC)*: acceptance of colleagues' impositions without expression of discomfort or discordant feelings;
5. *Lack of assertiveness with the mother (IM)*: acceptance of the mother's impositions, without expression of discomfort or discordant feelings;
6. *Competitiveness (C)*: Report of competitive behaviors, such as comparisons, judgment, competition;
7. *Inflexibility (I)*: Report of behaviors of authoritarianism and inflexibility, as in the evaluation or lack of acceptance of other people's needs as different from one's one, and refusal to accept leadership;
8. *Justifications (J)*: Use of justifications for explaining one's behavior options;
9. *Pessimistic cognition (PC)*: Identification only of negative aspects when reporting events and/or indications of discouragement;
10. *Familial fights (F)*: Report of occurrence of quarrels between parents and/or the possibility of conjugal separation;
11. *Aversive events (AE)*: Report of situations considered aversive, contingent or not on behaviors.

### **Categories of desirable behaviors**

1. *Spontaneity during interaction (SR)*: Fluency in reporting events;
2. *Approach to colleagues (AC)*: Report of interaction with others;
3. *Physical activity (PH)*: Report of physical activity during the week;
4. *Written task (T)*: Delivery of homework assignment requested in the previous session;
5. *Analysis of own behavior (AB)*: Identification of relations between one's emotions, thoughts, behaviors, as well as consequences of these for oneself and the others;
6. *Identification of own feelings (IF)*: Identification and naming of feelings and emotions during the session;
7. *Identification of other's feelings (IO)*: Demonstration of interest for others' feelings and perception of being different from ones;
8. *Adequate expression of feelings (EX)*: Expression of positive and negative feelings in a clear and objective form, during the session and/or in reported situations;
9. *Identification of own qualities (IQ)*: Verbalization of positive aspects in oneself, spontaneously or after the therapist's indication;
10. *Relaxation (R)*: Occurrence of relaxation training in the session or reference to its realization at home;
11. *Behavior concurrent to eating (CE)*: Report of other alternative behaviors in the occasions identified as having a high probability of "exaggerated eating";
12. *Expression of emotion in the own speech (EH)*: Verbal and non-vocal behaviors, such as voice tone and body language congruent with the reporting of emotions;
- 13.

*Confrontation (C)*: Report of participation in academic and/or social events considered as difficulties; 14. *Initiatives (IT)*: Report of initiative for resolution of daily difficulties, considering own feelings (behavior tendencies); 15. *Pleasant events (PE)*: Report of pleasant and/or satisfactory situations, contingent or not on behaviors.

Beyond these categories, the themes cited were analyzed (social relations (RS), family (Fa), school (S), food (TA)) as well as the weight (W) measured each session. For each client, the categories and themes were correlated to verify if relations could be identified between responses, that is, responses with a high or low probability of their occurring together. The correlation between the categories was carried out by the computerized SPSS statistical program, and the Spearman bilateral test was used, allowing results with significance levels between .01 and .05 .

## Results

### Functional Analysis

Based on the data of initial interviews, observation and client's reports, a descriptive functional analysis (Sturme, 1996) was derived which identified central behavior classes, its probable acquisition and its maintaining consequences.

#### *Behavior classes for client 1:*

- Overeating.
- Isolation and difficulty in social relationship.
- Difficulties in expressing feelings in family and social environments.
- Extreme dependence on the mother (the client did not leave the house alone; she reported everything that happened to the mother and asked for assistance in all moments for daily basic activities, such as, for example, combing hair).
- "Nervousness" (she yelled out or was aggressive when things did not happen as she desired).
- Pessimistic covert behaviors and low frequency of observation of positive aspects in social and/or school relations.

#### *Hypotheses of acquisition and maintenance:*

- Lack of repertoire related to different social abilities that would favor a better social and family interaction.
- Positive reinforcement by the mother of the dependent behaviors (the father was indifferent, only the mother followed her to all places, bought special foods, combed her hair, chose her clothes).
- Lack of reinforcement and even punishment related to initiatives (the mother did not allow her to go out alone and tried to protect her from others), hindering the client from becoming close to other people.
- Absence of leisure and other sources of social reinforcement.
- Aversive situations when interacting with others and/or with relatives (non-acceptance by school colleagues because of imposition of rules on them, name-calling and bullying).
- Sedentary life.
- Inadequate eating habits in the home (family often ate pizza and/or sandwiches instead of meals, at irregular hours).

#### *Behavior classes for client 2:*

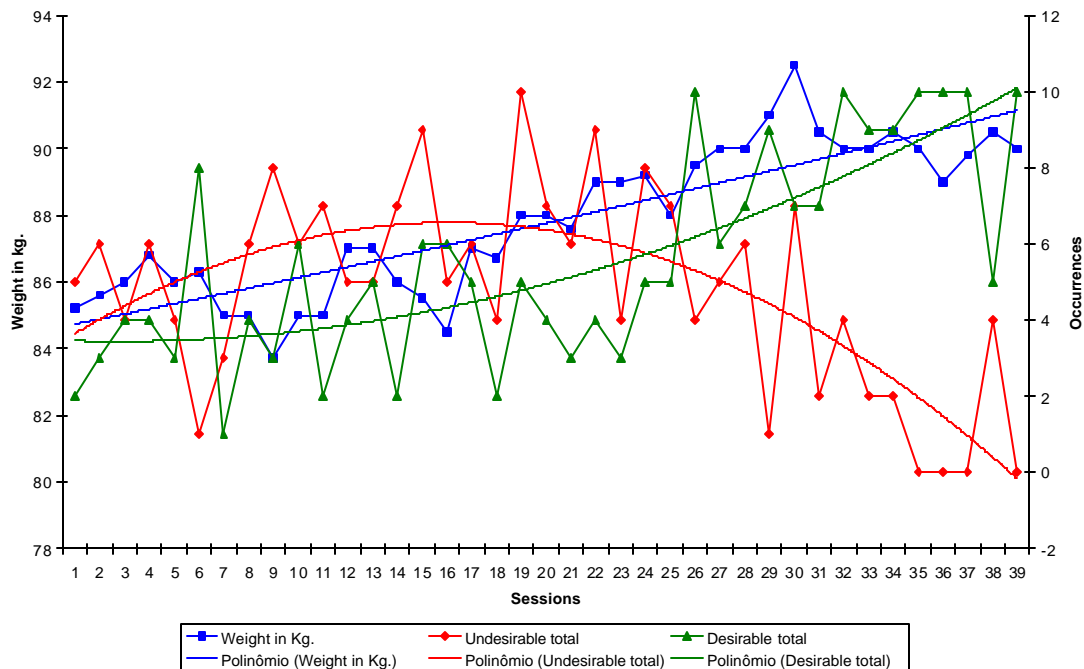
- Overeating.
- Avoidance and isolation in social and family relationships (shyness).
- Generalized anxiety in social situations (sweating, loss of speech).
- Covert behaviors of incompetence (he believed that would not be able to face new situations, in the family or school environment).

*Hypotheses of acquisition and maintenance:*

- Weak repertoire of social abilities that could favor confrontational behaviors in different social situations (lack of assertiveness).
- Reduced social reinforcement (rarely went outside, except to go to school or to older relative's house).
- Dangerous neighborhood, making interaction with other adolescents difficult.
- Absence of adjusted parental models of expressing feelings (the client had no father at home, and mother did not appear to be an adequate model).
- Aversive events at school (rebukes and threats).

Categories of behavior analysis

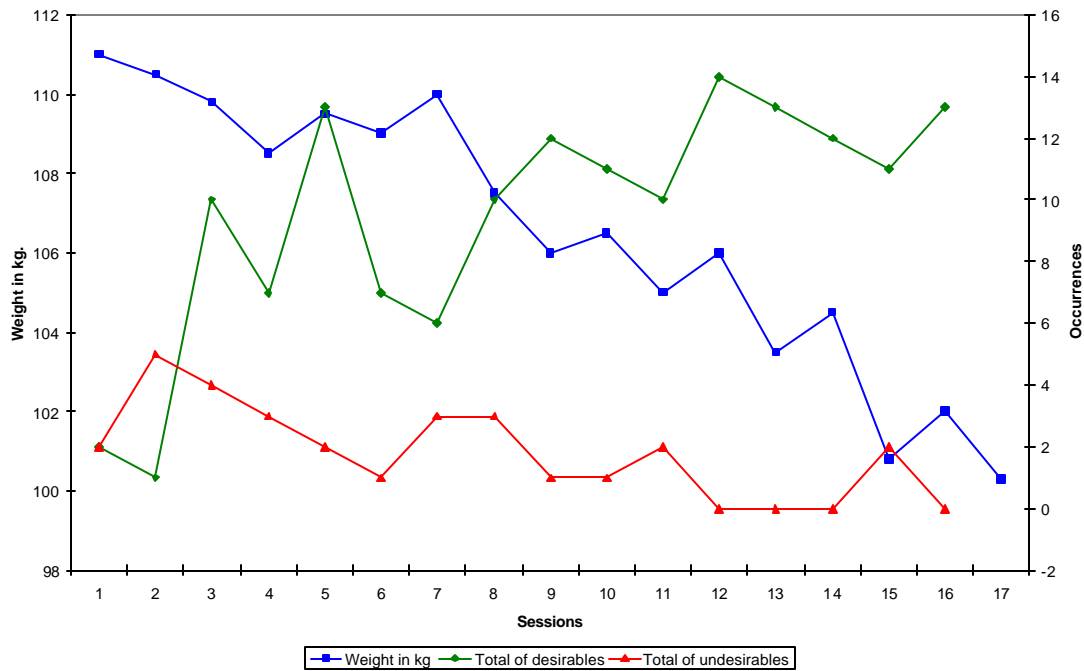
The researcher created 24 categories, 11 considered undesirable and 13 desirable, for Client 1. The desirable and undesirable categories were added for each session and are shown in Figure 1, together with weight, during the 40 sessions. Figure 1 shows that undesirable categories fluctuated during treatment and the desirable ones increased, but also with variations. An increase in the concentration of desirable behavior occurred followed by a reduction in the concentration of undesirable behaviors at the end of the treatment. Weight had increased, with some fluctuations, during the entire treatment. Until the seventeenth session, it went from 85 to 87 kg, and from the eighteenth, it began to increase, reaching 92.5 kg in the thirty-first session. From there on, it showed a slight decreasing trend, reaching 90 kg in the final session.



**Figure 1. Total of desirables, undesirables and weight by session for client 1**

For Client 2, 20 categories of behavior were identified, seven undesirable and 13 desirable, and four themes were discussed during the sessions. The sum of desirable and undesirable categories, together with weight, during 16 sessions is shown in Figure 2. An increase in the concentration of desirable

behaviors and a reduction in the undesirable ones was observed during treatment. These results showed that the client strengthened and/or developed a favorable behavioral repertoire during treatment. Weight showed a continuous reduction, from 111 kg in the first session to 102 kg in the sixteenth session, which was part of the monthly follow-up. After two months, in the next follow-up, the weight had dropped to 100.3 kg.



**Figure 2. Total of desirables, undesirables and weight by session for client 2**

Correlations

The number of significant correlations for Client 1 was 193, for Client 2, 76, as illustrated in Figures 3 and 4. The first column contains category codes and names. The white squares indicate the desirable factors, those in gray indicate the undesirable ones, and those in black indicate the themes. The following columns show the category codes with significant correlations. First, the positive correlations were placed, then the negative ones in italic. The lines were ranked in decreasing order according to the number of positive correlations, and then the negative ones were indicated. Categories that had appeared more than once in the line or in the column, indicating correlations with more than one category, were highlighted. The correlations that appeared just once in the line and/or column were not highlighted.

The resultant groupings of this correlation data from Client 1 is shown in Figure 3. Inflexibility correlated positively with justifications, competitiveness, lack of assertiveness with colleagues, avoidance/isolation of colleagues and with aversive events. These categories had several indices of significant correlations among themselves. The category anxiety also showed correlation with this group. A grouping of response categories emerged that was called Group I – Undesirable, for containing seven of the 12 undesirable ones.





although she presented slower progress in the development of the behavioral repertoire and, only in the last 10 sessions, presented a weight reduction trend.

The functional analysis was an important instrument not only for the individualization of the treatment but also for data analysis. Although the choice had not been intentional, each client presented a different function of overeating. Initially both presented a lack of adjusted social repertoire, however for Client 2 the behavior of overeating did not have an important positive reinforcer keeping it. His behaviors seemed to be maintained by escape and avoidance of social situations. For Client 1, the social reinforcing consequences were very strong, maintaining overeating as well as other identified behavior problems. When actual positive reinforcement for problem behavior occurs, changes in the therapy process tend to be slower.

The use of categories for data collection and analysis was an option with many advantages. The categories were defined during treatment and were based on the perception of the therapist<sup>2</sup> about what was most relevant for each client, considering the goals of each case, being an individualized work tool. Furthermore, as a result of repeated measures, it was possible to follow the change process, which is a first step for an eventual use of a single subject experimental design. It also allowed the analysis of response relations.

As a form of conducting clinical research, categorization could be carried out directly by videotape observation, without the need of time-consuming session transcription, and, still allow reliability test. The recording of occurrence/non-occurrence for each category was not a sophisticated measure because it did not consider the frequency or other response dimensions. For future studies, this procedure should be reviewed for obtaining more discriminating measures, having already been developed in Yano's (2003) study.

It must be considered that the interpretations from case studies are always tentative. Advances in behavioral clinical researches are derived from the cumulative effects in several studies (Barlow, Hayes & Nelson, 1984, Kazdin, 1992, 1998). The search for better understanding of all variables involved must continue through new experimentation and treatment proposals that supplement those already in existence.

### Acknowledgements

We would like to thank the participants in the study and the "Adolescents unit staff of the Child Institute," especially Doctor Maria Helena Saito for their time and help during the client's selection. We also wish to thank Robert Sprung and Charles Blandy Vermes for their help with the English edit.

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<sup>2</sup> The second author.

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# **The outcome of behavioral intervention with a person living with schizophrenia who exhibited medication noncompliance: A Case Study**

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## Abstract

The behavioral counseling of a withdrawn and noncompliant schizophrenic South American person, who is an immigrant, by an Asian counselor taking place in the United States is introduced. Although some difficulties, such as a language barrier, exist in the clinical setting, a behavioral assessment to analyze the client's issues through focusing on overt matters is accomplished, and a behavior contract that is generated from the assessment promotes the intervention by educating the client about prospective procedures. The client starts taking medications, going for walks, and having more communications with his family as the result of the counseling.

Keywords: Medication noncompliance, schizophrenia, behavior therapy, multicultural counseling.

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## Introduction

A variety of multicultural issues in clinical settings have been studied and discussed and multicultural competence has become an important research area in the field of counseling psychology (Pope-Davis et al., 2002). One of the beliefs from the research is that if a client and a counselor do not match culturally, the sessions conducted between them can possibly have limitations (Sue, 1977). Besides, as concerned Flaskerud (1991), if a client suffers from a persistent mental illness, the limitations of multicultural counseling can be much greater.

Tim (assumed name) was a middle-aged single male immigrant from a South American country. He first became the client of a mental health agency in the United States during the 1990's for about half a year; his diagnosis was adjustment disorder with depressed mood. He was referred to the same agency again in the beginning of the 21st Century due to social withdrawal; his diagnosis was avoidant personality disorder. Within a year, he dropped out of treatment. Several years later, he became a psychiatric hospital patient with diagnoses of atypical depression and mixed (schizotypal and avoidant) personality disorders. Because of his tendencies to avoid going out in public and not to comply with taking his medications, the treatment did not last long. Tim's symptoms degenerated until his parents appealed to the above hospital for help. The parents claimed that Tim was withdrawn and had become uncontrollable. They could not get enough sleep since Tim was making loud noises every night. When they asked Tim to be quiet, he showed anger and pushed the parents occasionally. Tim refused to come to the hospital with them. The case was

accepted and the author, a Japanese counselor, was assigned the case. The author soon made a home-visit and met with Tim. Although he declined the author's proposal that the author would visit him once a week, he agreed to an alternative proposal that the author would visit him once a month. His diagnoses were: (a) Axis I: schizophrenia, paranoid type, and (b) Axis II: deferred.

### *Client*

Tim resided with his parents who were both in their seventies. Tim had sisters who were married and living outside of his home. He was born and raised in a South American country. As a child he was quiet; he tended to prefer reading books or doing homework rather than playing outside. His grades were very good. When he was a teenager, he became a little more outgoing; he played sports and made friends. He and his family left their country and immigrated into the United States. After immigration, he enrolled in college. Due to the onset of the mental illnesses, he dropped out a couple of years later. He periodically did temporary work before and during his college days. He had been unemployed for a long time and was receiving social welfare. He had no friends; the only social interaction he had was with his immediate family. However, as the deterioration of his mental stability progressed, he avoided communication even with them. Since he was depressed, unable to concentrate, and developing some memory problems, he read psychology books and did certain psychotherapeutic exercises without supervision. Then, he had a panic attack and was sent to a psychiatric hospital. The precise year that his mental illness had entered the active phase was unknown. He was able to speak English to some degree, but the English abilities of his parents were limited.

Tim was 6 feet tall and weighed approximately 200 pounds. He had not have a history of major physical diseases. He had not received a medical checkup in the last 20 years, so his health conditions at the time was unknown. He looked healthy. He had an appetite. In his college days, he used alcohol and cigarettes. However, he has never been a substance abuser.

Tim was disheveled. His affect was flat. He did not leave his home at all and usually stayed in his room. He slept in the daytime and was awake at night. Late at night, he talked to himself, shouted from the window, and made loud noises by walking or pounding on things in his room. He did not have homicidal/suicidal ideations. He exhibited incoherence (e.g., "I won't go out because there are pregnant women outside." or "Medications don't work on me because I like dogs."). Although Tim had some

delusions, the author did not have opportunities to examine them; Tim once commented that his parents and the author had been talking in Japanese in spite of the fact that English was always used. Tim had an auditory hallucination (i.e., hearing voices), but did not explain what kind of voice he was hearing. He also had visual hallucinations in which he kept watching TV even after the broadcasts were over. He believed that he was not sick and that the people around him were sick. He declined psychiatric care including injections and medications.

Several psychological testings had been administered to Tim in the past. The results included: (a) the Wechsler Adult Intelligence Scale -Revised: full scale IQ = 73, verbal scale IQ = 75, and performance scale IQ = 73, (b) the Minnesota Multiphasic Personality Inventory: invalid, (c) the House-tree-person Test had suggested that he had been suspicious and frightened, and (d) the Rorschach Test and the Thematic Apperception Test had suggested that he had had a great deal of difficulty in constructing stories and identifying recognizable images.

#### *Behavioral Assessment*

According to the format by Kanfer and Saslow (1969), the author attempted the following behavioral assessment through: (a) interviews with Tim, (b) interviews with his parents, and (c) observations.

#### *Assets and Limitations*

Tim did not tend to run away from home. This enabled him to receive his daily needs consistently and to receive mental health services for his illness (e.g., the author was able to see him whenever visiting his home). His major limitation was in making no attempt to communicate clearly and accurately; the author was unsuccessful in obtaining substantial information from him. In addition, his being a non-native English speaker made the assessment difficult and incomplete.

#### *Target Behaviors*

The following behaviors were selected as the target behaviors of the treatment: (a) rejecting receiving a psychiatric evaluation at the hospital, (b) rejecting going to a pharmacy to buy medications, and (c) rejecting taking medications. The rationale of the selection of these behaviors as the target was: (a) they could be modified rather easily and (b) if they were modified, his overall symptoms might be reduced.

### *Antecedents to the Target Behaviors*

The target behaviors could have occurred under any circumstances. No particular antecedent was associated with the target behaviors.

### *Consequences of the Target Behaviors*

Whenever Tim was advised to go to a hospital, he refused. When it was insisted, he became angry. He sometimes resorted to force toward his mother who was 72 years old. Concerned individuals (e.g., his parents or therapists) were perplexed and/or frightened by that and they stopped advising. This contingency system may be modified by letting Tim realize that his refusal and anger would not have the same effect on the author.

Due to Tim's rejection of going to hospital, it was impossible to assess the consequences of his refusing to buy or take medications.

### *Motivational Analysis*

It seemed that Tim did not have any motivation to change the target behaviors. This was possibly because he did not think that he had a serious mental illness. Or, this was possibly because he was thinking that he could function adequately with a mental illness. Therefore, helping him gain insight that he was not functioning well because of his illness and that he could function better in the future through medications might motivate him to modify the target behaviors (Kingdon & Turkington, 1994).

In addition, the author asked Tim if he wanted to have a counselor with the same ethnic background as his, because many clients tend to prefer counselors who are ethnically similar to them (Pope-Davis et al., 2002). The answer from him was, "You don't need to think about it."

### *Developmental Analysis*

There probably are some cultural issues around Tim's symptoms. This can be assumed because culture is considered to play a strong role in the course of mental illnesses (Smith, Nolen-Hoeksema, Fredrickson, & Loftus, 2003). In spite of this, it was necessary for the author to attempt treatment without knowledge about Tim's ethnic and national backgrounds.

Tim went to a hospital before the active phase of his mental illness and was prescribed some medications. A side effect (i.e., cramping) occurred soon. That was the original reason why he became noncompliant, according to his self-report. Therefore, the target behaviors could be modified by letting him know that newer medications would not produce severe side effects.

Whether or not Tim was completely aware of having mental illness, he might have believed the stereotype that psychiatric patients could be compulsorily hospitalized. If so, it may be important to give him information about the actual American system regarding patient's rights in order to modify the target behaviors (Vera & Speight, 2003).

Furthermore, there may not have been any logical reasons why he had developed the target behaviors; inability of self-care is one of the symptoms of schizophrenia (American Psychiatric Association, 1994).

#### *Analysis of Self-control*

It seemed that Tim could not control the target behaviors by himself under any circumstances. What he needed may have been concrete guidance from others.

#### *Analysis of Social Relationships*

It appeared that Tim's parents were the most significant people in his environment. The parents could play an important part in the modification of the target behaviors by: (a) judging whether or not the author's treatment plans were acceptable, (b) providing Tim with reinforcers, such as encouragement, admiration, or material rewards, (c) modifying the parent-child interaction when necessary, and (d) monitoring the effects of the treatment.

#### *Analysis of Former Interventions*

According to the parents, therapists from a mental health agency and the hospital had "just tried to talk to our son." Thus, it could be assumed that mere verbal interventions had not modified the target behaviors. Tim might respond to a combination of verbal and visual interventions, however.

## *Course of Treatment*

### *Treatment Plan*

The author established a behavior contract (see Appendix). The contract partially involved the behavioral technique of "negative reinforcement." The rationale for using the technique was: (a) Tim needed to form new behaviors which counteracted the target behaviors, and (b) the technique was experimentally-clinically proven to form new behaviors (e.g., Rimm & Masters, 1979). The author also planned to let Tim know that: (a) he needed psychiatric and pharmacological help to function better, (b) today's medications were more advanced than years ago, and might not produce such intense side effects, (c) the author was encouraging him to see a doctor and to take medications in order to avoid his experiencing a unwilling situation, such as hospitalization, (d) the author would bring and show two taxi vouchers to prove to him that he would return home from the hospital, and (e) even if he got angry, the author would keep encouraging him to see a doctor. These plans were developed to provide him with what he might need, as generated by the behavioral assessment.

### *Treatment Goals and the Measurement of Outcomes*

The treatment goals were stated as follows:(a) Going to the hospital: assessed by the author's direct observation, (b) going to the pharmacy: assessed by the author's direct observation, and (c) taking medications regularly: event recording by the parents of the number of times Tim took medications in front of the parents.

### *Contract*

The author visited Tim at home, along with a South American/English interpreter from the hospital the author belonged to, bringing the contract. The contract was divided into two parts so that Tim did not need to read and comprehend long sentences. To explain the two parts, the author and the interpreter visited Tim twice. The author read the English part of the contract aloud to Tim and talked about what he needed to consider in English. Then, the interpreter translated it into a South American language. Tim was not enthusiastic, but gave his consent. His parents gave their consent, too.

## *Outcomes and Prognosis*

On the day of the appointment, Tim was hesitant to go out. After some urging, he finally got into a taxi and went to the hospital with the author. At the hospital, Tim had a few conversations with a doctor. His utterances were: "Yeah," "Well, I think so," "No," or "Kind of." Then he obtained a prescription. He went to the pharmacy in the author's company the next day and bought Haldol (0.5 mg). He started taking it in front of his mother. The number of pills he took increased from zero per day to twice every day. He began to show side effects (i.e., dry mouth, sweating, and cramping) about one week later. Therefore, the author set up another appointment with an available doctor. At that time, Tim was prescribed Cogentin (1 mg). The medications soon showed their effect on him. He became calm and started going for walks, taking showers, and having some communication with his parents. These changes occurred immediately and were unusual according to his doctor. One day, when the author visited Tim at home, he asked, "How many years do you think I lost because of not taking any medication?" This question suggested that Tim's insight was becoming more organized. Then he started complaining that he had some difficulties regarding being awake and sleeping; he was sleepy during the daytime but could not sleep well at night. He was especially distressed by being awake in bed for hours every night before falling to sleep. It was presumed that his long-lasting life pattern of the reversal of night and day had confused his circadian rhythm. Also, the effects of medications could have been another cause of this complaint. The author gave Tim the advice that he had better try to get up at a fixed time every morning and remain awake during the daytime, but not try to fall asleep at the desired time in the evening. This was because it is impossible for anyone to control the time of dropping off to sleep. Even when he could not fall asleep smoothly, he should get up at a certain time the next morning. If he could not sleep at night, he should do something important, such as studying English, instead of trying to sleep. Tim understood and soon became able to deal with the problem.

Further intervention was done afterward. The author: (a) brought Tim to an internal clinic for a medical checkup, (b) taught his family about mental illnesses, and (c) conducted "social skills training" (Bellack & Hersen, 1993) aimed at behavioral improvement, such as conversational skills, that would enable him to have more extended social relationships.

### *Clinical and Multicultural Issues and Summary*

The case described in the present article can have several clinical and multicultural implications. First of all, Tim started functioning better soon after he went out in public. This was beyond the expected

effect of medications. This phenomenon could be explained from the standpoint of "sensory deprivation" (Heron, 1961). The study found that, in the experimental circumstance where stimuli were removed as much as possible, subjects became irritable and dysfunctional. This finding is applicable particularly for those whose physical activities are remarkably limited. Tim was socially isolated and had had extremely reduced external stimuli for many years. That could have been one of the major reasons why he was not functioning well, not just because of the mental illness itself.

Second, in using assessment tools to identify psychopathology, mental health professionals must take into account the client's cultural context (Iwamasa, 1997). However, many researchers have commented that there is a scarcity of effective assessment methods for counseling culturally different individuals (e.g., McNeil, Porter, Zvolensky, Chaney, & Kee, 2000). When assessments that had not been culturally standardized are conducted with diverse populations, results drawn from the assessments can be possibly invalid or misleading (Barker-Collo, 2003). So then, the present case suggests the utility of behavioral assessment to deal with an immigrant client by focusing more on the current circumstances surrounding the problematic behaviors. This type of assessment seeks information about maintaining the conditions of specific targeted behaviors rather than the total personality and lifestyle that can be deeply influenced by the culture of the client (Spiegler & Guevremont, 1993).

Third, the use of the written form of the behavior contract improved the situation. It prevented the intervention from going off-point by informing Tim of the concrete process, and made his family committed to fulfilling their roles. These benefits can be expected even when there is not a language barrier as Spiegler and Guevremont (1993) discussed.

Fourth, both Tim and the author were not fluent English speakers, so there was a communication difficulty throughout the intervention. Quintana and Atkinson (2002) argued that mental health professionals who lack the necessary linguistic skills to work with foreign clients could render ineffectual an otherwise effective intervention strategy. A similar undesirable effect can occur during assessment (Heppner, 2006). The reliance on an interpreter avoided some of such problems and prompted a greater understanding and agreement between Tim and the author.

Finally, the author was not familiar with Tim's culture. Many have claimed that mental health professionals need to have appropriate cultural knowledge in order to be effective when they work with

clients from different cultures (e.g., Smith, 2004; Heppner, 2006). Irrespective of the importance of the claim, there can be occasions in which professionals see clients from other cultures without this certain knowledge. "Tolerance for ambiguity" (Samovar & Porter, 1988) is required in such specific cross-cultural clinical settings. Professionals must continue to be supportive just as they would with a more familiar population. As for the present case, the author's not knowing Tim's culture did not necessarily become a prominent obstacle for the intervention. Rather, the awareness of not knowing made the author more involved and prepared.

In summary, one multicultural counseling case that was conducted through a behavioral perspective was described. In this case, the author did not match the client's ethnicity and did not have enough knowledge about the client's culture. There was also a language issue. To improve the situation, a behavioral assessment that scrutinized the contingency systems of the client's behaviors was done, an interpreter was asked to participate, and an intelligible behavior contract was established. Together with the effect of medications, improvements took place (e.g., taking a walk, having communications with others) as a consequence of counseling. This result suggests that even when a helping professional faces some cultural obstacles, there is still a possibility that the professional can assist clients.

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## Appendix

*Contract Between Tim and Counselor (1)*

The purpose of this contract is to explain the counselor's intervention with Tim and to reach a mutual agreement regarding the intervention. The contract does not have any legal powers over Tim. The contract will be changed according to Tim's wishes when the procedures of the intervention are discussed. Tim's parents will read the contract because they are part of the intervention. A South American/English interpreter will read the contract and explain the intervention in a South American language.

1. The counselor will explain to Tim the significance of seeing a doctor and of taking medications.
2. Tim has the right to refuse to see a doctor and to take medications.
3. If Tim does not wish to see a doctor for a medication evaluation, he will explain to the counselor all the reasons why.
4. An appointment to see a doctor at the hospital has been scheduled at 8:30 PM on day/month/year.
5. If Tim wishes to keep this appointment, the counselor will accompany him from home.
6. At the hospital, Tim will ask the doctor all the questions he has regarding the medications, such as possible side effects.
7. If Tim refuses to go to the hospital, the counselor will increase the frequency of home-visits to Tim from once a month to once a week.

I read the above sentences and I will voluntarily participate in the procedures.

Tim

Date

Counselor

Date

### **Contract Between Tim and the Counselor (2)**

1. Tim will decide to take the medications if he understands the doctor's explanation.
2. The doctor will set up another appointment with Tim for follow-up.
3. The counselor will accompany Tim to the pharmacy when Tim goes to buy the medications.
4. At home, Tim's mother will manage the medications and give them to Tim as medically required every day.
5. Tim will take the medications in front of his mother.
6. If Tim does not take the medications in front of his mother, the mother will call the counselor. Tim will take the medications in front of the counselor.

7. Tim may have side effects from the medications. These were explained by the doctor and will be treated in the next session. Tim will however continue to take the medications.
8. If the side effects become intolerable, Tim can call the counselor. The counselor will set up an emergency appointment with an available doctor to lessen the symptoms.

I read the above sentences and I will voluntarily participate in the procedure.

Tim Date

Counselor Date

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## The efficacy of relaxation training in treating anxiety

*Pagnini Francesco MS, Manzoni Gian Mauro Psy.D,  
Castelnuovo Gianluca Ph.D & Molinari Enrico Ph.D*

### Abstract

This paper provides a review of scientific literature about relaxation training and its effects on anxiety. Research investigating progressive relaxation, meditation, applied relaxation and autogenic training were considered. All these methods proved to be effective in reducing anxiety in all kind of samples, affected or not by physical or psychological disorders. This review supports the efficacy of relaxation training as a valid stand-alone or combined treatment for anxiety disorders or problems and suggests a wider use of these techniques in the clinical practice.

**Keywords:** Relaxation training, anxiety, treatment, efficacy

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### INTRODUCTION

Research, clinical experience and general community agents are promoting the re-evaluation of old and naive forms of therapy as alternatives or adjuncts to pharmacological approaches in a variety of suffering conditions (Krisanaprakornkit, Krisanaprakornkit, Piyavhatkul, & Laopaiboon, 2006). Relaxation training is probably the most used non-pharmacological, both stand-alone and psychotherapy-combined approach for the treatment of many medical and psychological diseases. Among the wide range of non-conventional and sometimes doubtful treatments, relaxation-based methods such as meditation, progressive muscular relaxation, applied relaxation, mindfulness and autogenic training have received the greatest scientific attention and validation. For example, mindfulness training in pain, hypertension, myocardial ischemia, inflammatory bowel disease, human immunodeficiency virus and substance abuse is presently under investigation in research supported by the National Institutes of Health (NIH) (Ludwig & Kabat-Zinn, 2008).

Relaxation training is especially useful in treating stress and anxiety. Indeed, both the literature and dictionaries oppose relaxation to stress, anxiety or tension. Benson, one the most influential author in the field of relaxation, defined it as “a state of decreased psycho-physiological arousal: a calming state (Benson & Klipper, 1975).

Anxiety is a normal reaction to stress and represent a common human emotion. But when anxiety becomes an excessive, irrational dread of everyday situations, it has become a disabling disorder. According to Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV), anxiety disorders are classified into many types, including Panic Disorder, Specific Phobia, Social Phobia, Obsessive-Compulsive Disorder (OCD), Post-Traumatic Stress Disorder (PTSD), Acute Stress Disorder and Generalized Anxiety Disorders (APA, 2000). However, anxiety disorders constitute only the tail of the curve representing the general anxiety distress that affects the population (Manzoni, Pagnini, Castelnuovo, & Molinari, 2008). According to Zigmond and Snaith (Zigmond & Snaith, 1983), psychiatric disorder cannot be considered either present or absent since the degrees is continuously distributed in the population. In fact, complaints of anxiety are common among healthy individuals and have been associated with numerous negative health consequences (Balon, 2006; Muller, Koen, & Stein, 2005), absenteeism and decreased work productivity (Sanderson, Tilse, Nicholson, Oldenburg, & Graves, 2007).

A broad understanding of the etiology of anxiety problems includes a multiplicity of factors, such as biological, psychological and social determinants, which are moderated by a range of risk and protective factors (Somers, Goldner, Waraich, & Hsu, 2006). The old debate over the primacy of these factors, overall biological or psychological, is gradually being replaced by a pragmatic model considering all the relative contributions (Krisanaprakornkit, et al., 2006). In this paper we discuss the efficacy of relaxation training on anxiety both in clinical and community populations.

## *RELAXATION TRAINING FOR ANXIETY*

Many studies have investigated the effects of relaxation training on anxiety in a wide range of applications and research purposes. A recent meta-analysis on trials published within the last ten years (1997-2007) supports a good efficacy of relaxation training in reducing anxiety (Manzoni, et al., 2008). State and trait anxiety (Spielberger, Gorsuch, & Lushene, 1970) are both influenced by training: each relaxation session may decrease state anxiety and the enduring practice of relaxation techniques may improve also trait anxiety in the middle-long term. There is no significant difference between the effects of group and individual training. The efficacy of the treatment increases with the duration of the protocol and with the request of home practice (Manzoni, et al., 2008).

Anxiety reduction is obtained independently from the main scope of relaxation training. Even if the main purpose was different (i.e. the reduction of pain or chemotherapy side effects), participants almost always reported lower levels of worries and distress. The reduction of anxiety seems to be a constant of relaxation training, despite subjects' characteristics and context of training; in fact, studies reported a decrease in levels of anxiety for people with physical diseases, like tumors and hearth problems, as well as people with and without psychological troubles.

### *Anxiety reduction in non-clinical samples*

Various relaxation techniques show to be able to decrease anxiety levels and increase quality of life in community samples. This is one of the reason for the success of relaxation courses in gyms, together with other psychophysiological training (i.e. yoga): people without significant clinical troubles want to improve their quality of life through the reduction of anxiety and stress.

Research literature indicates that all kind of relaxation methods have a positive impact on anxiety in non-clinical samples (Manzoni, et al., 2008). Studies investigated the effect of relaxation in volunteers, in high school (Rasid & Parish, 1998) and university students (Deckro, et al., 2002), in nurses (Yung, Fung, Chan, & Lau, 2004), in employers (Mishima, Goto, Kubota, & Nagata, 2005), in athletes (Castillo, Cremades, & Butcher, 2002) and, in general, in a lot of control groups that were analyzed together with clinical samples (Manzoni, et al., 2008). Indeed, research results indicate a significant reduction of anxiety levels in comparison with both baseline scores and, if present, non-treated control group.

### *Relaxation training and anxiety disorders*

Relaxation training could be applied as a form of non-pharmacologic treatment which can promote a sense of mastery and control which usually has been lost in anxiety persons.

Different kind of relaxation techniques proved to be effective in treatment of anxiety disorders. The efficacy of relaxation training for the management of Generalized Anxiety Disorder (GAD) is really high, comparable to cognitive-behavioral therapy. In a study by Ost and Breitholtz (Ost & Breitholtz, 2000), 36 patients with GAD were randomly assigned to 12 cognitive-behavioral therapy or applied relaxation sessions. Results indicated that therapeutic efficacy of the two techniques is equivalent, at the end of the sessions and at one-year of distance. Those results are confirmed by another study (Arntz, 2003) that also found a one-month greater efficacy for applied relaxation, in comparison with cognitive-behavioral therapy.

Many randomized clinical trials investigated the effects of relaxation therapies for Panic Disorder, with or without Agoraphobia. In a clinical study on patients with Panic Disorder (Ost & Westling, 1995), applied relaxation proved to be as effective as cognitive-behavioral therapy in the reduction of attack frequency, generalized anxiety and cognitive distortions; those results remained constant at one-year follow-up. Another research investigated the effect of progressive relaxation on *in vivo* application, during panic attacks, showing positive results (Murphy, Michelson, Marchione, Marchione, & Testa, 1998).

Relaxation training seems to be effective also in the treatment of some phobias, like social phobia (Clark, et al., 2006; Rowa & Antony, 2005), snakes phobia (McGlynn, Moore, Rose, & Lazarte, 1995), dentist phobia (Lamb & Strand, 1980; Lundgren, Carlsson, & Berggren, 2006), fear of flying (Aitken & Benson, 1984; Muhlberger, Herrmann, Wiedemann, Ellgring, & Pauli, 2001) and agoraphobia (Le Boeuf, 1986; Murphy, et al., 1998).

An interesting study about the effects of relaxation on snakes phobia was conducted by McGlynn and colleagues (McGlynn, et al., 1995) who divided 20 phobic patients in a relaxation and a control groups; after relaxation training (or wait list condition), they have been exposed to a phobic stimulation, a snake in a cage, and patients were free to approach it; relaxation group patients showed a greater tolerance of distance to the stimulus and a lesser physiological activation.

### *Hospitalize patients, physical diseases and relaxation techniques*

Psychosocial interventions are an essential part of multidisciplinary treatment and care of hospitalized patients with physical illness. Those treatments often include relaxation as behavioral component (Wright, Courtney, & Crowther, 2002) and as a way to manage anxiety.

The anxiolytic effects of relaxation training render it a promising adjunct to intervention associated with a high degree of anxiety, such as angioplasty (Kanji, White, & Ernst, 2004), chemotherapy (Molassiotis, 2000), abdominal (Roykulcharoen & Good, 2004) and stoma surgery (Cheung, Molassiotis, & Chang, 2001). The use of relaxation training for hospitalized patients is often directed to reduce side effects, such as pain, of surgery intervention. Sometimes, those techniques are utilized in place, or in addition, of anesthetic drugs, that sometimes cannot be prescribed.

Physical pathologies can sometimes have a psychophysiological etiology (Figueira & Ouakinin, 2008). The application of relaxation techniques can often bring relief from those diseases (Murakami, et al., 2006) through the reduction of physical and mental distress. For all psychosomatic disorders and every physical conditions influenced by psychological factors, relaxation training seems to be a good complementary therapy. For instance, relaxation training reduce coronary risk (Patel, et al., 1985) and people with cardiac and hypertension patients can experience great emotional benefits from the application of relaxation techniques through the reduction of anxiety and distress (Levy, 1993), promoting also physiological benefits such as the reduction of blood pressure (Nakao, Yano, Nomura, & Kuboki, 2003).

### *DISCUSSION AND CONCLUSION*

This review investigated the efficacy of relaxation training programs (autogenic training, progressive muscular relaxation, applied relaxation, meditation) which have been used to manage non-clinical anxiety and to treat anxiety disorders in community, hospitalized and psychopathological populations.

There are various relaxation methods whose common aim is to reduce tension and anxiety through different techniques. All those kind of relaxation training has received attention from the scientific as well as the general community. Given the positive value that has traditionally been assigned to relaxation training and the early scientific evidence for its efficacy in promoting well-being, many sound clinical trials have been realized in order to test the effects of these techniques in many fields. Results indicate that relaxation training is effective in reducing anxiety in any kind of participants, male or female, young of old, affected or not by physical or psychological disorders. In conclusion, relaxation training proved to be a valid treatment option for many anxiety-related disorders and thus should be suggested to all people with anxiety-related complaints.

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# Towards Hybrid Therapeutic Strategies in Intellectual Disabilities

*Dr. Jean-A. Rondal and. Sc. Lang*

## Abstract

I present and discuss what I see as a decisive convergence between future (no longer science fiction) genetic therapies in human beings with intellectual disabilities and standard (so to speak) neurobehavioral interventions. This crossing will lead to a radical modification in the life prospect of people with intellectual disability from genetic origin. Changing their previous biological status into a condition that can be substantially improved with refined knowledge and technical tools. Such a change, in the longer turn, could impact on ordinary people's conceptions and henceforth attitudes regarding the persons with intellectual disabilities. It might gradually lead to a reversal of the present trend of pregnancy termination following a confirmed diagnosis of genetic syndrome, significantly favoring instead a 'let live and help' moral and social attitude.

Keywords : Hybrid interventions; language intervention, early intervention

## *Introduction*

Early intervention (EI) may be defined as the set of knowledge-based clinical activities with the intellectually disabled (ID) child and her/his family between birth and approximately six years that intends to eliminate, prevent, or compensate for the developmental delays and deficits of the condition. The strategy is to take advantage of the earlier ages to activate, promote, and optimize neurobehavioral structures and processes which would remain underdeveloped due to adverse neurogenetic effects on the ontogenesis .

There are several justifications for carrying out systematic intervention. In the case of a congenital ID condition, assuming early diagnosis, it is advisable to initiate intervention in the weeks following birth in order to reduce as much as possible the delays in the socio-personal, physical, and cognitive aspects of development. Human ontogenesis is highly cumulative. Earlier acquisitions serve as a basis for further developments. The sooner the basic structures are in place, the better the prognosis for additional progress and the higher the probability, assuming continued training, that advanced levels of development as allowed by the condition will be reached. A second reason is that brain plasticity is larger during the first years of life, and this also applies to children with ID therefore supplying a more fertile receptive ground for intervention. The two reasons above suggest that EI is likely to be more cost-effective than any intervention carried on later in life which is not to say that the latter is devoid of value or that intervention with children with ID should be discontinued after six years of age. Guralnick (1997, 2005) has reviewed current knowledge underlying a number of development-enhancing dimensions, concluding that decades of both small- and larger-scale studies indicate that an affirmative answer is warranted to the question whether we are capable of altering individual development through EI programmes. Guralnick (2005) reckons that comprehensive EI programmes have proved able to prevent much of the decline in cognitive development for children with Down syndrome (DS) occurring during the first years. Although demonstrating longer-term effects present difficult methodological challenges, long-term outcomes years later have been documented as well for several developmental pathologies including DS. Guralnick (2005) also suggests directions for future research and practice, among them specifying better subgroups of children and families in research and evaluation studies (etiological and genetic specificity), identifying better the specific components of intervention responsible for producing sought-after effects, calibrating the intensity of intervention, and assessing better patterns of interaction between subgroups based on child's and family characteristics and programme components.

But why, it could be asked, should one devote so much attention to EI and future prospects at a time where, due to the conjunction of fetal diagnosis and abortive practices, the occurrence of babies with DS (and other genetic causes of ID if not today probably tomorrow) is decreasing in a number of Western countries? Should we not better concentrate our energies on caring for adults with ID who,

given the marked increase in their life expectancy, will be more prevalent in coming years than ever in the past?

We should certainly pay much attention to this last issue and launch more research and clinical works intending to clarify several of the most urgent problems arising as a consequence of a longer living in persons with ID, such as a propensity towards earlier physiological aging and a higher susceptibility to Alzheimer disease in persons with DS. In my opinion, however, the case for EI is far from being closed for reasons that will become apparent in the rest of the paper.

Let's take a look at the present-day attempts with animals at genetic therapy in the case of experimentally induced pathological conditions akin to some genetic conditions of ID in humans. Major progresses in molecular genetics over the last decades have made possible to chart a number of mammalian genotypes including the human one composed of a little less than 33.000 genes distributed over 23 pairs of chromosomes. Although the particular locations of these genes are known their exact function in cell functioning has not been specified yet except for a few hundred ones. However, the available knowledge is already sufficient to support the definition of animal analogs to some conditions leading to ID such as fragile X – FXS - (etiologically linked to a mutation of the gene FMR-1 or FMR-2 on chromosome X) and Down syndrome (trisomy 21). For example, trisomy 21 in humans is at least partially mimicked (genotypically and phenotypically) in mice by experimentally induced trisomy 16. Recent work suggests that it is possible to ameliorate, at least partially, FMR-1 knockout (KO) mice, an animal model of fragile-X, at both cellular and behavioral levels in inhibiting the catalytic activity of p21-activated kinase (PAK), a kinase known to play a critical role in actin polymerization and dendritic spine morphogenesis (Hayashi et al., 2007). Greater spine density and elongated spines in the cortex, morphological synaptic abnormalities commonly observed in FXS, are at least partially restored by postnatal expression of a dominant negative PAK transgene in the forebrain. Likewise, the deficit in cortical long-term potentiation observed in FMR-1 KO mice is fully restored by the PAK transgene. Several behavioral abnormalities associated with FMR-1 KO mice, including those in locomotor activity, stereotypy, and anxiety are also partially ameliorated or eliminated by the PAK transgene. Particularly interesting is the fact that in vivo data in mice suggest that PAK inhibition is still possible after the appearance of the FXS symptoms. FMR-1 KO mice exhibit abnormalities as early as the first postnatal week. In human patients with FXS developmental delay appears as early as 9-12 months of age and diagnosis usually shortly follows. Current data suggest that PAK inhibition could still be an effective therapy for FSX infants even during the first year of life ex utero.

Other gene-based strategies exist targeting either gene products or downward pathways (Delabar, 2007). Prolongating the action of the gene material (deoxyribonucleic acid – DNA) outside of the cell nucleus is RNA messenger (ribonucleic acid). Any excess in DNA products (for example, in trisomies) is thought to determine an increase of the corresponding messenger RNA. The use of a small class of small RNAs, the interfering RNAs or siRNAs, is one of the strategies allowing to decrease, first, the amount of the targeted RNA and, second, the amount of encoded proteins. siRNA molecules can selectively silence any gene in the genome. Applied to a mouse model of amyotrophic lateral sclerosis, a mutated form of superoxyde dismutase 1 (SOD 1) has been experimentally targeted, reducing its expression, improving survival of vulnerable motor neurons, and mediating an improved motor performance in these animals (Delabar, 2007).

A second strategy is to target the protein product of the candidate gene. For example, antibodies can be used to decrease the amount of amyloid beta peptides derived from the amyloid precursor protein. In mice, by direct hippocampal perfusion, researchers were able to restore hippocampal acetylcholine release and reduced impaired habituation learning (Pritchard & Kola, 2007).. This work offers hope for a therapeutic potential of targeting amyloid beta peptide overproduction in Alzheimer patients or in DS patients with Alzheimer disease incipient.

A third possibility is to use chemical compounds that serve to modify the activity of the target protein or the targeted physiological pathway. For example, minibrain kinase/dual-specificity tyrosine

phosphorylation-regulated kinase (Mnb/Dyrk 1 A) is a kinase encoded by a gene located within the DS chromosomal critical region DSCR-1 (Korenberg et al., 1997). Its expression is elevated in individuals with DS and it is thought to be involved in the control of neurogenesis. Research in vitro shows that this type of kinase is inhibited by a natural molecule that is the main component of the polyphenols in green tea. Delabar (2007) has reported in vivo successful attempts to partially correct the alterations in the brain morphogenesis of transgenic mice using a diet rich in polyphenols given to pregnant mothers and continued postnatally until the magnetic resonance imaging (MRI) performed between 2 and 4 months of age in the offspring. These results suggest that it is possible to improve a brain phenotype by the use of some particular molecules which do not affect the rest of the organism.

Two general hypotheses have been proposed to explain the DS phenotype: (1) the amplified developmental instability hypothesis suggesting that DS is the result of a disturbance of chromosome balance due to the additional chromosome material; and (2) the gene dosage hypothesis proposing that the DS phenotype stems directly from the effects of the overexpression of specific gene products on a portion of chromosome 21 (HSA21) and/or indirectly through the interaction of these genes with the whole genome, transcriptome (transcription events from DNA to RNA), or proteome (protein synthesis following the instructions listed in the genes). Evidence from murine models points to specific genes affecting phenotypes rather than non-specific effects of the amount of extra-genetic material (Pritchard & Kola, 1999). It appears, however, that the comprehensive DS phenotype cannot be accounted for on the basis of gene dosage effects alone. In fetuses or adults with DS, a number of genes across the genome are expressed at either higher or lower transcriptional levels than normal (Jenkins & Velinov, 2001). In this respect, it is interesting to note that some murine approaches have introduced large foreign DNA pieces with homologies with HSA21 in the animals' genome. Such approaches overcome some of the limitations of single-gene transgenics as the models involve the utilization of overlapping or contiguous parts that cover a significant part of the chromosome.

Targeting specific genes or fragments of the genome in animal models is now possible. However, the corrective interventions may create negative side-effects that have to be controlled or suppressed. Rescuing strategies with a larger scope are also being considered. For example, Pritchard and Kola (2007) have studied the effects of a transcription factor known as Ets2. This factor regulates the expression of numerous genes involved in cell cycles, cell survival, and tissue remodeling. In mice, over-expression of Ets2 produced some of the skeletal abnormalities characteristic of DS, as well as a smaller thymus similar to that seen in DS, and increased neuronal apoptosis. It would appear that Ets2 up-regulate pro-apoptotic genes and down-regulate anti-apoptotic genes analog to corresponding HSA21 genes in mice. This trend of research supplies a beginning picture of the cellular function of transcription factors regulating the cellular effects of genes. They open the door to new drug therapies that will act specifically in the pathways disrupted by the chromosome imbalances. New perspectives in cell therapy (Hornyak, 2008) showing that it is possible to reprogramming normal adult human cells into the perfect equivalent of pluripotent stem cells (i.e., cells which like embryonic cells can develop into any type of tissue), thus bypassing the need to use human embryonic cells, also offers hope to allow replacing some defectuous human tissue with normal ones while avoiding the threat of immune rejection if cells derived from an embryo are transplanted into a person.

The genetic conditions etiologically linked to a single gene mutation (such as FXS or Rett syndrome) will likely be the first to witness rescuing altered brain phenotypes within the span of a few years. Syndromes characterized by missing genetic material (such as Williams syndrome, Cat-cry syndrome, or Turner syndrome 45 XO) will be harder to come by. Progresses have been made in recent years in inserting new or modified genes into a person's cells to treat or prevent disease (e.g., Hemophilia B and X-linked immunodeficiency; Sepa, 2000). Already in advanced clinical trials in the USA, are the treatments of hereditary disorders such as cystic fibrosis by delivering functional copies of missing genes to cells that need them. Heart treatment of the kind is also under consideration. Immune cells are helping to hunt down cancer cells and make the system resistant to infection. Scientists currently use modified viruses (e.g., retroviruses, adenoviruses) as vectors to deliver gene therapy. Viruses are good at delivering genetic material to cells because this is what they do naturally.

The strategy is to strip viruses of their own genetic material and replace it with therapeutic genes which they will deliver to the cell. Different viruses do different things. Some attack the liver, other nerves. Some insert their DNA into the host genome. So, genetic therapists can choose those viruses that best suit their purpose and further engineer them if desirable. There is a catch, however. Our immune system evolved to reject viruses. So even if a virus reaches its target, one must ensure that the receptive body does not attack the “reengineered cells” because they might be identified by the immune system as “infected” cells. There is a number of particular strategies that scientists are developing to annihilate this sort of complication (e.g., lowering therapy doses, pre-treating patients with immunosuppressive drugs, making viral vectors so immune that the immune system will not detect them). Some approaches are developing “naked” (vectorless) DNA and genes packaged in other and less intrusive ways. In utero gene transfer can be achieved. Various ex vivo and in vivo successful techniques have been reported (Ye et al., 2001). Ex vivo techniques require the removal of the target cells from the fetus. The cells are “infected” with the virus carrying the foreign gene and re-infused into the fetus. In the in vivo technique, the vector is directly administered to the fetus and infection/transduction occurs within the fetus in utero. Gene transfer introduces certain risks to both mother and fetus, but more to the fetus (e.g., potential toxicity of gene transfer, immune reactions, damage impacted on fetal development, possible tumor formation) which need to be carefully checked. In utero gene therapy has generated controversy (Caplan & Wilson, 2000). Some scientists are concerned that genetic technology could be moving too far ahead of existing knowledge of the natural history of diseases (Billings, 1999). Others insist that in utero therapy is ethical based on providing an alternative to abortion for a fetus with a severe genetic defect detected prenatally (Moulton, 1999).

Aneuploidies such as trisomy 21 (DS) will also be harder to come by but for another reason: the large number of genes the protein products of which have to be corrected. The DNA sequencing of HSA21 has been completed (Hattori et al., 2000). Chromosome 21 is the second smallest human autosome extending for a total of 33, 8 Mb. It is predicted to contain from 261 to 364 protein-coding genes involved in 87 different biological processes. The exact function of many of these genes remains unknown, as does their individual contribution, if any, to the DS phenotype. However, it is known that numerous proteins encoded by genes located on HSA21 can affect the structure and/or the function of the brain. A short list is already available containing 25 entities (Wisniewsky et al., 2006). Based on the analysis of human individuals with partial segmental trisomy 21, it has been possible to identify a DS critical region (DSCR) located in the q part of chromosome 21 and encompassing a 1.2 Mb region around D21S55 (Peterson et al., 1994). This is the part of HSA21 where genetic loci presumably display genes with major effects regarding the DS phenotype (e.g., somatic features, developmental delays, cognitive disability). There is no a priori way to determine the exact number of genes involved in the genesis of a complex phenotype. Assuming linear distribution of the genes along HSA21, one could speculate that the DSCR contains something like a dozen genes. One should not forget, however that interactions between DSCR genes and other genes located on chromosome 21 as well as perhaps on other chromosomes also contribute to the phenotype. Additionally, not all genes on HSA21 may be dosage-sensitive, i.e., potentially harmful when triplicated (which increases expression by 50% at the RNA and protein levels). Even so, the number of candidate genes for genetic intervention provides for unique complexities in the case of DS. Partial human trisomies 21 will be easier to compare with the mice models consisting in corresponding partial trisomies. The mouse orthologs of the human genes located on HSA21 are on chromosomes 10, 16, and 17. Mice trisomic for fragments of chromosome 16 corresponding to 132 genes on HSA21, in one case, and to 85 genes, in another case, are available (Davisson et al., 1990; Sago et al., 1998). The transgenic mice present a series of features of DS: cranial abnormalities, developmental delay, learning difficulties, neuronal reduction in some parts of the brain, reduction in cerebellar volume (Baxter et al., 2000).

Rescuing the complete phenotype in DS appears today a formidable task. However, given that strategies targeting specific genes are already yielding promising results, a pragmatic approach consisting of inhibiting particular gene products and cautiously avoiding possible negative effects, is something that could soon be on the clinical agenda. The immediate objective would not be to cure DS as such, but gradually improve the phenotype. “It is probably not essential that we know all the

genes on chromosome 21 before rational therapies can be considered” (Epstein, 1999, p.221). Early diagnosis will then possibly become an event with positive consequences for the fetus and the infant and no longer be a death sentence. Phenotypic plasticity is greatest in early years (which does not mean that it is restricted to these periods; the brain remains a plastic and highly malleable organ throughout life; Bailey et al., 2001), the sooner phenotypic development can be rescued, the better for the rest of the ontogenesis given its cumulative character.

In so doing, the ground will be better prepared for enhancing dramatically, it can be hypothesized, the effects of early neurobehavioral intervention. With all the potential inherent in the genetics advances, it is easy to lose sight of some caveats. As genomic science moves forward, we will increasingly be in a better position to determine the precise effects of neurobehavioral interventions on gene functioning and expression (Reiss & Niederhiser, 2000). Genetic factors alone account for only a fraction of variance in human behavior. To account for the remaining variance, one must move towards analyses of functional interactions between biology, environment, and behavior (Rutter, 2002).

Probably the greatest potential of the neurosciences resides in its integration with expanding knowledge of genomics. We should be heading towards hybrid intervention approaches (Warren, 2002), i.e., approaches in which neuroscientists will focus more on how genes express themselves in terms of brain functions and behaviors. This will require an unprecedented degree of interdisciplinary understanding and collaboration.

Experimental studies on early environmental enrichment in animals demonstrate positive effects on neurogenesis (e.g., an increase in dendritic arborization and in length of dendrites in cortical neurons) correlated with enhanced performances in learning, memory, and visual acuity in rats and mice, suggesting that neural circuits are modified in order to optimize multiple levels of information processing and storage (Fernandez-Teruel et al., 1997; Prusky et al., 2000). The same appears to hold for Ts65Dn mice, the partial trisomic model generated by Sago et al. (1998), and referred to above, whereby it was shown that exposure to complex environments has the capacity to modulate behavior just like in euploid mice (although the exact neural mechanisms that are modified are still under discussion and there may be differences to be explored further according to the sex of the animals; Martinez-Cué et al., 2002; Dierssen et al., 2004).

The knowledge currently generated and future developments in the life sciences will enhance tremendously the possibilities of better outcomes for individuals with intellectual and developmental disabilities.

Future changes in the prognosis of DS, for example, could have an impact on the way people conceptualize the condition. If it can be improved markedly through the application of the strategies envisaged above and/or some new breakthroughs in future years, the social pressures will no longer act in favor of terminating a pregnancy because the fetus has been diagnosed with a severe form of developmental disability, but in the opposite sense, that of keeping alive a baby whose developmental prognosis is much better assuming efficient hybrid intervention right from the start, because it would be a terrible shame on all grounds to deprive a human being so close to normality of the right to live. Tomorrow our already enhanced ability to scan an individual's DNA at birth will be applied before birth with the same objective of launching therapeutic action as early as possible.

The frequency of aneuploidies following human conception is high. Trisomy 21 is not the most frequent form of aneuploidy recognized during gestation. There are other forms that are much more frequent. It is estimated that roughly 15% of known conceptions are spontaneously aborted and that half of these are genetically abnormal. If one goes earlier in gestation and look at conceptions that last no more than a couple of weeks, the frequency of aneuploidies is even higher. No predisposing factor has been identified except maternal age and perhaps the influence of the apolipoprotein E genotype. Epstein (1999) speculates that there seems to be something inherent in human reproduction that causes or allows the rate of meiotic non-disjunction to remain at a high level. Evolution should

have worked the other way around, i.e. reducing this rate as it decreases the ability of the species to reproduce. It could be that the relative fragility of human meiosis is related to some vital cell process of which we know nothing, as it is unlikely that evolution would have kept a failing reproductive mechanism for no biological reason.

Since people will continue to be conceived with trisomy 21 (or other aneuploidies) no matter what we do, we would like to be able to prevent the central nervous system deficits from occurring. The techniques for efficient neurobehavioral intervention are with us today and they have begun to be widely used in developed countries. There is little doubt that they can be improved and specified further. Early neurobehavioral intervention is not and will not be in competition with genetic therapeutic approaches. That is why while waiting some more time yet for the human genetic approach to materialize, scientists must continue improving the EI approach on the ground that the efforts and energies spent are well directed not only for the present but also for future times.

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# A Delay Discounting Model of Psychotherapy Termination

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## 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 & Stelmaczonek, 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

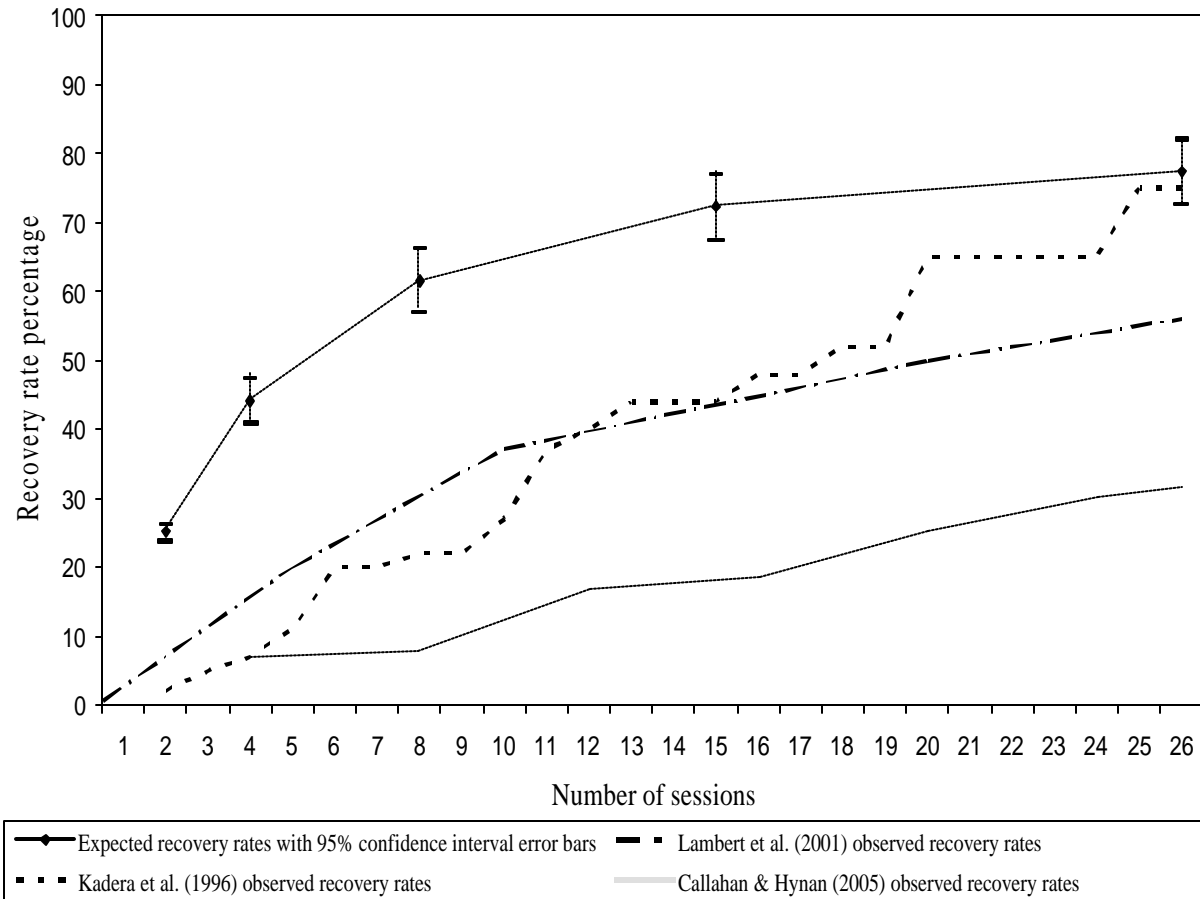
level of symptom reduction, the expected level of functional gains, the expected length of time needed before improvement is seen, etc.

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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## Factors Associated with Choice of Exposure Therapy for PTSD

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### Abstract

Exposure therapy, despite its demonstrated efficacy for chronic PTSD, remains underutilized across clinical settings. One suggested cause is that traumatized clients may not prefer exposure treatment. This paper reviews the current literature on factors associated with treatment preference for exposure therapy. Contrary to expectations, exposure-based therapy is not only perceived as a viable therapy but is well regarded among current therapy choices by potential clients. In particular, we highlight the central role of client *beliefs* about the need to talk about problems, the efficacy of treatment, and perceived need for help as crucial factors potentially impacting preference for exposure therapy. Importantly, fear of exposure treatment does not appear to play a significant role. To increase utilization, clinicians should provide clients information to address factors believed to increase preference for effective treatment.

Keywords: Exposure Therapy, Posttraumatic stress disorder, Preference

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In the U.S. population, lifetime prevalence rates of posttraumatic stress disorder (PTSD) range from 7% to 8% (Kessler et al., 2005; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) and 12-month rates approach 4% (Kessler, Chiu, Demler, & Walters, 2005). Prevalence rates among returning military veterans are estimated to reach as high as 19.9% (Hoge et al., 2004). Despite this high prevalence, only 7.1% of individuals with PTSD make treatment contact within the first year of trauma exposure (Wang, Berglund, Olfson, Pincus, Wells, & Kessler, 2005). Further, the median time to seek treatment for PTSD is twelve years after disorder onset, with only 65.3% eventually seeking treatment and only 34.4% seeing a mental health specialist (Wang et al., 2005). Thus, it is of paramount importance that we begin to better understand how to help individuals with PTSD seek clinically appropriate care.

The need for such care is likely to increase in coming years given the large number of active military conflicts and peace-keeping missions currently underway. Indeed, in order to address the expected increased numbers of veterans needing empirically-supported PTSD treatment (Hoge et al., 2004; Tanaelian & Jaycox, 2008), the United States Department of Defense (DoD) and the Veterans Administration (VA) have created Mental Health Centers of Excellence and funded large-scale initiatives aimed at training practitioners to deliver evidenced-based PTSD treatment. This training largely focuses on cognitive behavioral interventions such as exposure therapy. Although a number of psychotherapies have strong efficacy data (e.g., Bradley, Green, Russ, Dutra, & Westen, 2005), the recent Institute of Medicine (IOM, 2007) report on PTSD treatment concluded that the only sufficiently validated treatment for PTSD at the present time is exposure therapy. Indeed, the efficacy of exposure treatment has been strongly replicated across gender and types of trauma (e.g., Foa et al., 1991; 1999; 2005; Marks et al., 1998; Resick et al., 2003; Rothbaum et al., 2005; Schnurr et al., 2007; Tarrier et al., 1999; Taylor et al., 2003). Thus, exposure-based therapy is one of the treatments of choice for chronic PTSD.

Yet, both clients and therapists may be reluctant to choose this treatment. Despite exposure therapy's proven benefits for PTSD, the treatment can be anxiety producing: clients are encouraged to directly and repeatedly approach the trauma memory (e.g., imaginal exposure) and trauma-related fears (e.g., in vivo exposure). Early commentators on the use of exposure therapy for PTSD voiced concerns about potentially retraumatizing the trauma survivor and increasing, rather than decreasing, his or her suffering. Specifically, Kilpatrick and Best (1984) suggested that high levels of anxiety during imaginal exposure may be a negative experience and result in an aversion to coming to therapy. Further, they suggested that some clients may exhibit more distress than they did before treatment and as a result, be

less likely to seek treatment in the future. Although these fears have not been empirically supported, with exposure therapy failing to show more symptom worsening or treatment dropout (e.g., Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002; Hembree, Foa, Dorfan, Street, Kowlaski & Tu, 2004), concerns regarding the potential tolerability of exposure both for the therapist and for the client remain (e.g., Becker, Zayfert, & Anderson 2004; Tarrrier et al., 1999; Pitman et al., 1991; 1996; Zayfert & Becker, 2000). Indeed, a recent survey of practitioners suggested that while lack of training in exposure therapy clearly plays a role in its under-utilization; even among therapists with such training fears about how the client will tolerate exposure appear to impact therapists' willingness to use it (Becker et al., 2004). Thus, based on these fears, clients and/or therapists may choose not to utilize exposure treatment for chronic PTSD.

### *Importance of Preference in Treatment for PTSD*

We may be better able to understand, and potentially improve, treatment seeking and utilization of evidence based treatments in people with PTSD by knowing more about individuals' reactions to and preferences for exposure-based treatment. One of the main reasons to examine client treatment preferences is practical. Although clients in efficacy studies typically enter treatment passively through random assignment, clients in routine clinical practice see a treatment provider after actively shopping either for a type of treatment or a specific therapist (Seligman, 1995). Thus, although we have treatments with proven efficacy for PTSD, if this therapy is not available, or a client does not want this type of therapy, then the therapy is of limited practical utility (Zoellner, Feeny, & Rothbaum, 2005). Indeed, a National Institute of Mental Health workshop report (NIMH; Street, Niederehe, & Lebowitz, 2000) suggested the need for better understanding "whether providers should try to accommodate patient preferences for the type of treatment they wish to receive versus persuade them to accept one modality over another" (p. 130). If clients are unwilling to choose exposure therapy, then the next question is whether or not it is worthwhile to try to persuade them to accept this modality.

Another reason to examine treatment preferences is that they may lead to enhanced therapeutic outcome. The idea of trying to accommodate client preferences is not new. As far back as (1977), Cronbach and Snow suggested that matching treatments to client characteristics may enhance clinical outcomes, highlighting the role of what they termed aptitude by treatment interactions. Consistent with this, in a review article, Beutler and Bergan (1991) concluded, ". . .convergence of a client's attitudes and values on those of his or her counselor is linearly related to the benefit experienced by the patient." Indeed, there is mounting evidence from other disorders that clients who agree with rationales for cognitive behavioral treatment improve more quickly and have better outcomes than those who do not (Addis & Carpenter, 1999; Addis & Jacobson, 2000; Bedi et al., 2000; Chilvers et al., 2001; Fennel & Teasdale, 1987; Ilardi & Craighead, 1994).

Thus, with regard to exposure therapy, the question that arises is whether or not there is a "match" between the rationale for the intervention and clients' perceptions of the type of care they need. Will individuals with chronic PTSD choose exposure therapy? Does it match with their beliefs? We will attempt to address both questions. This paper will review the literature on the preference for exposure therapy, factors that influence traumatized individuals' treatment preferences, and will suggest a model regarding how these factors contribute to clients' preferences for exposure treatment. Understanding the factors that contribute to whether or not individuals are willing to enter exposure therapy may be critical to current efforts aimed at dissemination and improving its utilization by therapists.

### *Will Clients Choose Exposure Therapy?*

At a basic level, clients' acceptance of exposure therapy may be largely influenced by their preference for psychotherapy in general. In a discussion of methods that could aid and speed

dissemination efforts for psychological treatments, Barlow (2004) noted that there is a large body of evidence suggesting that when given the choice, the public generally prefers psychological treatments over pharmacological treatments. This literature spans a wide range of psychological disorders (panic disorder: Hazlett-Stevens et al., 2002; Hofmann et al., 1998; eating disorders: Mitchell et al., 1990; Wilson & Fairburn, 2002; PTSD: Zoellner, Feeny, Cochran & Pruitt, 2003; and depression: Bedi et al., 2000; Chilvers et al., 2001; Dwight-Johnson, Sherbourne, Liao & Wells, 2000; Goldstein & Roselli, 2003) and strongly suggests that individuals suffering from a psychological disorder prefer psychotherapy. The preference for psychotherapy in general may work in exposure therapy's favor by predisposing clients to view any psychotherapy favorably.

A body of literature examining treatment preferences following trauma exposure and exposure therapy, in particular, is just starting to emerge. Studies to date have largely focused on trauma exposed (Roy-Byrne, Berliner, Russo, Zatzick & Pitman, 2003; Angelo, Miller, Zoellner & Feeny, 2008) or undergraduate samples (Becker, Darius, & Schaumberg, 2007; Tarrier, Liversidge, & Gregg, 2006; Zoellner, Feeny, Cochran, & Pruitt, 2003), with only subsamples pointing to preferences for individuals with chronic PTSD.

Two trials have explored preferences in trauma-exposed samples, one regarding therapy in general (Roy-Byrne et al., 2003) and the other specifically focusing on exposure therapy (Angelo et al., 2008). In a large preference trial, Roy-Byrne and colleagues (2003) explored the preference for medication, counseling, or combined treatment in 466 women seen in the emergency room after a physical or sexual assault. Although many women indicated an interest in both medication and counseling, more women preferred counseling (76%) than medication (62%). However, this study did not provide any detailed information about what these treatments would entail nor did it directly assess PTSD. In a smaller sample of trauma-exposed women ( $n = 74$ ), Angelo and colleagues (2008) provided detailed treatment rationales for two empirically-supported treatments, prolonged exposure, a type of exposure therapy, and sertraline, a serotonergic medication. After viewing standardized therapist-delivered rationales, women were asked to choose among prolonged exposure therapy, sertraline, or no treatment. The vast majority of women preferred prolonged exposure (81.7%) to sertraline (12.7%) or no treatment (5.6%). Further, rates of choice did not change substantially when examining only those women who met PTSD diagnostic criteria: 78.9% chose prolonged exposure, 13.2% sertraline, and 7.9% no treatment (Feeny, Zoellner, Mavissakalian, & Roy-Byrne, 2008). Taken together, in trauma-exposed samples, there appears to be a preference for psychotherapy in general and this preference is also evident for exposure-based treatments.

In analogue studies, using undergraduate students and hypothetical scenarios, a similar preference pattern emerges (Becker et al., 2007; Tarrier et al., 2006; Zoellner et al., 2003). In the first study to directly examine preference for exposure therapy, Zoellner and colleagues explored choices of prolonged exposure and sertraline for the treatment of PTSD in a large sample of female undergraduates ( $n = 273$ ) over half of whom had experienced a DSM-IV Criterion A trauma, and 18% of whom met diagnostic criteria for current PTSD. This analogue sample was asked to imagine that they had experienced an earlier sexual-assault and currently had PTSD-related symptoms, than they were presented with detailed treatment rationales for prolonged exposure (PE) and sertraline. The primary outcomes were perceived credibility of the treatment (e.g., how effective they believed the treatment to be in general) and personal reactions to the treatment (e.g., whether they believed the treatment would be effective for them personally). Participants rated the PE as more credible and had more positive personal reactions than the sertraline. When making a treatment choice, the majority of women (87.4%) chose PE, whereas only a minority chose sertraline (6.9%) or no treatment (5.7%). Of women who met criteria for PTSD, 74.1% chose PE, 22.2% chose SER, and 3.1% chose no treatment. As might be expected, participants' ratings of perceived treatment credibility and personal reactions to the rationales coincided with their treatment choices. This study further supports a general preference for psychotherapy over pharmacotherapy, and

shows a specific preference for exposure therapy. However, both the forced choice nature of this study and lack of comparison to other treatment options raise questions about how well exposure therapy compares when compared to other psychotherapies for PTSD symptoms. That is, the preference shown for exposure therapy may result from the lack of other psychotherapy alternatives.

To address these limitations, Becker, Darius, and Schaumberg (2007) investigated preference for PTSD treatment in 160 undergraduate students comparing various treatment options including prolonged exposure, sertraline, and various psychotherapies and interventions with differing levels of empirical support (e.g., cognitive behavior therapy, eye movement desensitization reprocessing therapy, thought-field therapy). Similar to Zoellner et al. (2003), participants were given a hypothetical scenario and detailed treatment rationales for each choice. Even with an expanded range of psychotherapy treatments of varying empirical support, exposure therapy was still the most preferred treatment (51%), with the highest ratings of credibility. The next most preferred treatment was cognitive behavior therapy (22%). For those individuals who met criteria for PTSD ( $n = 11$ ), exposure was once again the most preferred treatment (36%). This study suggests that the preference for exposure therapy found in previous studies was not solely an artifact of limited competition from other psychotherapy options. Importantly, the authors did not equate rationales for each treatment with respect to empirical support for the treatment because some psychotherapy alternatives had not been adequately researched. This potential difference across rationales highlights the question of the degree to which empirical support plays a role in treatment preference.

In a similar study, Tarrier, Liversidge, and Gregg (2006) further expanded this treatment preference paradigm and included fourteen different PTSD treatment options, with varied therapeutic models (e.g., psychoeducation, imaginal exposure, cognitive therapy, stress management) and methods of delivery (e.g., individual psychotherapy, groups, virtual reality, computers, e-therapy). Three-hundred and thirty undergraduates were given a hypothetical trauma scenario and treatment rationales designed to reflect the information clients would receive in real-world clinical settings. Among the 14 options, cognitive therapy was rated as the top choice treatment, cognitive therapy with exposure as the second highest ranked, and imaginal exposure as the third highest ranked treatment. Preference in individuals with PTSD was not directly examined in this sample. Notably, participants' top five preferred treatments were the treatments with the strongest empirical evidence, suggesting that clients may well be educated consumers of psychotherapy and base their preference for treatment in part on empirical support.

The above studies demonstrate convincingly that there is a preference for psychotherapy treatments for trauma-related difficulties and, despite questions to the contrary, an acceptance of and preference for exposure treatment. This preference was found whether participants were offered a forced choice between exposure therapy and a medication or offered a wide range of psychotherapies to determine their preference of treatment. Yet, none of the studies to date include treatment-seeking samples with chronic PTSD. However, in both the Angelo et al. (2008) and Zoellner et al. (2003), rates of preference for those with PTSD were comparable to the larger sample. Nevertheless, preferences may be different when individuals are making actual treatment choices. These studies also start to highlight factors that may underlie treatment preference for exposure, including the potential importance of beliefs or knowledge about empirical evidence. In the following section, we will review the role of client-related beliefs, comorbid psychopathology and symptom severity, and demographic factors that may underlie preference for exposure therapy.

## *Factors Associated With Treatment Preference for Exposure*

### *Client's Beliefs about Psychosocial Treatment*

Thus far, across the research on treatment preference and choice of exposure, one of the strongest factors associated with whether individuals will choose exposure treatment for PTSD is the individual's beliefs about treatment (Angelo, Miller, Zoellner & Feeny, 2008; Cochran, Pruitt, Fukuda, Zoellner & Feeny, 2008; Zoellner, et al., 2003). In particular, an individual's beliefs about the mechanism of treatment action (e.g., "You need to talk about the trauma"), treatment's effectiveness (e.g., "therapy gets to the root of the problem and does not just cover up the symptoms"), and the perceived need for therapy (e.g., "Something this big can't be dealt with alone") appear to be salient factors influencing treatment preference for exposure-based therapies (Angelo et al., 2008; Cochran et al., 2008). Each will be reviewed below.

*Treatment mechanism: The importance of talking about problems.* One of the most commonly cited reasons for choosing exposure therapy is a belief regarding the importance of talking through problems as a way of healing. In Cochran et al.'s (p. 283, 2008) qualitative analysis of reasons underlying treatment preference, one undergraduate wrote, "I think that it is important to talk about your problems and figure out what is causing them." Another also reiterated the same point suggesting that, "Talking about problems makes me feel better." Indeed, of the reasons given for choosing a treatment, 41% highlighted a need to talk about a problem and 28.2% highlighted a need to directly confront problems (Cochran et al., 2008). These rates were comparable in their trauma-exposed and PTSD subsamples. Of note, women who stated positive feelings about talking were 7.01 times more likely to choose exposure therapy over sertraline or no treatment. Angelo et al. (2008), in their trauma-exposed sample, a high percentage of primary reasons given for choosing a treatment (49.3%) highlighted a similar construct and women who cited this construct were 2.63 times more likely to choose exposure therapy. Thus, as might be expected, individuals who believe that talking about their trauma is critical to recovery overwhelmingly choose exposure therapy.

This strong emphasis on the need to talk about problems is telling and may reflect a more generalized belief about the need to talk about psychological difficulties and recovery (Hayes, Kohlenberg & Melancon, 1989; Hayes & Wilson, 1993). This dovetails well with a large body of research noting the beneficial effects of talking about emotional events (Campbell & Pennebaker, 2003; Groom & Pennebaker 2002, Pennebaker, Mehl, & Niederhoffer 2003). Alternatively, this perceived need to talk about problems may be crucial in PTSD-related treatment because of the presence of an external event. PTSD provides a unique scenario for questions of mechanism, as it is one of the only disorders that requires an external event for the etiology of the disorder (Davidson & Foa, 1991). This can be contrasted with depression where the etiology or cause of the disorder is often argued to be more biological, and consequently internal nature (Shelton, Hollon, Purdon, & Loosen, 1991). This importance of beliefs about mechanism suggests that individuals are thinking carefully about the relationship between their current difficulties and possible treatments that might address these difficulties. These beliefs about how problems are handled and confronted may already be in place well before an individual experiences a traumatic event. Overall, beliefs about treatment mechanism may play one of the largest roles influencing a client's treatment preference. That is, the match between a treatment and an individual's beliefs about how a treatment might work, may be critical to understanding preferences.

*Perceived effectiveness of therapy.* As suggested above (Tarrier et al., 2006), the degree to which individuals believe that a treatment is efficacious most likely influences their willingness to undergo treatment, and indeed, this belief is also strongly associated with treatment choice (Zoellner et al., 2003). In particular, this belief appears to include ideas such as therapy getting to the root of the underlying problem and producing long-lasting effects (Cochran et al., 2008). Zoellner et al. (2003) found

that 36% of their sample reported that perceived effectiveness of the treatment was the primary reason for their choice of treatment. Similarly, Angelo et al. (2008) reported that 22.5% cited this as their primary reason for their choice of treatment. In the Cochran et al. (2008) sample, this reason was the most commonly given among all the reasons (73.6%) for choosing a treatment and increased the likelihood of choosing exposure therapy by 4.56 times. This is all the more striking, as in this Cochran et al. (2008) study, the wording regarding the effectiveness of exposure and sertraline was actually identical. Although the perceived effectiveness of a treatment clearly plays an important role in individuals' choice of treatment, its ability to predict choice was actually not as strong as beliefs about the mechanism of treatment in the Angelo et al. (2008) sample. Though we would expect that individuals are more likely to choose treatments they feel will be helpful at addressing their symptoms, the importance of efficacy suggests that clients are conscientious consumers who when provided relevant information, are carefully weighing their treatment options before choosing.

*Perceived need for help.* A related belief that may potentially play a more important role among those with chronic PTSD than in analogue samples is the perceived need for outside help. Typical reasons given include statements like "Something that big can't be dealt with alone," and "Treatment is absolutely necessary." (p. 284, Cochran et al., 2008). Yet, of all reasons given, only 22.3% of women cited this as one of their reasons for treatment choice; however, when given, it was a strong predictor of preference for type of treatment (Cochran et al., 2008). Notably, in this study though, this reason was more about the role of medications than it was about exposure. That is, one interpretation is that the more severe the problem is perceived the more there is a belief regarding the need for medication intervention. In general, although psychotropic medications may be generally disapproved of, the severity of the problem may underlie how much medication is perceived to be needed (Benkert et al., 1997). Across studies, though, this belief has not been as systematically studied as either beliefs about perceived mechanism or perceived effectiveness.

*Fear of exposure.* Notably, fear of exposure ("This sounds like a difficult treatment."), though commonly thought of as a reason for not choosing exposure, does not systematically emerge as a predictor of choice. More specifically, in our work, this reason consistently fails to be one of the key reasons given underlying choice (< 25%; Angelo et al., 2008; Cochran et al., 2008; Zoellner et al., 2003). When wariness of treatment is more consistently mentioned, it is more often about wariness of medications, or about not wanting any psychiatric treatment at all (e.g., "My faith will heal me."), and not necessarily about exposure therapy (Angelo, et al., 2008, Cochran et al., 2007). That said, none of these studies directly asked about fear of exposure. Instead, participants were asked to describe the reasons underlying their preference. With this method, we can easily conclude that this fear appears not to be a highly salient issue, but we cannot conclude that fear is not a concern.

If fears of exposure-related distress are indeed a concern, anxiety sensitivity, or fear of fear, should consistently predict not choosing exposure. Yet, it does not predict choosing or not choosing exposure (Angelo et al., 2008) nor is it associated with lower personal reactions and credibility of exposure (Zoellner et al., 2003). Further, given that individuals are willing to choose exposure therapy even in the midst of other viable treatments (e.g., Becker et al., 2007; Tarrier et al., 2006), and even though they note associated discomfort (Tarrier et al., 2006), this further argues that, even if this is an issue for some individuals, other factors may be more directly affecting treatment choice. That is, even though some individuals may be afraid of exposure, they still appear willing to enter exposure treatment, perhaps because their belief that talking about the event is necessary to recover from it is stronger than their fears.

*Summary regarding importance of beliefs.* Importantly, beliefs about the nature of treatment appear to be some of the strongest predictors of treatment choice, almost always outperforming demographic and psychopathology factors further discussed below. These beliefs are likely not a unitary

construct, with some factors being more important than others. Specifically, beliefs about the mechanism of treatment, including the importance of talking about a problem and the etiology of PTSD-related symptom, are consistently some of the strongest predictors for exposure treatment preference. Beliefs about the efficacy of treatment also predict exposure treatment preference, suggesting that preference is also determined by a belief that a given treatment will work. Perceived need for help also appears to be a salient issue, potentially more so for those with more severe symptoms. Finally, despite arguments in the literature that fear of exposure should play a large role in treatment preference, there is a striking lack of evidence that would suggest that individuals are avoiding choosing exposure as a result of their fear of the arousal that accompanies it.

#### *Symptom Severity and Diagnostic Co-occurrence*

Though preexisting client beliefs are some of the strongest predictors of treatment preference, there are other factors that may play a role as well. One such factor is symptom severity, which modestly predicts not choosing exposure therapy in PTSD. Indeed, Zoellner, Feeny and Bittinger (2008) showed that severity of psychopathology (depression or PTSD) may be directly associated with a greater likelihood of choosing pharmacotherapy, albeit at a low level. One possible reason for this preference is that higher levels of symptoms may make individuals have doubts about their ability to fully participate in exposure therapy. Consistent with this interpretation, higher state anxiety has been mildly associated with lower personal reactions to exposure therapy in an analogue sample ( $r = -.17$ ; Zoellner et al., 2003) and the presence of co-occurring depression leads to a higher preference for pharmacotherapy over exposure than for those individuals without depression (Feeny et al., 2008), though exposure therapy is still preferred. Alternatively, individuals with more severe symptoms may choose other treatment options such as medications for immediate relief of their psychological distress (Feeny et al., 2008). Taken together, high symptom severity or the presence of comorbidity may be somewhat associated with less receptivity to exposure therapy.

#### *Prior Treatment History*

Another possible factor contributing to treatment preference is prior history of treatment. Though we would expect prior experience with any form of psychotherapy or pharmacotherapy to be potentially associated with treatment preference, the results to date have been mixed. Two studies report small associations between past experience and treatment preference (Roy-Byrne et al., 2003; Tarrrier et al., 2006), with positive past therapy experience or knowledge predicting preference for psychotherapy (Tarrrier et al., 2006). However, prior therapy experience or medication experience were not substantially associated with choice of exposure therapy and sertraline (Angelo et al., 2008; Feeny et al., 2008; Zoellner et al., 2003) or ratings of personal reactions and credibility of exposure or sertraline (Angelo et al., 2008). It may be that, even among those with prior therapy experience, exposure therapy is perceived a “new” therapy possibility and accordingly, experience with other therapies does not directly affect its preference. Thus, past treatment experience may play a small but potentially unstable role in treatment preference, though the current studies are not sufficient to fully determine the relationship between the two.

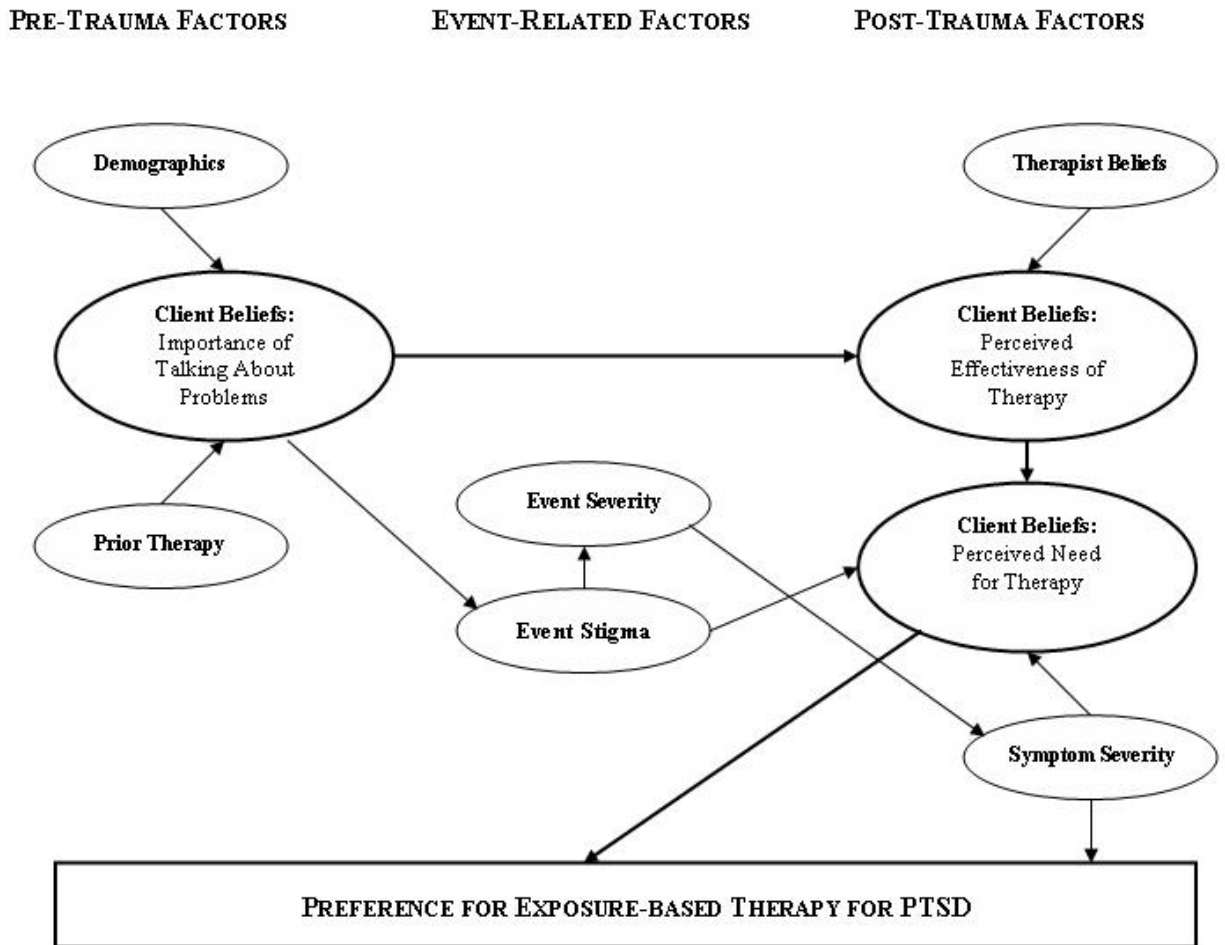


Figure 1. A Beliefs-based Model for Preference for Exposure Therapy for Chronic PTSD.

*Demographic Factors*

Across a range of demographic factors including age, education, income, ethnicity, history of trauma exposure, at this time, only three factors have consistently emerged as being associated with treatment preference in PTSD: education (Angelo et al., 2008), cultural background (Zoellner et al., 2008), and gender (Roy-Bryne et al., 2003). Yet, in these findings, these factors appear to be associated with modest, at best, predictive value of treatment preference.

Because beliefs about treatment strongly predict exposure therapy preference, there are a number of reasons why we might expect education to be similarly related. Indeed, in a community sample of women with a history of trauma, higher levels of education predicted choosing exposure therapy (Angelo et al., 2008), though this finding has not been seen in other studies (Zoellner et al., 2008) and was not examined in others (e.g., Becker et al., 2007; Roy-Bryne et al., 2003; Tarrrier et al., 2008). Regardless, it may be that this relationship when seen speaks to a more general association between education and preference for psychotherapy often seen in the literature (Olfson & Pincus, 1994) rather than anything overtly specific to exposure therapy.

Other demographic variables such as ethno-cultural factors may influence treatment preference for exposure. Indeed, in several preference studies (Dwight-Johnson et al., 2000; Hazlett-Stevens et al.,

2002; Wagner et al., 2005), ethnic minorities indicated being less receptive to medication than Caucasians. However, this has not been replicated in trauma exposed samples (Angelo et al., 2008; Roy-Byrne et al., 2003), or in one study which found a small effect of ethnic minorities' preference for pharmacotherapy over psychotherapy (Zoellner et al., 2008). Given the evidence that ethnic minorities are less likely to seek mental health services (Wyatt, 1992), it is all the more important to better understand specific cultural factors in choosing treatment for mental health issues. As suggested by Wong and colleagues (2003) credibility of treatment options may be moderated by cultural identity and self-construals rather than broad categorizations of group membership. Clearly, at this time, better studies are needed to examine the influence factors such as cultural identity and self-construal on treatment preferences in PTSD and exposure therapy specifically.

There is also little known on the relationship of treatment preference to gender in PTSD. In general, women are more likely to engage in psychotherapy (Kushner & Sher, 1991) whereas men are less willing for reasons potentially related to being socialized as self-reliant and avoiding self-disclosure (Nadler, Maler & Friedman, 1984), suggesting that gender may differentially impact treatment preference. One study with sexual assault survivors showed that being female was predictive of preferring either medication and psychotherapy (Roy-Bryne et al., 2003), suggesting a general inclination in women for seeking help of any kind. Studies by Zoellner et al. (2003) and Angelo et al. (2008) utilized female only samples, and, accordingly, rates of choice in these samples may actually reflect gender effects. Other preference studies have included primarily females as well (62%; Becker et al 2007; 64%; Tarrier et al., 2006) and have not investigated the impact of gender on choice.

Taken together, our current understanding of the influence of psychopathology, prior treatment history, demographic variables on treatment preference for exposure therapy is relatively limited. Some of these limitations are largely due to samples with limited ranges of these factors such as undergraduates and lack of diversity of individuals with prior treatment experiences, varying ethnic backgrounds, or genders. There is some preliminary evidence that higher symptom severity is associated with choosing pharmacotherapy over exposure therapy, though it looks to be a small effect. In general, demographic factors such as education, ethnicity, and gender show low or inconsistent predictive ability in exposure treatment preference, potentially reflecting a smaller causal role than treatment beliefs.

#### A Proposed Belief-based Model of Preference for Exposure Therapy for Chronic PTSD

In the treatment choice and preference studies reviewed above, exposure treatment was consistently one of the most frequently chosen treatments for PTSD (Angelo et al., 2008; Becker et al., 2007; Feeny et al., 2008; Tarrier et al., 2006; Zoellner et al., 2003). Though this preference for exposure therapy may reflect a general preference for psychotherapy over pharmacotherapy (Barlow, 2004; Becker et al., 2007), research on the choice of exposure therapy for PTSD suggests a more complex picture. The evidence reviewed above suggests that perhaps the most critical determining factor for treatment choice is individual's *beliefs about treatment*. Indeed, individuals may have a complicated range of beliefs about the match between exposure treatment and PTSD (Cochran et al., 2008), including beliefs about the importance of talking about events, including the etiology and external nature of PTSD, beliefs about the effectiveness of treatment, and their perceived need for treatment.

Though the current treatment preference literature is weak in certain areas (e.g., demographic factors), it highlights a number of factors that potentially play an important role in treatment preference for exposure. In order to provide a conceptual framework for further research into preference for exposure therapy, we have proposed a belief-based model that incorporates what we believe to be potentially key empirically-supported factors that may influence exposure treatment preference. Figure 1 presents this belief-based model. This model includes the relationship between the factors discussed above and the hypothesized roles that they play in the prediction of treatment preference, highlighting

both proposed direct and indirect effects. In interpreting this figure, the relative size of the ovals denoting key constructs and thickness of the lines denoting key associations are potentially indicative of stronger more consistent associations.

Notably, this model is broken into pre-trauma, event-related, and post-trauma factors. Prior to trauma exposure, it is likely that individuals have thought about what it would be like to have experienced a traumatic event (e.g., rape, combat, etc.) and already have some beliefs in place about how to handle certain types of problems and, in particular, beliefs about the importance of talking about problems. We propose that various demographic factors, such as education, cultural identity, and gender may exert their influence on preference largely through a general belief about how psychological treatments work, that is, the believed key treatment mechanism. In addition, other demographic factors such as prior trauma history may also exert their influence through this belief, though at present this is unstudied. Further, prior experience with either psychotherapy or pharmacotherapy for psychological problems may also exert its influence on treatment preference through pre-existing beliefs about treatment mechanism.

We have included two specific event-related factors, neither of which has proposed direct effects on preference for exposure. Obviously, the severity of a traumatic event is consistently associated with severity of post-trauma reactions and thus is included specifically in that regard (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey & West, 2003). We have also included a variable we term “event stigma”, referring to the individual’s perception of societal or self stigma of the event. This is a factor has not been previously explored. However, we deem it potentially important for whether or not individuals will perceive a need for treatment. Indeed, given the focus of previous studies on more homogeneous samples, it may be that certain types of events or event characteristics are perceived as more stigmatizing than others (e.g., Frazier & Berman, 2008; Hoge et al. 2004; Ullman, 1996); and, accordingly, individuals will be less likely to perceive a need or have a willingness to seek treatment.

Finally, we have included a variety of post-event factors. Of primary note, key factors here are beliefs about the effectiveness of therapy and one’s perceived need for treatment. Given that providers have pre-existing beliefs about the effectiveness of exposure for their particular clients (e.g., Becker, Zayfert & Anderson, 2004), we have included this as a factor associated with whether or not an individual will perceive exposure therapy as an effective treatment. Further, event stigma, current symptom severity, and beliefs about the effectiveness of treatment are hypothesized to impact a belief about the need for treatment. We also have included a direct link between severity and choice of exposure, as individuals with higher symptom severity may be less likely to choose exposure therapy (Zoellner et al., 2008). Notably, as discussed above, fear of exposure itself does not appear to deter people from preferring exposure in general; and accordingly, it is not included as a central construct in this beliefs model.

Many areas of the proposed model have yet to be thoroughly investigated, but the model incorporates and synthesizes key factors found to date to play a role in treatment preference for exposure and provides an initial framework for their interaction. Obviously, our current knowledge of preference for exposure needs to be expanded to include much larger samples and various groups of trauma survivors with PTSD; and accordingly, this model should only be viewed as preliminary. Of particular note in this model is a shift away from focusing on demographic factors in predicting treatment preference to more specifically understanding individual’s belief systems about treatment seeking both in general and more specifically about exposure for the treatment of chronic PTSD. Ultimately, we believe that what individual’s believe about themselves and treatment will most dramatically influence their preference for or against a treatment. This may also have a profound influence on treatment adherence, dropout, and clinical outcome, reflecting either a good or poor aptitude by treatment match.

### *Clinical Implications*

Importantly, contrary to some clinicians' beliefs, the studies reviewed above strongly show that individual will choose exposure when given an empirically sound rationale for it. Further, treatment beliefs play a critical role in exposure treatment preference and therefore should routinely be addressed and incorporated in treatment rationales. The presentation of treatment rationales is the primary opportunity for clinicians to understand beliefs that clients have. Clinicians should be prepared to offer clients seeking treatment for PTSD a menu of empirically-supported treatments and, importantly, be able to offer rationales that include information about key areas potentially affecting choice, namely the hypothesized underlying mechanism of treatment and information regarding the research supporting its effectiveness.

In this process, clinicians should assess clients' treatment-related beliefs and incorporate these beliefs into treatment rationales, in an effort to not only enhance confidence in their treatment choice but potentially also to enhance treatment adherence. For instance, if a client already has a strong belief that talking about their traumatic event is important to their recovery, highlighting this aspect of exposure treatment may foster a better aptitude by treatment match for exposure. Conversely, if a client believes that psychotherapy treatment that does not focus on talking about the event is just as likely to be beneficial, the clinician may devote more of the rationale to discussion the empirical basis for talking about the traumatic event. Alternatively, in the instances where a good "match" cannot be achieved, it is important to remember that there are a number of other empirically-supported treatments for trauma-related PTSD (Foa, Keane, & Friedman, 2000). Thus, by actively assessing the clients' beliefs during the treatment contemplation phase, the clinician can tailor their treatment rationales to result in the greatest likelihood of the client choosing a "good match."

It is important to note, however, that client's beliefs about treatments may well be inaccurate, and therefore may contribute to an unwillingness to participate in effective treatments. For example, clients may believe that revisiting traumatic events can only serve to further upset them and therefore that exposure therapy cannot address their symptoms. Or, a client may believe that there are no differences in the empirical support between various psychotherapies and therefore feel any treatment may be as helpful. In these instances, the clinician must be able to highlight the incorrect portions of the client's treatment beliefs and to provide corrective information. Lastly, though clinicians can present clients with the important information regarding the therapies they are considering, a clinician's ability to influence the client's choice, even by drastically altering information they may provide, may be limited (Feeny, Zoellner, & Kahana, 2008). That is, clients may come into treatment with strong pre-existing preferences regarding what will be helpful to them and these beliefs may be highly resistant to change.

Though exposure therapy generally appears to be considered a viable treatment option, the current underutilization of exposure suggests that there is still much work to be done. Namely, any efforts that prove helpful at increasing clients' preference for effective PTSD treatment, in any form, are clearly in the client's best interest. One interesting area of PTSD research that may prove influential in enhancing client utilization of exposure is its adaptation to virtual reality (VR) environments (Difede, Cukor, Patt, Giosan, & Hoffman, 2006; Rothbaum, 2006). Though VR includes the same components of typical exposure therapy, the addition of VR may well make this treatment more palatable to some clients and therapists. In particular, VR may be a large selling point for young male and female military veterans with PTSD. The use of technological may make therapy more like playing a therapeutic "video game" and remove some of the stigma or embarrassment associated with psychotherapy (Rothbaum, Hodges, Ready, Graap & Alarcon, 2001). Garcia-Palacios and colleagues (2002) found that among undergraduate students, virtual reality exposure treatment for spider phobia was greatly preferred to traditional in-vivo exposure (Garcia-Palacios, Hoffman, Carlin, Furness, & Botella, 2002). However, it should be noted that when included as options for PTSD treatment, exposure with VR was rated as one of the five lowest

preferred treatments (TARRIER, et al., 2006). Other efforts to increase the utilization of exposure might be aimed at clinicians themselves. Insufficient training in the delivery of exposure therapy appears to be one, but perhaps not the most important reason for therapist underutilization (Becker et al., 2004). Clinicians who are concerned about the well being of their patients may be reassured that not only is exposure therapy acceptable to many individuals, it is in fact, preferred.

In summary, despite concerns to the contrary, the current treatment preference literature shows that exposure treatment is a well accepted and preferred treatment for trauma-related difficulties. Across a number of studies, whether given a forced choice between treatments or allowed to rank preference among a number of treatments, exposure therapy is consistently rated as one of the more preferred treatment options. Despite this preference, exposure therapy remains underutilized, and efforts to increase utilization must examine the factors that contribute to treatment preference. The studies reviewed above show that the strongest predictor of treatment preference for exposure are client beliefs. This suggests that treatment-seeking clients enter a clinician's office with clearly thought out beliefs about how treatment will work, if treatment will work, and whether or not they need treatment. Each of these types of beliefs affects treatment preference in powerful ways and should be incorporated into treatment rationales by clinicians to facilitate good treatment matches for clients.

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#### Author's Note

This work was supported in part by grants from the National Institutes of Mental Health, F31 MH077483 (PI: Jaeger), R01 MH066347 (PI: Zoellner) and R01 MH066348 (PI: Feeny).

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## Evaluating Acceptance and Commitment Therapy: An Analysis of a Recent Critique

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### Abstract

Acceptance and commitment therapy (ACT) is a newer psychotherapy that has generated much clinical and research interest in recent years. However, the approach has begun to receive strong criticism from proponents of traditional cognitive-behavioral therapy (CBT). Hofmann and Asmundson (2008) recently compared and contrasted ACT and traditional CBT. They concluded that ACT's criticisms of traditional CBT are inaccurate; both ACT and CBT can be understood using a similar theoretical model; and there is no evidence that ACT represents a "third wave" of behavior therapy, as is sometimes claimed by its proponents. In the current article, I further analyze Hofmann and Asmundson's critique of ACT to determine its evidential merit and to attempt to clarify potential points of misunderstanding between CBT and ACT proponents.

Keywords: acceptance and commitment therapy, cognitive behavior therapy, psychotherapy research

Acceptance and commitment therapy (ACT) is a novel acceptance/mindfulness-based behavioral treatment that has been increasing in popularity in recent years. A detailed description of ACT theory and technique is beyond the scope of the current article, and thus it will only be summarized briefly here. Readers are referred to other books and articles that provide more detailed descriptions (Hayes, 2004a, 2004b; Hayes, Barnes-Holmes, & Roche, 2001; Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes & Strosahl, 2004; Hayes, Strosahl, & Wilson, 1999).

ACT stems from a philosophy of radical behaviorism. The approach itself is rooted in a specific theoretical model, called Relational Frame Theory (RFT) (Hayes et al., 2001), which was developed to provide an updated behavior analytic account of language that expands upon the previous work of B. F. Skinner. In general, ACT can be described as combining acceptance and mindfulness strategies with overt behavior change efforts to improve what its creators call psychological flexibility (Hayes et al., 1999). *Psychological flexibility* is defined as "the ability to contact the present moment more fully as a conscious human being, and to either change or persist when doing so serves valued ends" (Hayes, Strosahl, Bunting, Twohig, & Wilson, 2004, p. 5). In other words, healthy psychological functioning is proposed to be related to a person's ability to adaptively respond to changing environmental contingencies. In contrast, psychological *inflexibility* or rigidity is theorized to be the result of what ACT calls cognitive fusion and experiential avoidance. *Cognitive fusion* is defined as "the tendency of human beings to live in a world excessively structured by literal language" (Strosahl, Hayes, Wilson, & Gifford, 2004, p. 39). For example, when a person is fused with a thought ("I am depressed"), he/she is experiencing that thought literally ("I" = "depression"). This cognitive fusion permits the literal content of thinking to dominate over a person's behavior ("I can't go to work today because I am depressed"). Cognitive fusion also fosters *experiential avoidance*, which is defined as "the attempt to escape or avoid the form, frequency, or situational sensitivity of private events, even when the attempt to do so causes psychological harm (Hayes et al., 2004, p. 27). When engaged in experiential avoidance, the person attempts to avoid or suppress undesirable private material such as thoughts, memories, emotions, and bodily sensations as if they were inherently harmful, even though doing so can paradoxically worsen these problems in the long-run (Wenzlaff & Wegner, 2000). The co-processes of fusion and experiential avoidance result in the narrowing of a person's behavioral repertoire (i.e., psychological inflexibility), which is believed to lead to and maintain a wide spectrum of psychopathological behaviors. ACT targets six core processes for

psychological flexibility: promoting acceptance of distressing internal experiences, fostering cognitive defusion so the literal content of thought does not dominate over a person's behavior, practicing awareness of ongoing experience in the present moment, establishing a stable sense of self that is broader than merely its evaluative content, developing personal valued life directions to guide behavior, and committing to actions that are consistent with these personally chosen values.

Various psychotherapeutic techniques, many of which are inspired by or borrowed from other approaches to psychotherapy (e.g., humanistic, gestalt), are used to address psychological inflexibility. In particular, ACT makes heavy use of metaphors, logical paradoxes, and experiential exercises, as well as more traditional behavioral techniques (e.g., behavioral activation, exposure). The goal of these strategies is to improve psychological flexibility by fostering acceptance of internal states of distress and cognitive defusion from problematic language-based processes.

Initial research on ACT suggests that: (1) Psychological inflexibility is related to diverse indices of psychopathology as predicted. (2) ACT has been shown to be potentially efficacious for a variety of clinical conditions based on preliminary trials. (3) Many of the specific components of ACT show initial evidence of efficacy in experimental studies. (4) ACT appears to work at least partly through its hypothesized mechanisms of action; although formal statistical mediation has only been demonstrated in a few studies to date (Hayes et al., 2006). The aforementioned research is in addition to numerous experimental studies conducted to date that separately lend support for RFT, the underlying basic science research program that relate to the clinical application of ACT (Hayes et al., 2001).

The ACT studies conducted to date lend support for many important aspects of the approach, but most represent small pilot studies that have methodological limitations. Thus, independent replication trials using larger samples will be necessary to confirm these initial promising findings. However, the evidence to date appears moderately strong in support of ACT at this stage of investigation. Recent meta-analyses of ACT outcomes conducted in a wide-range of clinical populations indicate medium to large effect size differences versus comparison conditions (Hayes et al., 2006; Öst, 2008; Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009), which is consistent with the broader CBT literature. Contrary to some authors' claims to the contrary regarding ACT's empirical status (see Öst, 2008), the American Psychological Association's Division 12 (Clinical Psychology) recently included ACT for depression on its list of empirically-supported treatments, concluding that it has "moderately strong" empirical support based on published clinical trials.<sup>1</sup>

The increasing popularity of ACT in recent years has begun to draw the attention and scrutiny of proponents of traditional cognitive-behavioral therapy (CBT), many of whom have expressed skepticism about the approach. In recent articles and book chapters, some critics have argued that ACT offers relatively minor variations compared with traditional CBT that may not warrant the widespread clinical and research attention that the treatment has been receiving (Corrigan, 2001; Hofmann, 2008a; Hofmann & Asmundson, 2008; Leahy, 2008; Öst, 2008; Velten, 2007). The purpose of the current article is to explore emerging criticisms of ACT's rationale and treatment model from the traditional CBT community. The goal is not to "defend" ACT per se, but instead to compare and contrast the comments of critics with the claims of ACT proponents to determine whether these arguments are logically consistent and empirically justified. Recently, Hofmann and Asmundson (2008) published a comparison of ACT versus CBT and concluded that ACT may be more "old hat" than "new wave." Specifically, these authors: (1) responded to Hayes and colleagues' previously published criticisms of traditional CBT; (2) proposed that Gross' (2001) emotion regulation model can be used to explain both ACT and CBT; and (3) rejected the argument that ACT represents a "third wave" of behavior therapy. Each of these topics is discussed in detail below to better understand the concerns expressed by critics and to attempt to determine their actual evidential merit.

## An Analysis of Hofmann and Asmundson's Rebuttal to Hayes et al.'s Critique of CBT

In an attempt to differentiate ACT from traditional CBT, Hayes and colleagues (Hayes, 2004a; Hayes et al., 2006; Hayes et al., 1999) have offered critiques of traditional CBT theory and technique. In their own review, Hofmann and Asmundson (2008) attempt to rebut many of Hayes and colleagues' criticisms. First, I present the original criticisms offered against CBT by Hayes and colleagues, followed by Hofmann and Asmundson's rebuttals, and finally my analysis of these issues.

### Critique 1: CBT Is a Mechanistic Approach

Hayes et al. (1999) argue that CBT-based approaches hold certain underlying "mechanistic" philosophical assumptions, such that they promote the notion (sometimes implicitly) that internal mental states are directly causal in relation to behavior. In contrast, Hayes et al. (2006) state that ACT is based on a pragmatic philosophy called *functional contextualism*, which "views psychological events as ongoing actions of the whole organism interacting in and with historically and situationally defined contexts" (p. 4). Hayes et al. (1999) further explain:

Some types of cognitive-behavioral therapy, for example, are based on a computer metaphor (as is much of cognitive psychology itself). Like a computer, humans are thought to store, access, and process information. In this view, the task when dealing with an unworkable thought is to change the form of the thought, just as a computer may be changed by replacing memory chips or by changing software. This "out with the bad, in with the good" mechanistic approach is quite different from a contextual perspective wherein the emphasis may be on "seeing the bad thought as a thought, no more, no less." (p. 21)

Hofmann and Asmundson (2008) respond that the computer metaphor of CBT is simply "inaccurate" (p. 7). These authors further argue that CBT is not mechanistic and is not concerned with replacing "bad" with "good" thoughts, but instead is focused on systematically training the individual to produce more realistic and adaptive evaluations though the modification of underlying information processing biases. Hofmann and Asmundson acknowledge that CBT aims to correct unrealistic cognitions that produce emotional distress, but they further clarify that "if there is good reason to be sad, angry, fearful, worried, and so forth, the CBT therapist will not attempt to change these adaptive responses" (p. 7).

First, is it true as Hofmann and Asmundson (2008) assert that the computer metaphor of CBT used by Hayes et al. (1999) is incorrect? The following is an example of how one cognitive therapy researcher proposed explaining the cognitive processes targeted by CBT:

Each ICS [Interacting Cognitive Subsystem] subsystem has a memory that stores copies of all the patterns of information that it takes as input. It follows that, where the depressive interlock configuration has been operating for some time, the recent sections of the Implicational subsystem's memory store will contain many representations of depression-related schematic models. Once the distraction task is complete, these models will be easily accessed, effectively "leaking back" into the data stream circulating round the central engine, and so restarting the depression interlock configuration. (Teasdale, 1996, p. 39)

Such writings clearly use computer-related terminology and concepts, which in turn suggest that there are indeed mechanistic assumptions in at least "some types" of CBT, as Hayes et al. claim. To be fair, Hayes et al. could also have noted that there have been attempts to understand CBT from less mechanistic perspectives, such as Psychological Constructivism (Mahoney, 1991).

Hofmann and Asmundson (2008) are on firmer ground, though, when they argue that CBT therapists are concerned with more than simply replacing "bad" thoughts with "good" ones. It is true that

descriptions of CBT often focus on changing specific negative thoughts offered by the patient. Hofmann and Asmundson, however, clarify that the *ultimate* aim of CBT is to change information processing biases more broadly so that evaluations better conform to the reality of the situation or are more adaptive in nature. At least in their early writings, Hayes et al. (1999) admittedly present an oversimplified description of CBT when they imply that its therapists only focus on good-bad thought swapping techniques.

Even if we accept these points of clarification, Hayes et al. (1999) would likely still view CBT as implicitly mechanistic from an epistemological standpoint. For example, the Beckian CBT therapist encourages the patient to examine particular “automatic thoughts” associated with an emotionally distressing situation, and then helps him/her to identify and correct the “distortions” (e.g., black-or-white or dichotomous thinking) contained in these cognitions. These distorted automatic thoughts are believed to stem from more general underlying dysfunctional beliefs or rules, and even more basic “core beliefs” or schemas that are largely derived from childhood experiences (Beck, 2008; Beck, 1995; Needleman, 1999). Ultimately, these more basic information processing components are thought to require modification to produce consistently realistic and adaptive appraisals.

As previously discussed, ACT is based on a contextual philosophy that views the whole organism in its historical and situational context as the level of analysis. In contrast, many forms of CBT assume that putatively faulty “parts” (e.g., distorted automatic thoughts, dysfunctional beliefs, or schemas) of a larger “system” (i.e., the person’s mind) can be effectively isolated and directly modified to produce behavior change. Hofmann and Asmundson (2008) emphasize that CBT is truly interested in changing basic information processes that are viewed as faulty, such as general information processing biases and schemas (“I’m an incompetent person”), not simply changing specific distorted cognitions (“I’m stupid for not being able to understand this new assignment my boss gave me”). However, this may well be a distinction without a difference from the perspective of ACT. Cognitive constructs such as schemas are in essence, simply larger “parts” of the “whole” that CBT considers to be faulty or maladaptive in particular ways. In contrast, Hayes et al. (1999) explain:

Rather than trying to change the *form* of private experience, ACT therapists attempt to change the *functions* of private experiences by manipulating the context in which some forms of activity (e.g., thoughts and feelings) are usually related to other forms (e.g. overt behaviors).” (p. 24)

In ACT, there is no assumption that a person’s thoughts, beliefs, rules, conditional statements, schemas, attributions, appraisals, evaluations, or any private events *per se* require direct modification efforts by the therapist in order for the patient to achieve his/her desired behavioral changes. Put another way: all of these cognitive constructions would be considered “forms” of private experience from an ACT standpoint.

Furthermore, Hayes et al. (1999) note that mechanistic approaches assume an ontological realism such that: “We can know what *is* because what *is* is real” (emphasis added, p. 20). However, ACT considers itself “a-ontological” in the sense that it assumes that “what is true is what works” (p. 20). In other words, CBT’s focus on identifying and changing putatively *distorted* or *faulty* information processing biases necessarily implies a certain degree of realism and mechanism. One can legitimately argue that CBT may not be as extreme or classic in its mechanism or realism as Hayes et al. seem to imply. However, Hofmann and Asmundson’s (2008) response fails to fully address the implicit mechanistic assumptions in traditional CBT as highlighted by Hayes and colleagues. Of course, it remains an open empirical question whether a mechanistic versus contextual approach is actually more useful from a psychotherapeutic or scientific standpoint.

## Critique 2: CBT Is “Symptom” Focused

Hayes (2004a) also argues that CBT is more narrowly focused on targeting identified “symptoms” or what he calls the forms and frequencies of behavior (i.e., “first-order” change). In contrast, he asserts that ACT is more broadly focused on altering the functions and contexts of behavior (i.e., “second-order” change). For example, Hayes writes:

[T]he new behavior therapies carry forward the behavior therapy tradition, but they (1) abandon a sole commitment to first-order change, (2) adopt more contextualistic assumptions, (3) adopt more experiential and indirect change strategies in addition to direct strategies, and (4) considerably broaden the focus of change. (Hayes, 2004a, p. 6)

Hofmann and Asmundson (2008) disagree with Hayes’ premise that CBT is focused on symptom reduction:

The goal in CBT is to reduce or eliminate psychological distress. This goal incorporates symptom reduction. The process to achieve this goal, however, is not through direction modification of the symptoms but, instead, through identifying and modifying dysfunctional cognitions that are causally related to symptom interpretation and related psychological distress. (p. 7)

In other words, Hofmann and Asmundson argue that the aim of CBT is to reduce the emotional distress related to symptoms, not through the direct reduction of symptoms *per se*, but instead by altering the “cognitive distortion and misinterpretation that underlies the emotional distress associated with these [symptoms]” (p. 8).

First, many cognitive therapists would likely disagree with Hofmann and Asmundson’s (2008) premise that the goal of CBT is not to reduce distress through the direct modification of symptoms, but only through the alteration of underlying cognitive processes. Other authors who have research backgrounds and training in CBT as well as ACT also view this as a distinction between the two approaches (Forman & Herbert, 2009). Hofmann and Asmundson fail to provide citations or direct quotations from any primary CBT sources to support this particular radical interpretation of CBT. Thus, it is difficult to precisely determine the origins of these claims. Other prominent CBT theorists, however, seem to contradict Hofmann and Asmundson’s assessment. For example, in their seminal book *Cognitive Therapy of Depression*, A. T. Beck, Rush, Shaw, and Emery (1979) explain:

Since the selection of a focal point takes into account not only what the patient perceives as his crucial realistic problems but also the feasibility of resolving these problems promptly, there are times when consideration of the patient’s more general problems has to be postponed until his disabling symptoms can be alleviated. (p. 167)

A. T. Beck et al. describe the use of symptom alleviation techniques in CBT, including teaching patients “a variety of self-management procedures to control their anxiety” (p. 181). These authors further explain that such techniques are deemed effective because depression can be understood as being comprised of various interacting systems (e.g., affective, cognitive, behavioral, and physiological), and thus targeting one domain will produce changes in the others (again, notice the implicitly mechanistic philosophy of such an argument). Hofmann and Asmundson are correct in pointing out that the primary focus of CBT is to change cognitive biases because they are assumed to be the fundamental dysfunctional processes producing distress. Thus, Hofmann and Asmundson do not see these processes as “symptoms” *per se*. However, this goal is accomplished through a variety of different strategies, and direct symptom alleviation is an important part of that process from both practical and theoretical levels. Most CBT therapists and patients very much appreciate this aspect of the therapy and do not see it as a weakness at all.

But how does one define a symptom? It appears that the crux of the disagreement between Hofmann and Asmundson (2008) and Hayes (2004a) actually comes from their differing conceptualizations of what the “symptom” is versus what the mechanism is that produces the “symptom.” Understandably, Hofmann and Asmundson view dysfunctional cognitions as direct causal agents that affect behavior. However, Hayes and colleagues reject this premise first and foremost from philosophical grounds. Hayes et al. (1999) explain: “From a functional contextualistic perspective, only events external to behavior can ‘cause’ behavior” (p. 55, also see Hayes & Brownstein, 1986). Thus, a cognition, which is considered a type of “private” or internal event, cannot literally determine behavior from this perspective. This premise is, of course, subject to debate and stems from ACT’s roots in radical behaviorism. But from an ACT perspective, strategies to alter cognitive processes directly would be viewed as attempts to change a symptom or what is more broadly considered a “first-order” problem, not the factors actually producing the problem. As previously discussed, ACT offers its own theory for how psychopathology is created and maintained based on RFT (Hayes et al., 2001). Again, Hofmann and Asmundson appear to misunderstand the more fundamental aspects of Hayes et al.’s premise, and thus their response ultimately falls short in addressing the root of the disagreement between CBT and ACT.

### **Critique 3: CBT Is Weakly Linked to Basic Cognitive Science**

Hayes et al. (2006) also argue: “The link between cognitive therapy and basic cognitive science continue to be weak” (p. 3). In contrast, Hayes and colleagues point to ACT’s link to learning theory and their basic research program called RFT. Hofmann and Asmundson (2008) contest this conclusion: “We are surprised that this critique was raised, perhaps because we have been directly involved in a number of exciting studies that directly link CBT and other scientific fields, most notably clinical neuroscience” (p. 8). These authors proceed to describe work linking exposure therapy for anxiety disorders and the process of extinction learning, which has been associated with certain neuroanatomical regions such as the prefrontal cortex and the amygdala (Myers & Davis, 2007). They also cite review articles recently published by Hofmann (2007, 2008b) that also present similar theoretical connections between cognitive and behavioral therapies and neuroscience.

First, it may be helpful at this point to discuss the context out of which CBT originally developed. CBT originally emerged during the 1960s and 70s, a time that also saw a burgeoning interest in the newer cognitive science fields (Freeman & Reinecke, 1995; Gaudiano, 2008; Hayes, Follette, & Follette, 1995). However, whereas cognitive psychology and neuroscience were developing in the experimental laboratory, CBT was developing in the therapy office. Both cognitive researchers and cognitive therapists shared the viewpoint that thought processes were essential to understanding human behavior, but they had very different aims. Cognitive psychologists and neuroscientists were interested in understanding basic mental processes, whereas cognitive therapists were interested in developing applied techniques to treat psychopathological cognitive processes. Thus, cognitive therapists ended up borrowing certain cognitive science concepts and models (e.g., computer-related metaphors and models), but they did not share the same research methods or goals.

It is curious why Hofmann and Asmundson (2008) attempt to take Hayes et al. (2006) to task for pointing out the historically weak links between basic cognitive science and CBT. They fail to mention that others have been making virtually the same observations for years, including noted individuals from within the CBT community (Ingram & Siegle, 2001; Teasdale, 1996). A recent special issue of the journal *Behavior Therapy* presented emerging research attempting to work toward a cognitive science basis for CBT. Writing a closing commentary on the research studies presented and the state of this literature in general, Matthews’ (2006) appears to agree in principle with Hayes et al.’s critique: “But despite having embraced the *terminology* of cognitive psychology, clinicians have not been able to draw on experimental

cognitive psychology to develop a scientific basis that would be useful in developing new treatment methods” (emphasis in the original, p. 314).

Cognitive science is a multidisciplinary field, and most relevant to the current discussion, encompasses experimental cognitive psychology (Gardner, 1985). It is unclear why Hofmann and Asmundson (2008) only focus their response on the connection between CBT and clinical neuroscience more narrowly. Regardless, the review article by Myer and Davis (2007) cited by Hofmann and Asmundson does not actually support their argument upon closer examination. This paper discusses exposure therapy specifically, which is the behavioral component of CBT that does not include the direct cognitive modification techniques specific to the full CBT approach. It is true that substantial links between classic behavior therapy and basic science exist, but this does not necessarily support CBT, which contains additional elements. Furthermore, Hofmann’s (2007; 2008) own writings on this topic do not represent novel research linking cognitive science to CBT more specifically. Instead, these papers are literature reviews that propose certain theoretical connections between CBT and clinical neuroscience. In one of these papers, Hofmann (2008) concludes that “exposure therapy is a form of cognitive intervention that specifically changes harm expectancy” (p. 206). However, the issue at hand is not whether behavioral interventions can influence cognitions. Both ACT and CBT camps would probably agree on this point. Rather, the issue is whether CBT theory and practice are firmly linked to what experimental cognitive science tells us about how normal human information processing works, how it becomes aberrant, and how it can be corrected. If, as claimed, Hofmann and Asmundson presented a representative sample of the currently available evidence to empirically link CBT and cognitive science (or even neuroscience more specifically), then it is unclear how one could interpret the cognitive science foundation of CBT as anything but “weak” at this point in time.

#### **Critique 4: CBT Techniques Did Not Emerge from Basic Science Research**

Hayes et al. (2006) also note the historical disconnection between the actual techniques used in CBT and basic science research: “Looking at the array of popular techniques developed in CBT, none are known to have emerged directly from the basic science laboratories” (pp. 6-7). Hofmann and Asmundson (2008) respond by providing what they describe as a representative example of how basic science has actually produced these CBT techniques. These authors’ present the following line of reasoning:

- (1) Heimberg and colleagues developed a CBT protocol for treating social phobia in 1991, which was adapted from Beck et al.’s (1979) original CBT for treating depression.
- (2) In a randomized trial, Heimberg et al. (1998) showed that CBT was as effective as medication, and more effective than placebo for treating social phobia. However, the effect sizes achieved clearly indicated room for improvement.
- (3) Hofmann and Asmundson cite laboratory research occurring over the past 10 years on the psychopathology of social phobia that has identified certain cognitive constructs that appear to be associated with the disorder (e.g., self-focused attention).
- (4) They conclude by describing a modified version of CBT that uses innovative techniques such as video feedback to target self-focused attention specifically. A recent RCT of this modified approach conducted by Clark et al. (2003) suggested that the effect size gains might be superior to those achieved using Heimberg et al.’s original treatment.

Clearly some CBT researchers are working diligently to develop techniques stemming more directly from experimental research, and they may ultimately succeed. However, this is a relatively late development. Such efforts do not dispute the fact that the historical links between CBT and cognitive science have always been tenuous at best. A closer examination of Hofmann and Asmundson’s (2008) example may actually do more to support rather than refute Hayes et al.’s (2006) original analysis.

- (1) Heimberg et al.'s (1998) approach is the most popular evidence-based CBT model of social phobia to date. The authors acknowledge that Heimberg et al.'s protocol was adapted from Beck et al.'s (1979) clinically-derived model and techniques for depression, which did not come from basic science research.
- (2) Hofmann and Asmundson summarize basic psychopathology research on social phobia that has occurred over the past 10 years. However, this research appeared to be conducted mainly in clinical samples and focused on psychopathological processes. There is also a need to connect CBT to basic research in normal cognitive processes, as the aim of the treatment is to return to the person to normal functioning. Hayes et al. would likely see CBT techniques emerging from research conducted in nonclinical samples as the ultimate goal of this line of investigation. It should be noted that RFT (Hayes et al., 2001) is based on behavioral principles applied to language and cognition that apply to pathological as well as nonpathological forms of behavior.
- (3) Clark et al. (2003) note that they actually developed their modified CBT protocol from a theoretical clinical model originally published in 1995 (Clark & Wells, 1995). The clinical model that inspired Clark et al.'s modified social phobia treatment was formulated before the experimental psychopathology studies that Hofmann and Asmundson cited to support their case were even conducted. Hofmann and Asmundson even acknowledge this at one point: "Clark and Wells' [sic] (1995) formulated a model that correctly predicted many of the maintenance factors and processes that were *later identified* in the aforementioned laboratory studies" (emphasis added, p. 9). This does not suggest an emergence of CBT techniques from basic science, but an attempt to link them after the fact. Although itself a laudable goal, this does not directly contradict Hayes et al.'s original criticism.
- (4) It also is important to note that the protocol developed by Clark et al. is very consistent with the original Heimberg et al. treatment, especially in terms of the core CBT principles and strategies of both. Thus, it would be more accurate to describe the techniques employed by Clark et al. as incremental improvements at best, rather than unique strategies that are fundamentally different from those employed in traditional CBT for social phobia.
- (5) Finally, it is misleading to suggest that Clark et al.'s modified treatment, based on one study conducted to date, is more efficacious than Heimberg et al.'s original treatment. The Clark et al. study did not directly compare the two approaches, and comparisons of effect sizes between studies are not definitive given that there are numerous factors other than a treatment's actual efficacy that will affect the results (e.g., sample characteristics). A dismantling study would be needed to test Hofmann and Asmundson's hypothesis.

To reiterate, Hayes et al. (2006) argued that no popular CBT techniques to date directly emerged from basic science (i.e., experimental laboratory research). Hofmann and Asmundson (2008) and Hayes et al. may quibble over the importance of the word "popular" to their respective arguments. Nevertheless, several aspects of Hofmann and Asmundson's example fail to convincingly refute Hayes et al.'s original claim. It is true that in recent years CBT researchers have begun to look to experimental psychopathology research as an inspiration for modifying their treatments with some early promise. However, much more research will be needed before basic cognitive science (especially research on nonpathological cognitive processes) can be convincingly linked to core CBT interventions.

### **Critique 5: CBT Is Not Supported by Component Analysis Studies**

Component analyses or dismantling studies attempt to "unpack" the efficacy of a multi-component treatment by experimentally isolating and systematically testing the effects of its components separately (Kazdin, 1998). Preliminary research on several of ACT's core processes (e.g., acceptance, cognitive defusion) has been generally supportive thus far; although more research will be needed to test all the components of ACT, especially when used together (Hayes et al., 2006). In contrast, Hayes et al. (2006) note: "Component analysis studies have generally failed to find support for the importance of

direct cognitive change strategies, which was the common sense lynch pin of CBT” (p. 3). A recent independent review of component analyses of CBT reached similar conclusions (Longmore & Worrell, 2007). Instead of attempting to dispute this conclusion, Hofmann and Asmundson respond by challenging the importance of component analysis studies for CBT. They argue the following:

Briefly stated, our argument is that a component analysis can neither support nor refute the CBT model because cognitions can change without explicitly targeting them in treatment. For example, a spider phobic person who exposes herself to spiders without experiencing any of the feared consequences will show a reduction in harm expectancy, even without any explicit cognitive restructuring techniques. (p. 10)

Originally, Hayes et al. (2006) questioned the importance of direct cognitive change strategies in CBT, and Hofmann and Asmundson (2008) responded by arguing that the cognitive components are not necessary for cognitive change. However, this point is not connected to Hayes et al.’s original claim. To reiterate, the original criticism was that controlled studies have suggested that the “C” component in CBT has not been shown to be necessary in the vast majority of cases for producing the clinical improvement observed. This is not an irrelevant point as Hofmann and Asmundson argue. The original premise of CBT was that the explicit cognitive interventions would provide additional benefits beyond those already achieved using traditional behavioral methods only (e.g., *in vivo* exposure). For example, A. T. Beck et al. (1979) assert:

The impact of the therapeutic techniques derived from a strictly behavioral or conditioning model is limited because of the restriction to observable behavior and selective exclusion of information regarding the patient’s attitudes, beliefs, and thoughts—his cognitions. Hence, even though the behavior therapist induces the patient to become more active, his pessimism, self-disparagement, and suicidal impulses may remain unchanged. (pp. 118-119)

If Hofmann and Asmundson concede the point that cognitive restructuring is superfluous to clinical improvement, then this would seem to undermine one of the central rationales for CBT. Traditional behavior therapy is in many ways a more parsimonious treatment and is less complicated to implement compared with a multi-component treatment like CBT. In trying to defend CBT, Hofmann and Asmundson actually appear to undermine it.

### **Critique 6: Improvement in CBT Often Occurs Before the Cognitive Interventions**

Hayes et al. (2006) further argue that: “The response to traditional cognitive therapy often occurs before cognitive changes techniques have been implemented, a finding that has still not been adequately explained” (p. 3). Hayes et al. are referring primarily to the study by Illardi and Craighead (1994) reporting that 60-70% of the improvement in depression during CBT occurred during the first 4 weeks of the treatment, even though the cognitive restructuring component of the treatment is often first introduced after this point. The early stage of CBT for depression is dominated by behavioral strategies (e.g., activities scheduling). Thus, one interpretation, which seems to be preferred by Hayes et al., is that the earlier instated behavioral components of CBT are actually responsible for the majority of clinical improvement, rather than the cognitive components specific to CBT that occur later on in treatment. Hofmann and Asmundson (2008) respond by pointing out that that these findings have been contested in the literature. For example, Tang and DeRubeis (1999) argue that cognitive strategies actually are introduced during the first 4 weeks of treatment, and their reanalysis of the data suggests more of a dose-response pattern in many cases.

Hofmann and Asmundson (2008) correctly point out weaknesses in Illardi and Craighead’s (1994) conclusions, as the literature in this area is sparse and contradictory. To settle this issue, it would be necessary to conduct a study directly testing Hayes et al.’s (2006) hypothesis that the benefit of CBT

occurs because of the earlier implemented behavioral components, rather than the later initiated cognitive components. For example, depressed patients could be randomly assigned to receive cognitive restructuring first and then behavioral activation, the behavioral intervention first and then the cognitive strategies, or a control condition that contains neither of these explicit strategies (e.g., supportive therapy). Such a study would help to address two separate questions: (1) how much clinical improvement occurs early on in CBT and (2) what is the relative contribution of cognitive restructuring versus behavioral intervention to the clinical improvement observed in CBT? Unfortunately, such an investigation has not been conducted to date. Thus, Hayes et al.'s argument in this case is open to dispute, and Hofmann and Asmundson legitimately question this conclusion.

### **Critique 7: CBT's Hypothesized Mechanisms of Change Are Not Well-Supported**

Changes in cognitive processes directly targeted during CBT are hypothesized to be primarily responsible for the clinical improvement observed. Of all Hayes et al.'s (2006) criticisms of CBT, the following is perhaps their most important: "Support for the hypothesized mediators of change in CBT is weak (e.g., Burns & Spangler, 2001; Morgenstern & Longabaugh, 2000), particularly in areas that are causal and explanatory rather than descriptive (Beck & Perkins, 2001; Bieling & Kuyken, 2003)" (p. 3). Hayes and colleagues have previously reported on the results of several preliminary studies that appear to support the hypothesized mechanisms of change in ACT based on statistical mediation analyses.

Previously, Hofmann and Asmundson (2008) attempted to defend the lack of positive findings from CBT component analyses by instead proposing that: "The real question is: Do changes in cognitions mediate changes in symptoms?" (p. 10). One would expect these authors then to proceed with their argument by offering strong evidence to support cognitive mediation in CBT intervention effects. But after acknowledging that the seminal paper describing straightforward methods for conducting statistical mediation analyses was published in 1986 (Baron & Kenny, 1986), Hofmann and Asmundson explain: "Very few studies have examined treatment mediation in CBT" (p. 10). Even though modern CBT was developed in the 1970's, these authors further note that most studies on the topic of CBT mediation effects have been conducted over the last 5 years. Based on a review of these studies, they conclude: "It is too early to make any firm conclusions based on this limited amount of research" (p. 10).

Earlier, Hofmann and Asmundson (2008) argued that component analyses were irrelevant, and that mediation studies were the key to determining the scientific basis for CBT. However, these authors then later admit that, although the methods of determining statistical mediation have been available since the 1980's, few studies have been published on this topic in the CBT literature until very recently. The issue at hand is whether or not cognitive change is the mechanism (or at least one of the primary mechanisms) through which CBT specifically produces its clinical effects. Hofmann and Asmundson cite six studies that they suggest provide some support for cognitive mechanisms of action in CBT. Unfortunately, none technically proves mediation.

- (1) Wilson, Fairburn, Agras, Walsh, and Kraemer (2002) compared CBT versus interpersonal psychotherapy for bulimia nervosa. However, they found no significant treatment by mediator interaction: "The absence of an interaction is inconsistent with the view that the two treatments worked through different mechanisms" (p. 272).
- (2) Smits, Powers, Cho, and Telch (2004) randomized patients with panic disorder to CBT versus a waitlist or no treatment control. They found that the cognitive construct "fear of fear" mediated the effect of treatment on outcome. It is interesting to note that the concept "fear of fear" is not particularly consistent with the original cognitive model of psychopathology as it actually reflects more of a meta-cognitive concept more consistent with mindfulness interventions. However, as only a waitlist or no-treatment comparison condition was used, it is impossible to conclude that CBT operates specifically through the reduction of this "fear of fear" construct.

- (3) Hofmann (2004) reported the results of a randomized trial that examined the efficacy of group CBT, group exposure therapy without cognitive interventions, or waitlist control in a sample with social phobia. However, results failed to show cognitive change as a differential mediator of CBT versus exposure therapy without the cognitive interventions.
- (4) Smits, Rosenfield, McDonald, and Telch (2006) used a within-subjects design to examine cognitive change associated with fear reduction in patients with social phobia during a brief exposure-based intervention. However, as the study did not randomize patients to a non-CBT comparison treatment, it could not demonstrate cognitive mechanisms of change in CBT for social phobia specifically.
- (5) Hofmann et al. (2007) reported that cognitive change was associated with symptom improvement in panic disorder patients receiving CBT, but not in patients receiving pharmacotherapy alone. However, CBT was not compared to another psychotherapy condition in this study, and thus could not test the specific mechanisms of this approach. Furthermore, Hofmann and colleagues note the primary limitation of their study: “One must recognize, however, that our results do not conclusively prove that cognitive mediation occurred because we could not establish temporal precedence of the mediator” (p. 378). Establishing the temporal order of the mediator variable is the *sine qua non* of statistical mediation (Holmbeck, 1997).
- (6) Finally, Petry, Litt, Kadden, and Ledgerwood (2007) found relatively weak evidence that “coping skills” mediated treatment response in the early part of treatment between CBT and Gamblers Anonymous conditions in a sample of pathological gamblers. However, this study did not specifically examine cognitive mediators, as Hofmann and Asmundson suggest, but instead investigated more generic “coping strategies,” which included behavioral skills. The authors of this study actually conclude: “[R]elationships between coping skills and gambling behavior are fairly strong, regardless of treatment received” (p. 1280).

None of the studies cited convincingly demonstrates that cognitive change is specifically related to improvement following CBT, which is the central rationale for the approach. Hofmann and Asmundson (2008) did supply preliminary evidence that cognitive changes mediated overall symptom reduction in some cases. But they failed to demonstrate that CBT specifically works by directly altering these cognitive constructs. There also are many failed attempts at obtaining cognitive mediation reported by researchers in the literature. As a whole, the studies cited actually suggest that this cognitive change may be a nonspecific process unrelated to CBT. This implies that cognitive change may be the product of a different underlying process that is being impacted by any successful psychotherapy.

### **Gross’ Emotion Regulation Model and ACT**

As discussed, ACT proposes a comprehensive theoretical model called RFT (Hayes et al., 2001) as the experimental basis for the treatment approach. Hofmann and Asmundson (2008) do not directly challenge RFT as a legitimate account of ACT technique or process. Instead, they propose that a different theoretical model can be used to explain CBT as well as ACT. These authors argue that both ACT and CBT aim to reduce emotional distress, but they simply accomplish this goal using different techniques. Hofmann and Asmundson point to Gross’ (2001) emotional regulation model to make their case. First, it is necessary to understand this model in detail. As originally explained by Gross and John (2003):

This conception holds that an emotion begins with an evaluation of emotion cues. When attended to and evaluated in certain ways, emotion cues trigger a coordinated set of response tendencies that involve experiential, behavioral, and physiological systems. Once these response tendencies arise, they may be modulated in various ways. Because emotion unfolds over time, emotion regulation strategies can be distinguished in terms of when they have their impact on the emotion-generative process. (p. 348)

In the model, there is a distinction made between *antecedent-focused* and *response-focused* emotion regulation strategies. As their names imply, antecedent-focused strategies occur prior to the full activation of the emotion and its associated responses, whereas response-focused strategies occur after the emotion and related responses have already occurred. According to Gross' model, *cognitive reappraisal* (i.e., changing one's interpretation of a situation to make it less distressing) is an antecedent-focused strategy and *expressive suppression* (i.e., trying to hide the display of strong emotional reactions) is a response-focused strategy. In one study, Gross (1998) examined the effects of emotional regulation strategies in subjects who viewed a video of a graphic arm amputation. In the cognitive reappraisal condition, subjects were instructed to think about the film in a way that would prevent them from feeling upset by it. In contrast, subjects were instructed to hide their external emotional reactions to the film in the suppression condition. A third control condition was also included in which subjects simply were instructed to watch the film. Gross found that both reappraisal and suppression reduced the expression of emotion relative to the control condition. Furthermore, reappraisal decreased self-reported levels of disgust and did not affect physiological arousal. However, suppression did not decrease disgust, but did lead to increases in physiological responding. Gross interpreted these findings as suggesting two different emotional regulation processes.

Based on Gross' (2001) emotional regulation model, Hofmann and Asmundson conclude:

In essence, CBT and ACT target different stages in the emotion-generative process: CBT promotes adaptive antecedent-focused emotion regulation strategies, whereas ACT counter-acts maladaptive response-focused emotion regulation strategies. The cognitive restructuring techniques used in CBT are in line with the antecedent-focused emotion regulation strategies, providing skills that are often effective in reducing emotional distress in the long term. Acceptance and mindfulness-based strategies counter suppression and, thereby, alleviate emotional distress. (p. 12)

Based on the earlier discussion of ACT's theoretical model, this is an oversimplification of the approach. Furthermore, contrary to the claims of Hofmann and Asmundson (2008), many ACT strategies can be understood as being consistent with Gross' (2001) antecedent-focused strategies. If an emotion regulation strategy is used before the emotional response is fully activated, it is called "antecedent focused." According to the Gross model, it is the actual timing of the strategy that is of critical importance, not the focus on "cognitive reappraisal" *per se*. Gross (2001) focuses on cognitive reappraisal as one antecedent-focused strategy, but he notes that other strategies are permitted in the model (but are simply yet to be tested). For example, the cognitive defusion component of ACT could be viewed as an antecedent-focused strategy based on Gross' model. The difference is that in ACT, cognitive defusion strategies are designed to undermine the undesirable *functions* of cognitions, whereas in CBT, direct cognitive modification techniques are used to alter the actual *forms* of the dysfunctional thoughts or information biases (Hayes et al., 1999).

Furthermore, it is important to point out that Hofmann and Asmundson (2008) fail to properly describe the concept of suppression as used in Gross' model. Gross (2001) is actually referring to a specific form of suppression, which is characterized by *expressive inhibition*. He explains: "The term 'suppression' also has a long history. It has been used to refer to inhibiting feelings, behavior, or thoughts. Here I use it to refer to inhibiting emotion-expressive behavior" (p. 219). Gross provides the following example: "An example of response-focused regulation is keeping a poker face while holding a great hand during an exciting card game" (p. 215). However, when Hayes et al. (1999) refer to suppression, they are generally referring to thought suppression more specifically. For example, they summarize the research on thought suppression in this way: "When subjects are asked to suppress a thought, they later show an increase in this suppressed thought as compared with those not given suppression instructions" (p. 60). This rationale is provided for why ACT views avoidance of unwanted thoughts as a counterproductive

strategy in the long-run. After correctly understanding Gross' meaning of expressive suppression (versus thought suppression), it is clear that neither CBT nor ACT focus much on this process, and both could be viewed as fostering antecedent-focused strategies. Thus, Gross' model is not particularly helpful in distinguishing between CBT and ACT. Furthermore, Hofmann and Asmundson fail to address Hayes et al.'s claim that RFT provides the better overall theoretical explanation for ACT. Many different models can be adapted or altered to fit the data. Thus, it is most important to compare and contrast various models to identify which one seems to fit the data better overall.

### Is There Really a “Third Wave”?

In recent publications, Hayes (2004b) has claimed that ACT and other mindfulness/acceptance-based therapies can be viewed as representing a “third wave” of behavior therapy—the first wave being classic behavior therapy and the second wave being the “cognitive revolution” that ushered in tradition CBT. He explains:

*Grounded in an empirical, principle-focused approach, the third wave of behavioral and cognitive therapy is particularly sensitive to the context and functions of psychological phenomena, not just their forms, and thus tends to emphasize contextual and experiential change strategies in addition to more direct and didactic ones. These treatments tend to seek the construction of broad, flexible and effective repertoires over an eliminative approach to narrowly defined problems, and to emphasize the relevance of the issues they examine for clinicians as well as clients. The third wave reformulates and synthesizes previous generations of behavioral and cognitive therapy and carries them forward into questions, issues, and domains previously addressed primarily by other traditions, in hope of improving both understanding and outcomes. (emphasis in original, p. 658)*

He further states: “What I mean by a ‘wave’ is a set or formulation of dominant assumptions, methods, and goals, some implicit, that help organize research, theory, and practice” (p. 640).

Hofmann and Asmundson (2008) reject this premise, stating: “[W]e are not convinced that ACT or other acceptance-based treatment [sic] are part of a *third wave* of psychotherapy, replacing CBT. There is no data to suggest that it represents an entirely new treatment approach” (emphasis in original, p. 13). To support their case, Hofmann and Asmundson describe personal communications with the creators of other supposed “third wave” therapies. They report that the creators of Metacognitive Therapy (Wells, 2000) and Dialectical Behavior Therapy (Linehan, 1993) view their respective approaches as part of the family of cognitive-behavioral approaches. Hofmann and Asmundson also reiterate their argument that ACT and CBT both could be understood using Gross' emotional regulation model, making them more fundamentally compatible than incompatible.

First, it is clear from Hayes' direct quote presented above that he is not arguing that ACT is an “entirely new treatment approach” designed to “replace CBT,” as Hofmann and Asmundson assert. Instead, he is proposing that ACT is in many ways an extension of the behavioral and cognitive traditions, but that it has enough distinctive theoretical elements to make it something that can be legitimately differentiated from these previous approaches. In the end, the rhetoric of “third wave” used by Hayes (2004b) may be best viewed as a matter of opinion and historical perspective (Gaudiano, 2008). Thus, only time will tell whether ACT and other acceptance/mindfulness therapies will be viewed through the lens of history as truly representing novel approaches that deserve this distinct moniker. Hofmann and Asmundson (2008) make a legitimate point when they argue that there is a great deal of heterogeneity among the approaches sometimes lumped by Hayes into this third wave. It may be best to try to understand these newer therapies as falling along a continuum, with some approaches offering relatively minor variations from traditional CBT (e.g., Metacognitive Therapy), compared with others that hold

seemingly incommensurate assumptions and principles that make them difficult to neatly reconcile with their predecessors in theory or practice (e.g., ACT). Hofmann and Asmundson suggest that an increased attention to mediation analyses in outcomes studies in CBT and ACT ultimately will be needed to distinguish between these approaches and to identify whether their mechanisms of change actually differ. This is a closing point with which Hayes and colleagues would likely agree.

## Summary

In their critique, Hofmann and Asmundson (2008) attempt to provide a rebuttal to Hayes et al.'s (2006) supposed misrepresentations of CBT. They also offer a model of emotion regulation that they claim could account for both CBT and ACT. Thus, it is not surprising that Hofmann and Asmundson fail to find Hayes' (2004b) argument convincing that ACT represents a truly novel approach that deserves recognition as the "third wave" of behavior therapy. By providing a more detailed analysis of Hofmann and Asmundson's claims, I attempted to clarify some of these issues. Although these critics understandably attempted to provide a more nuanced understanding of CBT compared with the sometimes oversimplified depictions presented by Hayes et al. (1999), at least as they appeared in early ACT writings, Hofmann and Asmundson ultimately fail to contradict the actual merits of the original critiques of CBT in the majority of cases. To summarize:

- (1) CBT appears to be more mechanistic in its underlying assumptions and thus more focused on symptom alleviation and changing the "forms" of behavior relative to an approach such as ACT. The strength of this argument depends somewhat upon one's meaning and use of the term "symptom" and may be more a matter of degree than kind. The relative scientific benefits of a mechanistic versus a contextualistic philosophical approach to psychotherapy are yet to be determined.
- (2) CBT has historically weak theoretical and practical links to basic cognitive science and only recently has experimental psychopathology research begun to inform its techniques. Little evidence currently exists linking CBT and basic cognitive research focused on nonpathological information processing.
- (3) Component analyses have generally failed to support the need for multi-component CBT interventions that include an explicit cognitive modification component relative to more parsimonious behavioral approaches.
- (4) There has been scant evidence to date that the effects of CBT are produced specifically through its distinctive cognitive modification strategies, and a number of studies have produced largely disconfirming results (Longmore & Worrell, 2007), which Hofmann and Asmundson fail to address.
- (5) Some evidence suggests that a relatively large proportion of improvement occurs very early on in CBT, and thus often prior to the initiation of the core cognitive modification strategies. However, Hofmann and Asmundson correctly note that there are several possible explanations for this phenomenon and more research will be necessary to explain these findings.
- (6) Finally, a more detailed examination of Gross' (2001) emotion regulation model appears to weaken Hofmann and Asmundson's claim that it can neatly explain account for the effects of both CBT and ACT.

Many of the weaknesses in Hofmann and Asmundson's (2008) arguments may stem in part from a more fundamental misunderstanding of ACT by these authors. For example, Hofmann and Asmundson repeatedly focus their discussion on ACT *techniques* in their article, rather than on its core principles of change. Hayes et al. (1999) explain: "The effective ACT therapist uses ACT as *functionally defined*, not merely as *topographically defined*" (emphasis in original, p. 16). Hayes et al. further explain that, within ACT, "virtually any behavior change technique is acceptable. The difference is that behavior change goals, guided exposure, social skills training, modeling, role-playing, couples work, and so on, are

integrated with an ACT perspective” (p. 258). CBT traditionally places more importance on its distinctive set of techniques and strategies. However, ACT eschews this approach, instead arguing for the importance of principles of behavior change, and thus uses whatever techniques further this aim. In this way, ACT has a consistent and specific theoretical foundation rooted in a particular understanding of radical behaviorism, but it is eclectic at a technical level.

In the end, Hofmann and Asmundson’s (2008) review would have been more useful if it had focused on a detailed analysis of ACT as it is actually described by its creators, and then presented evidence-based arguments that countered or challenged these claims. Instead, these authors frequently defined ACT in ways that made it easier to argue against. Thus, as Hayes and colleagues can be seen as sometimes presenting CBT in overly simplistic terms to provide a better rationale for ACT, so Hofmann and Asmundson can be seen as falling into a similar rhetorical trap. It is my hope that this review will help to better clarify some of the theoretical differences between ACT and traditional CBT to foster further substantive debate and dialogue on this topic among researchers and clinicians interested in these approaches.

#### FOOTNOTE

1. [http://www.psychology.sunysb.edu/eklonsky-/division12/treatments/depression\\_acceptance.html](http://www.psychology.sunysb.edu/eklonsky-/division12/treatments/depression_acceptance.html)

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### Acknowledgment

This work was supported in part by grants from the National Institute of Mental Health (MH076937) and NARSAD: The Mental Health Research Association.

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# Behavioral Activation in the Treatment of Comorbid Posttraumatic Stress Disorder and Major Depressive Disorder

*Patrick S. Mulick and Amy E. Naugle*

## Abstract

This study investigated the efficacy of 10-weeks of Behavioral Activation (BA) in the treatment of co-morbid Post-traumatic Stress Disorder (PTSD) and Major Depressive Disorder (MDD) in four adults using a nonconcurrent multiple baseline across participants design. All participants met full *DSM-IV* criteria for both MDD and PTSD at the outset of the study. Self-report data were gathered at each session and again at mid-point between each session. At the post-treatment assessment sessions, two participants no longer met diagnostic criteria for either MDD or PTSD and an additional participant no longer met criteria for MDD. It is argued that BA may be an effective treatment for co-morbid PTSD and MDD and the theoretical rationale is provided.

Keywords: PTSD, Depression, Co-morbidity, Behavioral Activation

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## *Introduction*

The last decade has seen resurgence in the empirical examination of behavior therapies (Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004). Treatment development and intervention research has focused on incorporating contemporary understanding of behavioral theories with the knowledge generated by seminal behavior therapy research of the 1970's. One result has been the development of and empirical support for two variants of behavioral activation: Behavioral Activation (BA; Martell, Addis, & Jacobson, 2001) and Brief Behavioral Activation for Depression (BADT; Lejuez, Hopko, & Hopko, 2001). These approaches share foundational techniques functionally defined as helping clients identify, access, and maintain contact with sources of positive reinforcement based on their goals and values. Both interventions have demonstrated effectiveness with a variety of psychiatric conditions (Cuijpers, van Straten, & Warmerdam, 2007; Ekers, Richards, & Gilbody, 2008; Hopko, Lejuez, Ruggiero, & Eifert, 2003). However, BA and BADT were developed independently and have different origins. Behavioral activation has its genesis in the contextual behavioral theory, while BADT originates from matching law theory (see Hopko et al., 2003 for detailed analysis of differences and similarities).

For the purpose of exploring the mechanism of action of Cognitive Therapy for depression (CT; Beck, Rush, Shaw, & Emery, 1979), Jacobson and colleagues (1996) conducted a component analysis of the intervention. Their research provided evidence that BA, the behavioral component of CT, was as effective at reducing depressive symptomatology as the full CT intervention, and results were maintained over a two-year follow up (Gortner, Gollan, Dobson, & Jacobson, 1998). These results called into question the need for explicit cognitive interventions when treating depression and led to a number of studies that have more thoroughly examined the effectiveness of BA as a stand-alone treatment. In an effort to replicate and extend the original findings, Dimidjian and colleagues (2004) conducted a study comparing BA, CT, paroxetine (Paxil) with clinical management, and pill placebo in the treatment of depression. The results indicated that BA and paroxetine were comparable in their effectiveness and that both outperformed CT and pill placebo.

As the clinical utility of BA has emerged, the authors of this early research have clarified the theoretical underpinnings of the intervention (Jacobson, Martell, & Dimidjian, 2001; Martell et al., 2001) by incorporating Ferster's (1973) theory of depression. In this theory it is assessment of the function of behavior, rather than form, which is important in facilitating clinical change. The modern theory of BA demands that clinician and client collaboratively conduct a descriptive functional analysis of the client behavior and develop a treatment plan focused on addressing client avoidance behavior in an attempt to assist him or her to engage in more active behaviors. An increase in active behaviors enables the client to come into increased contact with available reinforcers in his or her environment. As told to clients, it is not a matter of doing things when you feel like it. Rather, it is engaging in activity because the behavior will help you to accomplish goals you have set that are consistent with one's life values and elicit reinforcement (Martell et al., 2001).

As BA has become more established as a treatment for depression, questions of its effectiveness with other psychiatric and medical populations have emerged. Those suffering from Post-traumatic Stress Disorder (PTSD) and Major Depressive Disorder (MDD) are one such population. The co-morbidity of PTSD and MDD (C-P/D) has been extensively examined and research has demonstrated co-occurrence rates exceeding that which would be expected as simple coincidence (Blanchard, Buckley, Hickling, & Taylor, 1998; Bleich, Koslowsky, Dovlev, & Lerer, 1997; Dow & Kline, 1997; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Kessler and colleagues (1995) conducted a large scale national epidemiological study and found that, of those with PTSD, approximately 50% also suffered from MDD. While the high frequency of C-P/D has been empirically demonstrated, due to stringency in inclusion criteria that is typical of conventional efficacy studies (e.g., excluding individuals with dual diagnoses, merely tracking changes associated with one disorder), there is limited knowledge of how to effectively treat individuals with C-P/D (Nishith, Hearst, Mueser, & Foa, 1995).

Modern behavioral treatment of PTSD focuses on exposure, although relaxation techniques also often are applied. Exposure is based on the notion that anxiety subsides through a process of habituation after exposure to the feared stimulus. Applied to PTSD, the exposure usually involves imaginal re-presentation of the traumatic events and blocking escape behaviors. While extensive research supports the use of exposure therapy in the treatment of PTSD (Rothbaum, Meadows, Resick, & Foy, 2000), exposure interventions appear to be most effective in treating re-experiencing and hyperarousal symptomatology, with less impact on the avoidance symptoms (Blake & Sonnenberg, 1998).

Despite these findings, practitioners in "real-world" settings do not appear to utilize exposure interventions with great frequency (Becker, Zayfert, & Anderson, 2004; Cook, Schnurr, & Foa, 2004). Specifically, poor treatment compliance, high drop-out rates, the aversive nature of the procedures, and limited effectiveness in treating avoidance symptoms all limit the utility of exposure-based interventions with clinical populations (Blake & Sonnenberg, 1998; Foa, Rothbaum, Riggs, & Murdock, 1991; Rothbaum et al., 2000; Schnurr, 2001; Scott & Stradling, 1997; Tarrier et al., 1999; Vaughan & Tarrier, 1992). Thus, psychological interventions that are more palatable to clients and capable of concurrently treating MDD and PTSD are needed. Behavioral Activation is one possible intervention.

Behavioral Activation's focus on modifying avoidance strategies suggest it as an effective treatment for PTSD. As stated above, avoidance is a key symptom of PTSD and individuals with PTSD have become hypervigilant in assessing their environment to locate any indication of trauma related cues, including their emotional responses. Perceived risk leads to avoidance responses that are negatively reinforced, even if the risk was never actually present. Behavioral Activation targets these avoidance responses and assists clients in engaging in behaviors that are intended to facilitate accomplishing their

goals, rather than feeling good. It is a subtle form of exposure because individuals are asked to engage in behaviors that may have become associated with the traumatic experience. However, they are not asked to engage in these behaviors for the explicit purpose of exposure, rather it is simply an attempt to remain active with their environment.

Mulick and Naugle (2004) used BA to treat a 37-year-old male police officer/military veteran suffering from C-P/D. At post-treatment assessment, self-report and observer rated data indicated that the client no longer met criteria for either PTSD or MDD. The client demonstrated improvement across all three PTSD symptom clusters (re-experiencing, avoidance, and hyper-arousal), with the greatest improvement occurring among the avoidance symptoms. Furthermore, the client provided an extremely positive evaluation of BA. The results from this case study support the rationale that BA may be an effective and palatable treatment for C-P/D.

Jakupcak and colleagues (2004) reported the results of a pilot study examining a 16-week BA intervention in the treatment of PTSD in a veteran population. Nine participants were assessed at pre- and post-treatment using self-report and observer rated measures of depression, PTSD, and quality-of-life. While depression symptoms were assessed, the study did not require participants to meet criteria for MDD. Results demonstrated statistically significant improvement in PTSD symptomatology and quality-of-life scores. While there was not a statistically significant change in self-reported scores of depression, the authors indicated that this may be a result of numerous participants having pre-treatment scores of depression in the mild range. All veterans tolerated BA very well and indicated that it was a useful intervention that affected numerous areas of their lives (e.g., health related behaviors).

Past empirical investigations have demonstrated promise for BA as an effective intervention for depression when it occurs alone and when it occurs in conjunction with PTSD (Gortner et al., 1998; Jacobson et al., 1996; Jakupcak et al., 2004; Mulick & Naugle, 2004; Porter, Spates, & Smitham 2004). Based on the positive results of these earlier examinations, the present study was developed to explore the effectiveness of BA with a larger number of subjects meeting *Diagnostic and Statistical Manual for Mental Disorders-Forth Edition (DSM-IV; APA, 1994)* criteria for both MDD and PTSD resulting from a variety of traumatic events. A non-concurrent multiple baseline across participants design (Watson & Workman, 1981) was used to examine participants' self-report and observer rated symptoms of depression and post-traumatic stress. The single subject design allowed an examination of overall change, along with a more detailed analysis of when change is taking place within the therapeutic process.

### *Method*

#### *Participants*

Adult participants (ages 18-62) were recruited through recruitment flyers and through direct referral from mental health providers. Criteria for inclusion in the study were 1) a minimum score of a 20 on the Beck Depression Inventory- Second Edition (BDI-II; Beck, Steer, & Brown, 1996); 2) a minimum score of 14 on the Revised Hamilton Rating Scale for Depression (RHRSD; Warren, 1996); and (3) meeting *DSM-IV* criteria for MDD and PTSD, as measured by the Structured Clinical Interview for the DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1997) and the Clinician-Administered PTSD Scale for DSM-IV (CAPS; Blake et al., 1997 ) respectively.

Exclusion criteria included the presence of concurrent psychiatric disorders of bipolar or psychotic subtypes of depression, current alcohol or other substance abuse, past or present schizophrenia or

schizophreniform disorder, organic brain syndrome, and mental retardation. Participants were also excluded from the study if they had been taking psychotropic medication for less than six weeks, had any change in their psychotropic medication in the last six weeks, or had been participating in another psychological treatment for less than three months. If participants were receiving other forms of treatment, they had to agree to continue receiving them at the same dose or frequency for the duration of their participation in the study.

Thirteen individuals participated in the initial assessment for this study. Five did not meet the above inclusion criteria for either PTSD (2 individuals) or MDD (3 individuals); two were excluded for meeting *DSM-IV* criteria for Bipolar Disorder; and two met criteria for the study, but choose not to participate. The final participant sample consisted of four participants.

*Participant 1 (P1):* The participant was a 21-year-old, single, Caucasian female. P1 presented for treatment seven months following a stranger sexual assault. She reported that prior to the attack she had been an outgoing, active, assertive individual, with a healthy lifestyle and lots of friends. She had been an accomplished musician, working toward a Bachelor's degree in music, and held a part-time job. She stated that since the attack her life had changed dramatically. She no longer played her musical instrument and had stopped exercising. She was still enrolled in courses, but rarely attended class. She had lost contact with her friends and was limited in her social contact to speaking with her mother on the telephone. P1 had received individual therapy for the first three months following the assault. She stated that she had not found therapy very helpful and had voluntarily terminated the sessions. She had been receiving psychopharmacological treatment for the past three months. At the time of the initial assessment, and for the duration of the treatment, she was stabilized on Wellbutrin SR (150 mg bid) and Trazodone (150 mg hs).

*Participant 2 (P2):* The participant was a 28-year-old, single, Caucasian female. While in the military, at the age of 20, she was sexually assaulted by two men. She stated that before the assault she had been a motivated, hard working individual, who enjoyed the company of people. She remained in the military for a couple of years following the attack, but experienced continued harassment from the two men and other military personnel, resulting in her leaving the military. P2 stated that she began to drink heavily following the attack in an attempt to cope with her symptoms. She was placed in detention for an alcohol related incident while in the military and since that time has limited her drinking to approximately two drinks per month. Due to the severity of her psychological symptoms, she had been unable to work for the past five years and was receiving full disability payments from the federal government. At the time of the initial assessment, she had very limited social contact and spent the majority of her time alone in her apartment. The participant began receiving mental health treatment at a VA women's trauma clinic approximately five years ago. She received individual therapy a couple times a month for the first four years. During the past year, P2 had attended group therapy once a week and received individual supportive therapy one time a month. P2 stated that she did not notice much of a change in her symptomatology since beginning her mental health treatment. At the time of the initial assessment, and for the duration of the study, she was stabilized on Celexa (40 mg qhs).

*Participant 3 (P3):* The participant was a 56-year-old, married, Caucasian male. He was a veteran of the Vietnam War and was involved in a variety of combat situation during his tour of duty. He stated that following the war he was able to work and had a variety of professions. P3 reported that his main source of employment over the years was a contractor. P3 stated that he first noticed psychological difficulties approximately 13 years ago. He became chronically anxious and uncomfortable around people. He moved his family away from the city to live in a cabin in the woods. The severity of his symptoms has

forced him to discontinue working approximately two years prior to the initial assessment. Since that time he spent the majority of his time in his room at an apartment he shared with his brother. P3 was supporting himself on Social Security disability payments. He was separated from his wife and stated that his primary responsibility was caring for his teenage daughter. P3 stated that he drank heavily off and on from the time he returned from Vietnam until he began attending Alcoholics Anonymous (AA) meetings 18 months ago. P3 stated that he has not drunk since starting AA. He presented at the VA for treatment approximately one year ago and has been attending a weekly group for Vietnam veterans since that time. He was stabilized on Remeron (30 mg qam) and Prazozin (4 mg qd) for the four months.

*Participant 4 (P4):* The participant was a 42-year-old, married, Caucasian male. He reported being sexually and physically abused from the ages of 5 to 21 by his mother, father, and sister. He reported various degrees of sexual abuse ranging from sexual touching to intercourse. Additionally, he reported severe physical abuse that resulted in occasional hospital visits for broken bones and lacerations. He had been married for approximately 18 years and had an adolescent daughter; however, he stated that he did not feel close to his wife or daughter. He expressed that he only had one person that he felt close to, a male friend whom he had known since college. At the time of the initial assessment, the participant had been working at a local church for 9 years. He reported he was not happy in his job and always looking for something different. He had seen a therapist regularly for a couple of years, 12 years prior to presenting for this study. He stated that he had not found therapy to be very helpful in the past. He had been stabilized on Elavil (100 mg qhs) for four months.

### *Setting*

All assessment and treatment sessions were conducted in a private room at either a large university or a large VA medical center. All sessions were videotaped to allow researchers to randomly review sessions to examine treatment integrity.

### *Assessors*

All pre- and post-assessments were completed by Ph.D. level psychology graduate students or a Ph.D. level psychologist. To ensure expertise with each instrument, the assessors completed didactic training on each measure and completed a mock assessment with the investigator. All pre- and post-assessments for P1 and P4 were conducted by the first author.

### *Therapists*

Three therapists were utilized for this study. The therapists had attained at least a Masters degree in either Clinical or Counseling psychology and were pursuing doctoral degrees in their respective areas. All therapists were familiar with cognitive-behavioral and behavioral treatments for MDD and PTSD. To ensure expertise in BA, each therapist received additional training in BA techniques and interventions. The training was conducted by the first author and took approximately 10 hours. Therapists utilized the *Cognitive & Behavioral Treatment of Depression: A Research Treatment Manual* (Jacobson et al., 1996) with additions and adaptations by Porter et al. (2004), with each participant. The BA manual includes specific guidelines for interventions that are prescribed and should be utilized during treatment (i.e., behavioral interventions), as well as those interventions that

should not be utilized during treatment (i.e., cognitive interventions). The participants kept the BA client manual with them during treatment and upon completion of the study.

### *Treatment Integrity*

In addition to the BA training that each therapist received, a session protocol was provided for all therapists to follow. This protocol specified the individual components of all sessions and the order in which the components were to be completed. The same procedures were utilized for sessions two through ten with all participants. A separate protocol that outlined the procedure for session 1 was given to therapists since this session required the therapist to explain the study in depth and specifically assess the difficulties that the participant was having. In the interest of addressing treatment fidelity and adherence to the BA protocol, one session for each participant was randomly selected and feedback provided. The feedback was provided by an outside, independent rater, Christopher Martell, Ph.D., the lead author on the BA manual and one of the individuals who was responsible for the training and supervision of the BA therapists in the Jacobson et al. (1996) and Dimidjian (2006) studies. Each therapist's performance was assessed using the Behavioral Activation Therapy for Depression Scale (BATS), a scale designed to measure competence, or the quality of the application of various BA techniques and therapeutic skill. For each of 11 items, the therapist's behavior was rated using a 6-point scale ranging from 0 = poor to 6 = excellent.

### *Outcome Measures*

Beck Depression Inventory-Second Edition (BDI-II) The BDI-II (Beck et al., 1996) contains 21 items designed to assess symptoms associated with depression. It utilizes a four-point Likert-type scale, ranging from 0 to 3, to measure depressive symptomatology over the past two weeks. The directions used in this study for the BDI-II were modified slightly to account for the duration between administrations of the instrument. This study required the participants complete the BDI-II twice a week; therefore, participants were asked to rate their symptoms since the last assessment. This modification allows for a more temporal assessment of the participants' depressive symptoms.

Modified PTSD Symptom Scale (MPSS). The MPSS (Falsetti, Resnick, Resick, & Kilpatrick, 1993) contains the 17 items that are included on the PTSD Symptom Scale (PSS; Foa, Riggs, Dancu, & Rothbaum, 1993), with slight modifications to the wording of each item. The MPSS assesses for frequency of symptoms (MPSS-F) on the same 4-point scale (0 = Not at all, 1 = once in awhile, 2 = half the time, 3 = almost always) used for the PSS. The scale assesses for the severity of the symptoms (MPSS-S) on a 5-point scale ranging from A = not at all distressing to E = extremely distressing (A = 0, B = 1, C = 2, D = 3, and E = 4 for scoring purposes). The original instructions asked individuals to rate their symptoms over the last two weeks. This study required that participants complete the MPSS twice a week; therefore, the participants were asked to rate their symptoms since the last assessment.

Revised Hamilton Rating Scale for Depression (RHRSD). The RHRSD (Warren, 1996) is an observer rated instrument utilized to measure severity of depressive symptoms. It contains 22 items and has descriptive anchor points for each of the values for each item. Cognitive items assess hopelessness, helplessness, and worthlessness, but are not computed in the total score for severity. Of the 17 scored items, nine are rated on 5-point scales (0-4) and eight on 3-point scales (0-2). The total possible scores range from 0 to 52.

Structured Clinical Interview for DSM-IV (SCID). The SCID (First et al., 1997) is a semi-structured interview designed for use with adults to assess 33 frequently diagnosed disorders found in the *DSM-IV* (APA, 1994). The psychometric data on the SCID confirms it to be a reliable instrument (Segal, Hersen, & Van Hasselt, 1994; Williams et al., 1992).

Clinician-Administered PTSD Scale for DSM-IV (CAPS). The CAPS is a structured interview designed specifically to assess for symptoms of PTSD (Blake et al., 1997). The CAPS provides both a dimensional and categorical approach to assessment of PTSD and distinguishes between frequency and intensity of symptomatic experiences (Weiss, 1997). Both domains are rated on 5-point scales ranging from 0-4.

Consumer Satisfaction Survey., The consumer satisfaction survey is a measure designed by the investigators specifically for this study to gain qualitative and quantitative data on participants' overall satisfaction with the BA intervention, the therapist, and therapy protocol. The survey includes four open-ended questions with space provided for participants to respond. It also includes ten items that ask participants to rate responses on a 4-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree; N/A = not applicable). Example items include, "Overall, this treatment was effective in dealing with my problems" and "This treatment was better than other treatments I have received in the past."

### *Procedures and Behavioral Activation*

During initial screening procedures, individuals were assessed for history of a traumatic event and symptoms associated with depression and traumatic stress. Eligible individuals were invited to participate in an intake/assessment interview. During this interview participants were completely informed about the nature of the study. Upon signing the Informed Consent document, interested participants completed a brief demographic questionnaire, the BDI-II, and MPSS. If the individual met the cutoff scores on the BDI-II, he or she was interviewed using the SCID, the CAPS, and the RHRSD.

Individuals who met the above criteria were telephoned within a week and invited to participate in the study. If they chose to participate the individual was assigned to a research therapist, randomly assigned to a pre-determined baseline length of 2 or 3 weeks (5 or 7 data points respectively), and scheduled for his or her first appointment. Beginning with the first baseline session and continuing through the termination of the therapeutic intervention, each participant was asked to complete a BDI-II and MPSS on the day that was the midpoint between his or her therapy sessions. Researchers made a "reminder call" to each participant on the day that these self-report measures were to be completed.

Baseline sessions consisted of meeting once a week for 15 to 45 minutes to collect between-session materials and to monitor current symptom levels. During these baseline sessions therapists provided participants with supportive therapy only. Therapists questioned participants about their general functioning and any important events from the past week that they would like to discuss. If the participant had a topic for discussion, the therapist would provide empathic listening, but did not engage in any form of structured or directive therapy.

Regardless of the baseline length to which the participant was assigned, the BA intervention was initiated when participant data had stabilized. Baseline stability was determined by frequency of PTSD symptoms, as measured by the MPSS. A baseline was deemed stable if there were at least three

consecutive data points that were within 4 points and/or absent of a downward trend. Empirical evidence indicates that BA will have a positive impact on participants' depressive symptoms (Dimidjian et al., 2006; Jacobson et al., 1996; Porter et al., 2004); however, there is limited empirical evidence to guide what impact BA may have on PTSD symptomatology. Therefore, stability of PTSD symptoms should be established to demonstrate efficacy of BA in treating these symptoms. The criteria of a stable MPSS-F baseline controlled for the impact of "therapy contact" by necessitating a stable frequency of their PTSD symptoms before BA could be introduced. Ilardi and Craighead (1994) review the specific role that nonspecific factors play in the demonstrated effectiveness of CBT. They suggest that nonspecific factors may play a more significant role during the early stages of therapy, while the changes that occur later in the therapy process may be attributed to specific factors of CBT. The experimental control of a "supportive therapy" baseline phase should reduce the impact of the nonspecific factors.

During the initial BA session the therapist provided the participant with the rationale underlying BA. Additionally, the therapist explained that he or she would act as a "personal trainer" or "coach" for the participant. The therapist's role was to help identify how and where the participant may be lacking reinforcement in his or her life and to collaborate with the participant to find activities and behaviors that may provide him or her with pleasure and interest that were previously absent from his or her life (Martell et al., 2001).

The treatment of BA was delivered in a standardized fashion, with each session containing a distinct beginning, middle, and end. The beginning of each session included greeting the client followed by the client completing the BDI-II and the MPSS. Issues for the agenda that was followed throughout the rest of the session were established and written down. The agenda was constructed collaboratively to determine the most important topics to be addressed each session. The agenda for sessions two through ten always included a discussion of the previous week's homework assignment, including reviewing the daily activity chart that the client had begun keeping at the initiation of BA, and the assignment of the next week's homework. Due to the nature of the therapy, typically only one or two additional items were placed on the agenda for that session. The duration of the beginning phase of the session was approximately ten minutes. During the middle of the session, therapist and participant worked together on the issues that were placed on that session's agenda. The session typically did not deviate from the established agenda, unless an extraordinary issue arose (i.e., suicidality). The end portion of each session consisted of the therapist briefly reviewing topics that were discussed during that session. Additionally, between session assignments were derived collaboratively. It was the therapist's responsibility to ensure that both parties understood the specifics of the assignments. As treatment progressed, participants demonstrated more autonomy in developing their own between session work. The session ended with the participant having an opportunity to ask any questions he or she may have had and scheduling the next appointment.

Ten sessions or 12 weeks after the introduction of BA treatment, whichever was first, all participants attended a post-treatment assessment at which he or she completed the BDI-II, MPSS, and a consumer satisfaction survey. At this time, participants were also interviewed using the RHRSD, CAPS and SCID. After the termination of BA and completion of the post-treatment assessment, all participants were given a referral to a different provider for continued psychological care.

### *Statistical Analysis*

The reliable change index (RCI; Jacobson & Truax, 1991) was used to evaluate the statistical significance of change in the MPSS-F, MPSS-S, BDI-II, CAPS, and RHRSD scores. The RCI examines the differences in scores from pre-treatment and post-treatment assessments, corrected for the reliability of the measure. Values greater than 1.96 are considered statistically significant change (Jacobson & Truax; McGlinchey, Atkins, & Jacobson, 2002). Standard deviations were calculated from these participants' pre-assessment scores (CAPS and RHRSD) or termination of baseline scores (MPSS-F, MPSS-S, and BDI-II). The reliability coefficients were obtained from publications specifically addressing the psychometrics associated with the respective measures. The present study utilized the following values for the outcome measures: MPSS-F:  $SD = 5.44$ ,  $r = .98$  (Stephenson, Marchand, Marchand, & Di Blasio, 2000); MPSS-S:  $SD = 15.21$ ,  $r = .98$  (Stephenson, Marchand, Marchand, & Di Blasio, 2000); BDI-II:  $SD = 4.08$ ,  $r = .90$  (Nezu, Nezu, McClure, & Zwick, 2002); CAPS:  $SD = 3.77$ ,  $r = .86$  (Weathers, Ruscio, & Keane, 1999); RHRSD:  $SD = .85$ ,  $r = .85$  (Nezu, Nezu, McClure, & Zwick, 2002). As a result of this study CAPS standard deviation being significantly lower than what is typically found, a more conservative RCI was calculated using the average standard deviation from a number of large treatment outcome studies ( $SD = 23.00$ ).

*Results*

*Self-Report Data*

P1: P1 was randomly assigned to a two-week baseline. During this baseline period the participant's self-report data indicated an upward trend across all measures. Due to absence of a downward trend in the data and the high level of clinical distress P1 was reporting, the treatment phase was initiated following this two-week period. Figure 1 indicates a clear reduction in P1's self-reported PTSD frequency, PTSD severity, and depressive symptomatology from baseline to the termination of the treatment. P1's MPSS-F, MPSS-S, and BDI-II scores demonstrated statistically significant change (Table 1).

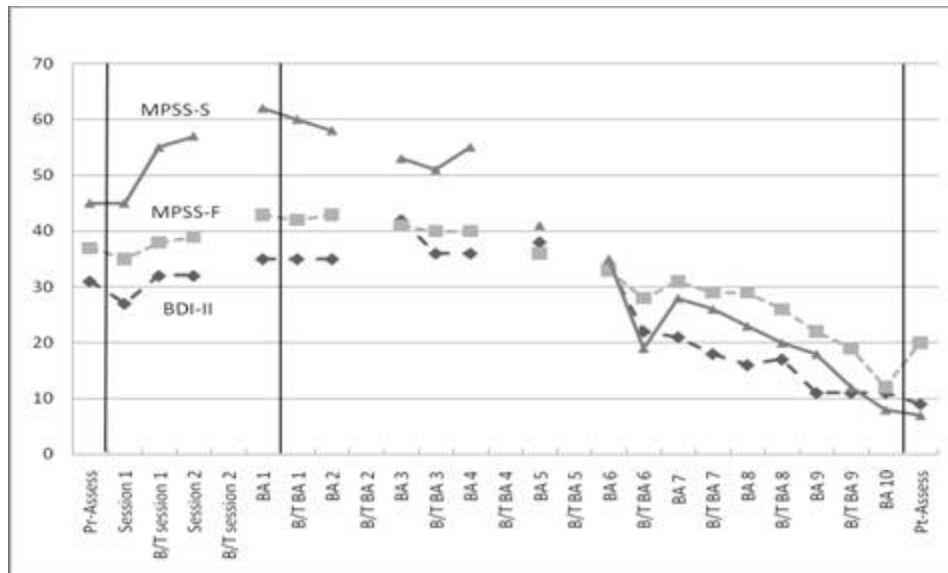


Figure 1. Participant 1 Self-report Data

Table 1. Self-report Measure Pre- and Post-intervention Scores

	P1 Pre- BA	P1 Post- BA	P2 Pre- BA	P2 Post- BA	P3 Pre- BA	P3 Post- BA	P4 Pre- BA	P4 Post- BA
MPSS-F	43	20	31	32	35	39	32	20
MPSS-F RCI		21.10*		-0.91		-3.67*		11.00*
MPSS-S	62	7	41	44	25	37	40	20
MPSS-S RCI		18.09*		-0.98		-3.95*		6.58*
BDI-II	35	9	28	28	29	32	36	28
BDI-II RCI		14.29*		0.00		-1.65		4.40*

\* = RCI > 1.96

P2: P2 was randomly assigned to a three-week baseline phase. At the end of this period P2's data were determined to meet the criteria for stability and the treatment phase was initiated. The treatment phase was terminated 12 weeks after the initiation of BA, with the participant having attended 9 BA sessions. Figure 2 and Table 1 indicate relative stability of P2's self-report data across all measures.

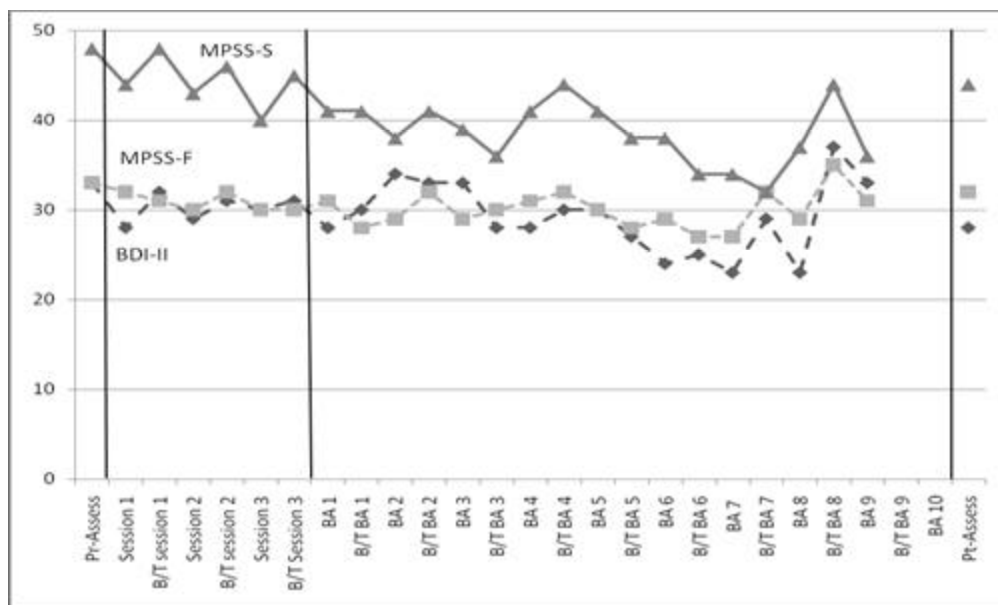


Figure 2. Participant 2 Self-report Data

P3: P3 was randomly assigned to a three-week baseline phase. At the end of this period P3’s data were determined to meet the criteria for stability and the treatment phase was initiated. The treatment phase was terminated 12 weeks after the initiation of BA, with P3 having attended 9 BA sessions. Figure 3 indicates substantial variability in P3’s self-report data. P3 actually demonstrated a statistically significant increase in the self-reported frequency and severity of his PTSD symptoms (Table 1), although the MPSS-F only increased four points from a pre-intervention score of 35 to a post-intervention score of 39. The data demonstrate much more variability in MPSS-S scores. At the termination of the baseline phase, P3 had a MPSS-S score of 25. There was an initial drop in the participant’s scores for this measure immediately following the implementation of BA. Subsequently, there was a consistent upward trend in the data, with a post-assessment MPSS-S score of 37. There was no statistically significant change in P3’s depression scores.

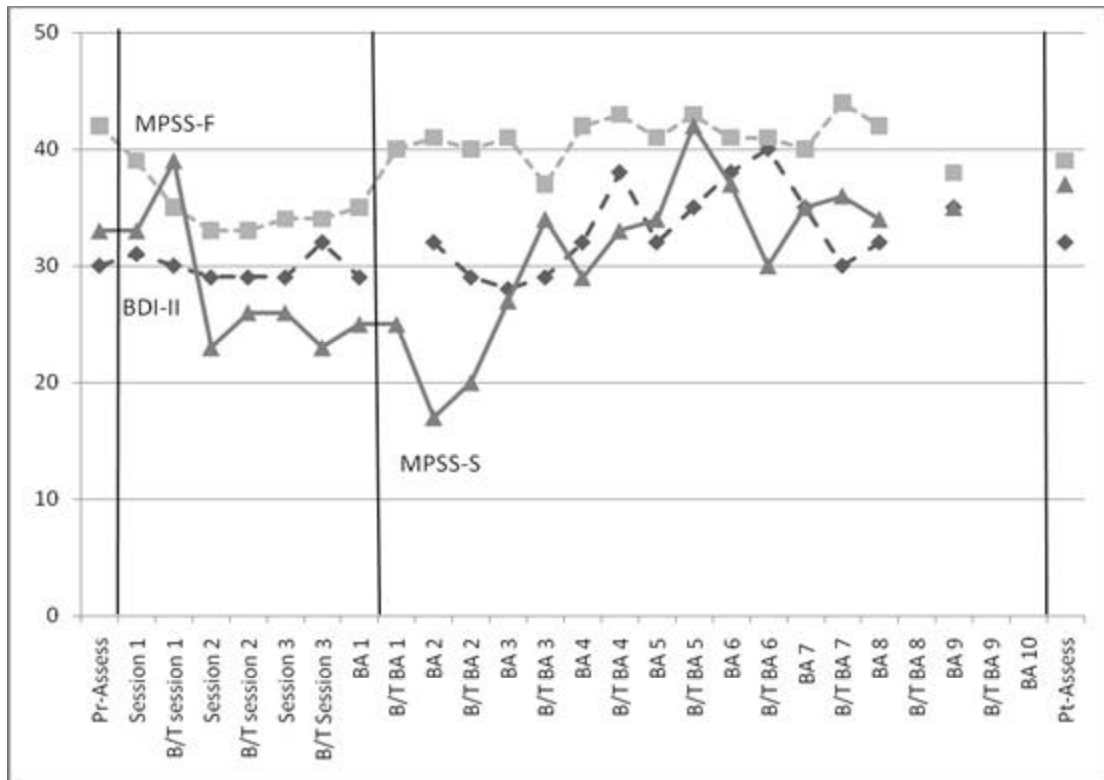


Figure 3. Participant 3 Self-report Data

P4: P4 was randomly assigned to a two-week baseline phase. At the end of this period it was determined that P4’s data did not meet criteria for stability and the baseline was extended. Following the fourth week of baseline, the data demonstrated stability and the treatment phase was initiated. Figure 4 indicates a gradual, but steady reduction in P4’s self-reported PTSD and depression symptomatology from baseline to the termination of the treatment phase. P4 demonstrated statistically significant improvement across all self-report measures (Table 1). However, closer examination of P4’s MPSS-S scores indicates a downward trend across all phases.

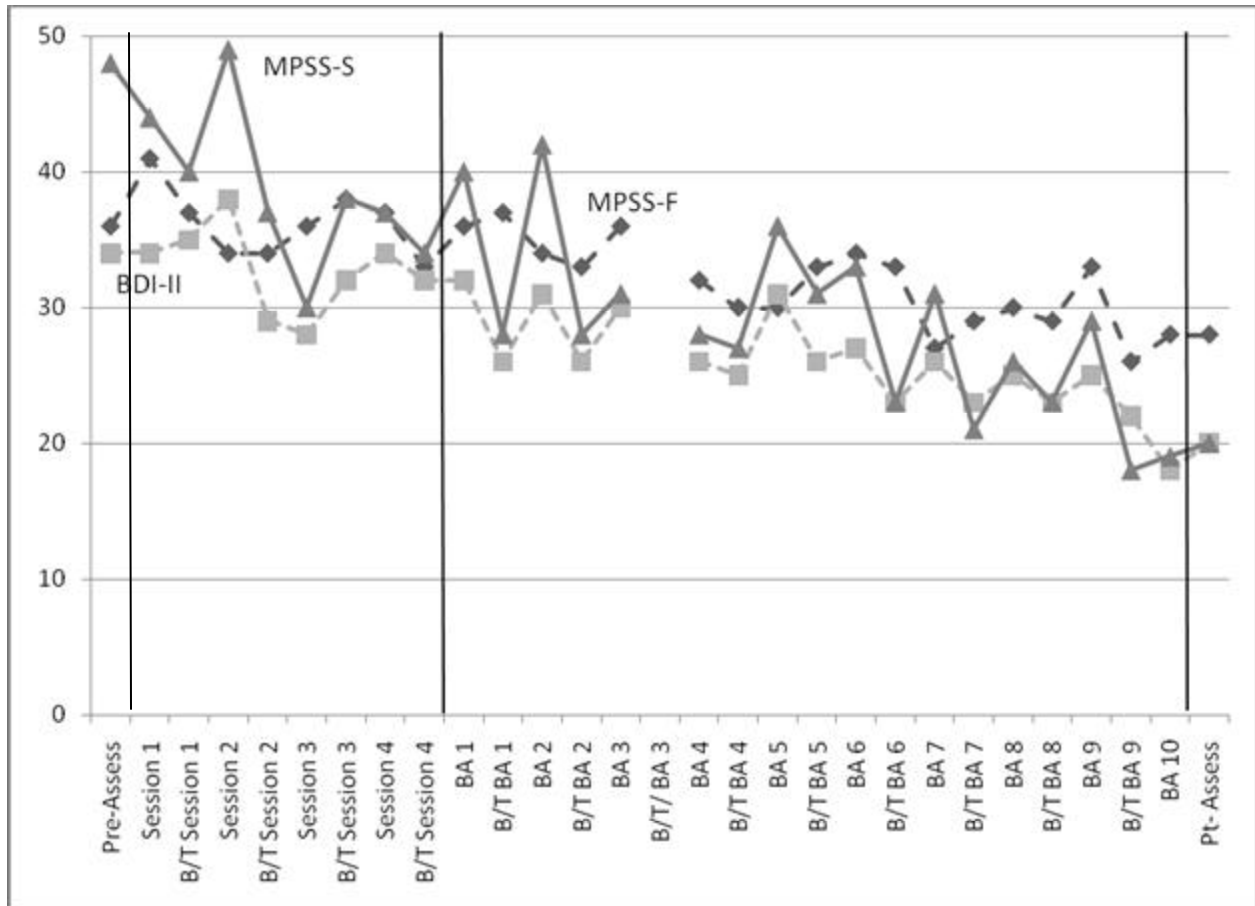


Figure 4. Participant 4 Self-report Data

*Observer-Rated Data*

P1: At the time of post-assessment, P1 no longer met criteria for either PTSD or MDD as determined by the structured interviews. The pre- and post-assessment CAPS data demonstrate a statistically significant overall reduction in the CAPS score of 51 points (Table 2). The largest reduction was seen in the avoidance symptom cluster. However, a noticeable reduction in the re-experiencing cluster also occurred. There was also a statistically significant reduction of 13 points in the participants RHRSD score from pre- to post-assessment (Table 2).

Table 2. CAPS and RHRSD Scores

	P1 Pre	P1 Post	P2 Pre	P2 Post	P3 Pre	P3 Post	P4 Pre	P4 Post
Total Re-experiencing	27	12	24	20	18	15	30	8
Total Avoidance	40	10	34	21	40	37	37	34
Total Hyperarousal	21	15	25	21	33	34	24	17
Total Symptoms	88	37	83	62	91	86	91	59
CAPS RCI		25.63*		10.55*		2.51*		16.08*
Conservative CAPS RCI		4.19*		1.72		.41		2.63*
RHRSD	17	4	25	13	23	23	19	16
RHRSD RCI		6.53*		6.03*		0		1.51

\* = RCI &gt; 1.96

P2: At the time of the post-assessment, P2 no longer met criteria for MDD as determined by the SCID. P2 still met diagnostic criteria for PTSD based on the CAPS structured interview. There was a statistically significant reduction in the CAPS score of 21 points; however, this significance was lost when utilizing the more conservative RCI calculation (Table 2). Again, the largest reduction was seen in the avoidance symptom cluster. There was a statistically significant reduction of 12 points in P2's RHRSD score from pre- to post-assessment (Table 2).

P3: P3 still met criteria for MDD and PTSD at the post-assessment. The pre- and post-assessment CAPS data demonstrate a statistically significant overall reduction in the CAPS score of five points. This significance was lost with the conservative RCI approach (Table 2). There was no change in the P3's RHRSD score (Table 2).

P4: At post-assessment, P4 no longer met criteria for either PTSD or MDD as determined by the structured interviews. There was a statistically significant reduction in pre- to post-assessment total CAPS score of 32 points (Table 2). The largest reduction was seen in the re-experiencing symptom cluster. There was no significant change in the participant's RHRSD score from pre- to post-assessment (Table 2).

### *Participant Satisfaction*

The average score for the participants on the 10 Likert items was 3.0, with scores ranging between 1 and 5. In general, the participants reported the aspect of therapy that was most helpful was

keeping track of daily activities and reviewing them during the sessions. The participants also commented that they found it helpful to establish small goals for themselves. Finally, there was uniformity in the participants' belief that 10 sessions was not enough.

### *Treatment Adherence Ratings*

One session was randomly selected from each participant to be viewed and rated for therapist treatment adherence. An overall adherence rating score for each participant's therapist was collected (P1 = 41, P2 = 52, P3 = 53, and P4 = 37). The individual item ratings ranged from 2 (mediocre) to 6 (excellent).

### *Discussion*

The present study provides moderate support for the efficacy of a 10-week BA intervention in treating comorbid PTSD and MDD symptomatology. The data indicate that two participants no longer meet *DSM-IV* criteria for either PTSD or MDD at the end of treatment, with an additional participant no longer meeting criteria for MDD. While the participants are still experiencing some symptomatology, overall the symptoms are occurring with less frequency and severity than before the BA intervention.

### *Individual Participant Data*

P1: The data clearly demonstrate that the participant's PTSD and MDD symptomatology began to improve soon after the initiation of the treatment phase of the study. This participant's improvement was consistently demonstrated across the self-report measures and the observer rated data. Individually, this participant demonstrates the strongest support for the efficacy of BA.

At the start of treatment, P1 indicated that she would like to focus on being more assertive in her work environment. The first sessions were spent discussing instances when she had been passive in her interactions with people. Therapy also targeted the participant becoming more socially engaged. By the end of the treatment phase, the participant stated that she had become more assertive in her dealing with co-workers and was participated in increased social activity during the week. The participant stated that she had even begun dating a man. The acquaintance had asked her out on a couple of occasions over the last six months, but she had turned him down. In efforts to change her behavioral routine, she had agreed to go out with him and had discovered she enjoyed his company.

P2: The self-report data for P2 demonstrate a relatively stable baseline across all phases of the study. There was some evidence of a slight downward trend in the treatment phase data, until BA session 8 at which point there is a clear upward trend. It is important to note that the day before BA session 8 the participant was told that she was going to have to have a hysterectomy in the coming month. This news was very distressing to P2 and likely had a negative impact on her psychological symptoms. Nonetheless, P2 no longer met criteria for MDD at the termination of the intervention. The fact that the participant did not meet criteria for MDD may seem contradictory to the participant's BDI-II scores. This can be explained by the fact that the P2's response to SCID questions indicated that she no longer experienced a depressed mood or anhedonia, therefore not meeting *DSM-IV* criteria for depression. Additionally, there was a statistically significant 12-point reduction in her RHRSD score. Researchers have noted that self-report measures are typically more conservative measures of change for depressive

symptoms (Dobson, 1989). When considering the participant's level of activity over the course of the intervention phase, there was a clear increase in the amount of socializing in which she engaged. Additionally, one of her established therapy goals was to become more assertive. Over the course of treatment P2 indicated that she was increasing her assertiveness with others and also demonstrated more assertive behavior during treatment sessions.

P3: The self-report data and observer rated data both indicate that P3 did not demonstrate any significant improvement in his C-P/D symptomatology. In fact, the self-report data suggest an increase in his PTSD symptoms. The focus of therapy with P3 had been attempting to increase his level of activity outside of his home. The participant would agree to homework assignments of activities outside of the home and would comment that he should get out more; however, he would not follow through with the assignments. Each week the therapist attempted to revise the assignments to greater facilitate their completion, but P3's poor follow through continued throughout the treatment phase. Homework assignments and the daily tracking activities are considered essential components of BA (Martell et al., 2001). By failing to complete these vital tasks it could be argued that P3 did not receive an adequate dose of BA. Additionally, the chronic nature of the participant's symptoms might have made them more resistant to change. The expressed goal of BA is to change the individual's behavioral repertoire. With this particular participant, the trauma had occurred over 30 years ago allowing for decades of avoidance behavior to be negatively reinforced. Finally, this participant's primary source of support was disability compensation. This financial dependency could have had some negative impact on his motivation for making therapeutic progress.

P4: In many ways, P4 was the most unique participant of this study. His trauma was the longest in duration and occurred earliest in life. The focus of therapy with many of the other participants was focused on helping them return to doing things that they enjoyed before the trauma. Given the young age when abuse began this focus was impossible for P4. For this participant, the goal was not to return to a similar pre-trauma behavioral repertoire, rather it was to develop a completely new behavioral repertoire. Additionally, this was the only participant who stated his previous treatment had been psychoanalysis. Initially, P4 struggled with the behavioral nature of the therapy sessions. Despite these difficulties, P4 demonstrated a consistent reduction in all depressive and PTSD symptomatology across the treatment phase. At the termination of treatment, P4 seemed to be gaining an effective understanding of the therapeutic concepts of BA and had made substantial gains in effectively analyzing the impact his avoidance behaviors had on his psychological symptoms.

### *Overall Participant Data*

There are a number of points to address concerning these participants as a whole. For those participants who demonstrated improvement in this study, it appeared to occur toward the latter portion of treatment. This pattern is consistent with the findings of Mulick and Naugle (2004). It is possible that improvement at this point in treatment was associated with the participants' attainment of an effective understanding of how depression is a consequence of their context and application of this understanding to analyzing and modifying their behavior. The goal of BA is not simply getting a client to become active, rather it is getting the client to engage in the right activities (Martell et al., 2001). The client must increase those activities that are going to increase his or her contact with available reinforcers in his or her environment. One of the therapeutic components that participants stated was most helpful was the recording of the daily activities. Most stated that by tracking what they did during the day, their high level of inactivity and/or participation in activities that were not reinforcing became apparent. P1 stated that by

doing this task she realized that she was “doing a lot of nothing.” The process of analyzing one's activities and resulting moods takes time and practice, which may account for more improvement in later sessions.

As stated earlier, the focus of BA treatment never involved educating about or conducting *in-vivo* or imaginal exposure. Sessions consisted of discussing participants' current avoidant behavioral repertoires and the way they responded to stress in their lives. Time was spent on exploring ways in which they could behaviorally respond in a manner that was more reinforcing in these situations. The data suggest that the process of helping participants become engaged in more reinforcing activities and developing the skills for being able to examine their own behavioral repertoire might have been effective at reducing symptoms they were experiencing.

Similar to results found by Mulick and Naugle (2004), the reduction in various PTSD unique symptoms, along with C-P/D common symptoms, indicates that BA had some efficacy in treating symptoms of both disorders. Furthermore, for half of the participants the CAPS data indicate that BA had the greatest effect on those symptoms that fall in the avoidance cluster of PTSD. The improvement in avoidance symptoms is not unexpected given the rationale behind and therapeutic techniques utilized in BA. The expressed purpose of BA is to help individuals develop a broader, more flexible, behavioral repertoire. By expanding restricted repertoires there is a high likelihood that an individual who suffers from PTSD will naturally encounter situation that they had been avoiding (i.e., people, places, and/or activities). While there is a clear indication that the avoidance cluster was most impacted, the data suggest that BA also had some impact at reducing the participants' re-experiencing and hyperarousal symptoms.

While examining therapeutic aspects that might have contributed to improvement seen in this study, it is prudent to discuss nonspecific factors of psychotherapy. While the baseline phase offered some control for the frequency of PTSD symptomatology, the effect of the nonspecific factors on severity of participants' PTSD symptoms cannot be ruled out. An examination of participants' MPSS-S data indicate that participants P1, P2, and P4 had a downward trend in the self-report severity data from their first baseline session through the termination of BA treatment. This reduction of severity across both the baseline and treatment phases of the study could indicate that nonspecific therapy factors are causal in reducing the severity of PTSD symptomatology. Obviously the effects of nonspecific factors on clinical change can never be entirely ruled out; however, the utilization of a baseline phase in this study strengthens the support for BA mediating the reduction in C-P/D symptomatology, specifically PTSD frequency and depressive symptoms.

### *Therapists Integrity Ratings*

The authors acknowledge that conducting adherence ratings for only 10% of the treatment sessions is not optimal. However, inclusion of the adherence data that are available does provide some indication of the quality of BA being administered. The adherence ratings for therapists were judged by the independent expert rater to be more than acceptable and the rater indicated that all therapists would likely be selected to participate in a BA outcome study based on evaluation of their performances. During the discussion regarding the overall ability of the therapists, the rater indicated that these ratings were very acceptable, it was unusual to have scores higher than this, and that these scores are similar to ratings of those therapists in the BA replication study (Dimidjian et al., 2006).

### *Limitations and Future Directions*

There are limitations within this study that should be addressed. First, the high frequency of the administration of the self-report measures may have been too taxing on participants. While the data were beneficial, participants made frequent comments during the study regarding the number of times they completed measures. The frequent measurement may have resulted in participants being less diligent regarding careful assessment of their PTSD and MDD symptomatology. Second, there were 3 different therapists utilized with these 4 participants adding another factor to be considered when interpreting the results. While all therapists were rated as being competent in administering BA, experimental control would have been strengthened had one therapist been able to deliver the therapy to all participants. However, the diversity of therapists utilized may enhance the generalizability of these results to applied settings.

Future research, with larger sample sizes, may provide further evidence as to the characteristics of individuals for whom this might be an effective treatment. Additionally, almost all participants commented that they would have liked the treatment phase to be longer in duration. Given the chronicity of many of the participants' psychological difficulties, it is reasonable to suggest that 10 sessions were not enough to demonstrate substantial reductions in symptomatology. Future research might involve expanding the number of therapy sessions to determine if there is a dose effect associated with administration of BA. Finally, if future research continues to show that BA is most effective in reducing the frequency and intensity of those symptoms in the avoidance cluster, it might be beneficial to examine the effectiveness of a combination treatment to address the other symptom clusters. For instance, one interesting question to explore might be, "Does beginning with a specified number of BA sessions limit the drop-out rates and non-compliance issues of exposure therapy, while enhancing the therapeutic effects of both therapies?"

### *Conclusion*

It is always difficult to determine the most effective way to treat psychological disorders when they co-occur. Specialized interventions typically only focus on one disorder or the other. The standard techniques utilized to treat PTSD typically only address those areas that were impacted by the traumatic experience. With BA the client is taught to examine all areas of his or her life, trauma related and otherwise, and to determine where he or she needs to become more active and engaged. This difference might indicate that BA is more suited for treating individuals with comorbid conditions such as C-P/D.

The current investigation has provided some support for the efficacy of BA in concurrently treating the symptoms associated with PTSD and MDD. A finding that stands out and should not be overlooked is that participants consistently evaluated BA positively. Given that clients often find exposure-based treatments too aversive, the high consumer satisfaction with BA provides even further support for its utilization with traumatized populations. These findings, in conjunction with the findings of Jakupcak and colleagues (2006) and Mulick and Naugle (2004), suggest that BA for C-P/D is worthy of further empirical investigation.

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