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A COMPARISON OF STIMULUS CONTROL AND SYMPTOM PRESCRIPTION

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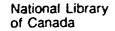
SLEEP-ONSET LATENCY INSOMNIA

by

Mark D. Goheen

B.A. (Hons.), Simon Fraser University, 1984

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS (EDUCATION)

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Abstract

Paradoxical strategies, such as symptom prescription, are claimed to be the treatment of choice with clients who tend not to comply with intervention instructions. This study investigated the relationship between psychological reactance and intervention outcome using written, self-help symptom prescription and stimulus control procedures for difficulties falling asleep. Psychological reactance is described as a predisposition to respond to threats to one's freedom or autonomy with non-compliant or "resistant" behaviour. In addition, levels of stress, levels of client's perception of the social influence qualities of the counsellor, and levels of counsellor-client alliance were each correlated with intervention outcome.

Forty-one subjects participated in three, seven-day experimental phases (baseline, two treatment phases). Twenty of the subjects received a one-hour counselling interview plus either a written symptom prescription procedure or a written stimulus control procedure. Twenty-one of the subjects received one of the two written interventions, but no counselling interview.

Six research predictions were formulated: One, psychological reactance would be less negatively related to treatment outcome in the symptom prescription condition than in the stimulus control condition. Two, irrespective of intervention type, there would be significant overall reductions in time to sleep onset. Three, there would not be reliable differences in magnitude of treatment effect between the two interventions. Four, the client's perception of social influence qualities of the counsellor and the level of counsellor-client alliance would each be more positively related to treatment outcome in the symptom prescription condition than in the stimulus control condition. Five, regardless of intervention type, level of stress would be negatively associated with reduction in time to sleep onset. Six, stress would be less negatively related to treatment outcome in the symptom prescription condition relative to the stimulus control condition.

The results support the first, second, and third predictions. Significant reductions in time to sleep onset were observed for all conditions, however reactance was positively associated with reductions in time to sleep onset in the symptom prescription condition, but reactance was negatively associated with reductions in the stimulus control condition. There were, except in terms of reactance, no reliable treatment effect differences between the two interventions. These findings suggest that both interventions facilitate reductions in time to sleep onset, yet symptom prescription is superior for reactant clientele. The fourth, fifth, and sixth predictions were not supported. Neither stress nor quality of the counsellor-client relationship were significantly associated with treatment effect.

Acknowledgements

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Chapter I

Introduction

Advance Organizer

This chapter briefly introduces the reader to the rationale underlying this study. In the first part the general problem is delineated into four issues. In the latter part, issues are transformed into six testable research questions. This introduction should prepare the reader to appreciate the relevance of the material presented in the second chapter, Review of the Literature.

The Problem

Amongst counselling clients there is variability in respect to the degree to which they comply with prescribed intervention plans. Some clients readily comply with intervention instructions, while others, despite the fact that they are genuinely seeking help, appear to resist complying with the instructions provided by a helping professional. Resistant clients pose a particular challenge for the counsellor employing conventional interventions as these strategies often require compliance with detailed procedures. For example, progressive relaxation techniques require that the client perform a sequence of specific behaviors.

Two of the most common interventions employed by counsellors for the alleviation of troubles falling asleep are stimulus control and symptom prescription procedures. A stimulus control procedure for insomnia minimizes the presence of cues which are associated with the inability to fall asleep. In essence, this procedure

requires that the individual leave bed whenever they are unable to fall asleep within 10 minutes. Yet, if a person does not attempt to comply with this intervention step, as might a resistant client, it is unlikely, according to the underlying theory (Bootzin, 1978), that much benefit will accrue.

Symptom prescription is a paradoxical strategy which recommends that the client should try to stay awake whenever they experience troubles falling asleep.[1] If resistant clients, that is clients who tend not to follow instructions, are provided with a symptom prescription, they face two choices: Either they can resist the instruction to stay awake and fall asleep, or they can *attempt* to stay awake. As it turns out, for most clients who have difficulties falling asleep, the routine of attempting to stay awake (while laying comfortably in bed) results in falling asleep faster than they would otherwise (Ascher, Bowers, & Schotte, 1985). This paradoxical response to the instruction of attempting to stay awake may be, in part, attributed to the interruption of a pattern of trying to force oneself to fall asleep -- the more that individuals attempt to force themself to fall asleep, the more likely it is that frustration ensues and, as frustration increases, it becomes less likely that sleep will occur in short order. The act, or perhaps the very notion, of attempting to stay awake instead of trying to fall asleep appears to interrupt this dysfunctional cycle. It follows, then, that symptom prescription might be the strategy of choice with insomniac clients who tend to resist intervention instructions, yet this assumption has been subject to little experimental verification.

---

[1] Note: Symptom prescription is one of many types of paradoxical interventions. The term *paradoxical intervention,* rather than symptom prescription, will be used in this document to emphasize that the issue in question is conceptually generic to paradoxical interventions rather than to symptom prescription in particular.

Stimulus control and symptom prescription interventions are typically delivered during face to face counselling interviews. That is, the intervention takes place in the context of some relationship between a client and a helper. The helper provides support and the necessary information to implement the intervention. However, both stimulus control and symptom prescription instructions are relatively simple and can be readily transformed to a set of written instructions. It has yet to be tested if written formats of either of these two interventions are effective in the absence of counsellor involvement. The question arises, would providing these two interventions in written format prove to be as efficacious as conventional verbal delivery.

In short, while there is substantial experimental evidence to support the claim that symptom prescription is a highly effective means of ameliorating difficulties falling asleep (Bowers & Schotte, 1985), there is no experimental evidence to determine if written or conventional modes of delivery are differentially effective in reducing times to sleep onset. Further, there is controversy (Turner & Ascher, 1982) in respect to the extent to which client and counsellor variables mediate between symptom prescription and counselling outcome. In the spirit of further examining the properties of paradoxical strategies in general, and those of symptom prescription for the amelioration of difficulties falling asleep in particular, this study will address four issues, namely:

1. The claim that a paradoxical intervention is the treatment of choice with resistant clients.

2. Whether, or not, written self-help manuals incorporating either symptom prescription or stimulus control procedures will effect significant reductions in time to sleep onset.

3. If a paradoxical intervention is more sensitive to the quality of the client-counsellor relationship relative to a non-paradoxical intervention.

4. That individuals experiencing a high level of stress will respond more favorably to a paradoxical intervention than to a non-paradoxical intervention.

These issues will now be examined in greater detail.

Issue #1

One claim made about paradoxical techniques is that they are the modality of choice for working with non-compliant / reactant clients (Fisher, Anderson, Jones, 1981; Rohrbaugh, Tennen, & White, 1981; Shoham-Salomon, Avner, & Neeman, 1988). Obviously, a client who is predisposed to not following intervention instructions is unlikely to benefit from detailed, compliance driven interventions (e.g.. behavioral management programs which require self-monitoring and compliance with intervention instructions). On the other hand, the likelihood of a non-compliant client benefiting is increased, according to the rationale underlying a paradoxical procedure, if an intervention can be devised which places the client in a "no-loose situation", or a *win-win bind* . That is, an intervention where the person is placed in a paradoxical context which increases the perceived control over the problem irrespective if the client does in fact decrease or increase the problem behavior. For example, to instruct an anxious, but non-compliant, client to spend at least 30 min. per day attempting to become as anxious as possible will likely result in one of two outcomes: One, the person "succeeds" at practicing at being anxious and derives a greater sense of control through the deliberateness of the exercise (ie. the client perceives themself as purposively initiating an episode of anxiety opposed to the uncontrolled onset of anxiety). Two, the person "fails" at the task and is unable to be anxious for 30 minutes (this being the more likely scenario as it is difficult to force oneself to be anxious). In the second case the client may perceive an increased

sense of control from the inability to produce an unwanted anxiety response. Given that a paradoxical intervention places the client in a position to gain control over the symptom whether or not they succeed, or even comply, with intervention instructions, it follows that paradoxical interventions ought to be appropriate for clients who tend not to follow intervention instructions.

The principle subject of interest to this study, then, is the relationship between client reactance and client benefit with paradoxical and non-paradoxical techniques for ameliorating difficulties falling asleep. High-reactant clients are described by Dowd, Milne, and Wise (1986) as persons who tend to defy others, to resist overt influence from others. However the impact of the variable of psychological reactance upon outcome with paradoxical interventions has received little attention in the literature to date. Dowd, Milne, & Wise (1986) have constructed what they claim to be a reliable measure of psychological reactance, The Therapeutic Reactance Scale (TRS). The development of the TRS affords the researcher an opportunity to expediently assess the level of reactance and therefore provide the technology to systematically scrutinize the claim that paradoxical interventions are the treatment of choice with non-compliant clients, and thus contribute towards the rational application of such interventions. To date there have been only two studies specifically investigating the relationship between client reactance, as measured with the TRS, and paradoxical interventions (Dowd & Brockbank, 1985; Hughes & Dowd, 1985). These two studies utilized paradoxical interventions for the reduction of procrastinating behavior, and failed to observe any clear superiority of paradoxical interventions, relative to cognitive-behavioral interventions, with high-reactant clients. A recent two-part investigation (Shoham-Salomon, Avner, & Neeman, 1988), which measured reactance via voice quality and experimentally manipulated reactance, found that high-reactant procrastinators benefit more with a paradoxical intervention than with a non-paradoxical intervention. No study to date has investigated the

relationship between psychological reactance and treatment outcome with either a stimulus control or symptom prescription procedure for difficulties falling asleep.

Issue #2

There is good evidence that self-help manuals are an effective means of administering behavioral programs for the management of phobias, obesity, and smoking (Black & Threlfall, 1986; Pezzot-Pearce, LeBow, and Pearce, 1982). In addition to comprehensive treatment manuals, brief written messages have been successfully employed in counselling. Wagner, Weeks, and L'Abate (1980) cite Ellis (1965) as the first to report on the effectiveness of written delivery. Letters have been effective in the the delivery of paradoxical messages to couples and families, although it is unclear if written delivery is differentially effective for paradoxical or non-paradoxical messages (Selvini-Palazzoli, Boscolo, Cecchin, & Prata, 1978; Wagner, 1980). The written format itself appears to be a sound means of delivering interventions, however a written delivery excludes the dialectic which takes place between counsellor and client. In some circumstances the dialectic -- the opportunity for the counsellor to modify and clarify the intervention with the client -- may be important to client benefit.

In fact, it has been argued by some that the delivery style, context, and language of a paradoxical intervention is critical (e.g.Watzlawick, Weakland, & Fisch, 1974). That is, care must be taken in crafting a delivery so that it is congruent with the individual's beliefs and perceptions. Otherwise the client is likely to dismiss or "not hear" the intervention. The rationale is that careful intervention delivery increases the likelihood that the client will be sufficiently interested, captivated, or "hooked" to comply with or actively resist the intervention. For example, if the client appears skeptical of helping professionals, then, it might be of value to deliver a paradoxical intervention with the proviso that it may be of little value to the client, and

that the client should approach the assignment with skepticism. Incorporating a client's skepticism (their position) into the delivery of a paradoxical intervention may enhance the client's involvement with the intervention (either cooperatively or oppositionally) while preserving their sense of control and autonomy through being "skeptical".

In short, a delivery which has been carefully tailored for the individual client or client system may be critical for an effective paradoxical intervention. If this is the case, an invarient written symptom prescription intervention may not be effective. To date, there appears to be no published investigation of either a stimulus control or symptom prescription procedure, delivered in written form, for the amelioration of sleep-onset latency. As an exploratory test of the appropriateness of administering a paradoxical intervention in written form, this study was designed to explore the efficacy of the procedure via a written self-help manual.

Issue #3

Another issue of interest is the mediating effects of the quality of the client-counsellor relationship between a paradoxical intervention and counselling outcome. For example, there is scant evidence that paradoxical interventions are more sensitive to the client's perception of counsellor style, attractiveness, and expertise than are conventional behavioral interventions (Turner & Ascher, 1979). Strong (1968) argues that counselling outcome is, in part, dependent upon the social influence of the counsellor. This influence is a function of the client's perception of the counsellor's expertise, attractiveness, and trustworthiness. An aura of credibility may be extended to an unusual paradoxical intervention by a counsellor who the client finds to be expert, attractive, and trustworthy. Perhaps a client who perceives such qualities would comply with or defy intervention instructions more vigorously than they might if the intervention was delivered by a counsellor who was perceived

to be less than expert, attractive and trustworthy. In short, there is little experimental evidence to help evaluate the impact of counsellor attributes and the quality of the client-counsellor relationship upon outcome when employing a paradoxical intervention.

Issue #4

Another variable which may impinge upon intervention outcome is severity of stress. In this thesis stress refers to a complex of reactions to the demands of living; particularly arousal of the parasympathetic nervous system and experienced anxiety. To date, only one study has experimentally examined the influence of stress on the effectiveness of a paradoxical intervention: Shoham-Salomon & Jancourt (1985) hypothesized that high-stress prone individuals, as operationally defined by the participant's heart rate during a cognitive stress-induction exercise, would respond more favorably to paradoxical interventions than to compliance based interventions (e.g. direct suggestions to relax). Shoham-Salomon and Jancourt's rationale was that paradoxical directives are more effective than non-paradoxical directives with high-stress prone individuals because highly stressed individuals would respond to paradoxical directives (e.g. "try to increase your tension even more") with resistance. Presumably by the participant acting **counter** to a paradoxical directive, level of experienced stress would decrease. Shoham-Salomon and Jancourt did find a significant interaction between level of stress and intervention type. It should be noted, however, that stress was experimentally induced, compromising the ecological validity of the study. Phenomenologically, there may be a profound difference between the experience of stress which is induced by a cognitive task in a laboratory setting and the experience of stress which arises from the daily challenges of living. Shoham-Salomon's and Jancourt's (1985) study stands as the sole attempt to clarify any differential effectiveness of paradoxical interventions with high- and low-stress prone individuals. Further investigation of the variable of stress is

indicated given the need to efficaciously match presenting problem and characteristics of the individual with an intervention.

Research Predictions

The four issues raised in this chapter can be summarized as research predictions:

1. Insomniac clients who display high levels of psychological reactance will tend to fall asleep faster with a symptom prescription intervention than with a stimulus control procedure.

2. The written delivery of either stimulus control or paradoxical prescription for the amelioration of sleep-onset latency will significantly reduce the time to sleep onset compared to pre-treatment levels

3. Overall decreases in time to sleep onset will not differ significantly between a written stimulus control procedure and written symptom prescription procedure.

4. The quality of client-counsellor relationship will be significantly more positively related to improvement in sleep-onset in the symptom prescription-condition than in the stimulus control condition.

5. Severity of stress will be negatively correlated with improvement in sleep-onset irrespective of intervention type.

6. Individuals high in stress will tend to fall asleep faster with a symptom prescription intervention than with a stimulus control procedure.

Chapter II

Review of the Related Literature

This chapter addresses the theoretical issues and the corpus of the research related to this thesis. Specifically, issues and research under the following headings will be examined: a) a definition of paradoxical interventions b) mechanisms accounting for paradoxical intervention phenomena c) experimental investigations of paradoxical investigations d) indications / contraindications for paradoxical interventions e) the background of stimulus control procedures f) experimental investigations of stimulus control procedures g) insomnia.

Towards a Definition of Paradoxical Interventions

There is confusion over what is the *sine qua non* of a paradoxical intervention (Katz, 1984); and, over what is the essential feature of a paradoxical intervention which distinguishes it from a non-paradoxical intervention. Formally, a paradox consists of a set of premises which imply some conclusion which is absurd, against common opinion. An example of a paradox is the perplexing statement penned by Epimenides of Crete: *All Cretans are liars* . A true paradox, as with this example, can be identified by an inherent, and seemingly irreconciable confusion between premises and conclusion. The nature of such paradoxical tangles between premises and conclusion have been formally anlyzed with mathematical models, such as Russell's group theory (Watzlawick, Weakland, & Fisch, 1974). A paradoxical intervention, on the other hand, may only be paradoxical in a limited, descriptive, superficial, and often idiosyncratic sense (e.g. "...the intervention strikes me as paradoxical"). The point is, paradoxical interventions are not necessarily paradoxical

in any formal sense. Once the underlying rationale is understood, most paradoxical interventions hardly seem that "paradoxical" (mechanisms underlying a paradoxical intervention will be discussed later).

Defining a paradoxical intervention as one where the client is instructed to engage in some seemingly problematic behavior (i.e. the presenting problem) is suffice to describe most paradoxical interventions. However, some behavioral interventions instruct the individual to continue with a problematic behavior for assessment purposes, and generally there is no "paradoxical intent" here. In general, a paradoxical intervention can be described as a strategy where the counsellor asks clients to perform some aspect of the presenting complaint, but that the professional chooses such an intervention for the purposes of directly altering the frequency or quality of some presenting complaint rather than for the end of collecting assessment data.

Paradoxical interventions have been identified as *pragmatic paradoxes* (Watzlawick, Beavin, and Jackson, 1967). It is not the property of contradiction, but rather that the person is faced with no choice, "...thus, if the message is an injunction, it must be disobeyed to be obeyed; if it is a definition of self or other, the person thereby defined is this kind of person only if he is not, and is not if he is" (Andolfi, 1974, p. 222). Here we approach a critical definitional feature of a paradoxical intervention, it places the person in a positive-double bind. The construct of double-bind has been developed and discussed at length by Haley and Bateson (Haley, 1963): a positive double-bind is created by a message which places the person in a position where they "win if the they do, and they win if they don't". For example, a couple seeking help for chronic fighting can be placed in a positive double-bind if the couple is instructed that fighting has served as an important means of communicating, and accordingly they are to continue to fight at least once a day for at

least 15 minutes. A positive bind is created insofar as if the couple persists at fighting they have accomplished what they were instructed to do and succeeded at communicating , and if they decrease fighting, they have made an obvious gain. All paradoxical interventions imply some order of positive double-bind. In fact, Dowd (1986) concludes that for an intervention to be defined as paradoxical, it "...should involve the presence of a double bind such that most reasonable client actions lead to therapeutic gain" (p.159). In their meta-analysis of paradoxical interventions, Shoham-Salomon and Rosenthal (1987) operationally define a paradoxical intervention as one which includes a symptom prescription and/or a positive connotation. In other words, a paradoxical intervention defines some component of a presenting problem as somehow valuable, and in so doing a positive bind is created as the client is positioned to gain whether the individual increases, preserves, or diminishes the frequency/intensity of the presenting problem.

A parsimonious resolution could be had if the term *paradoxical intervention* was dropped in favour of *positive double-bind* , yet the term *paradoxical* persists in the literature, and conceptually in the minds of many. A most enlightening discussion about the persistence of this term has been provided by Dell (1986). In a nutshell, Dell argues that this persistence of labelling some interventions as paradoxical reflects a collective inability to account for the phenomena of paradox. This persistence, Dell claims, is rooted in an epistemology which is *linear* (e.g. A causes B) and implies some ultimate condition of objectivity (opposed to an epistemolgy which is recognizes knowledge as particular to, and limited by, the properties of the observer[s]). There appears to be a tendency for many to believe, at some level, that the instruction or intervention *causes* , linearly, the observed effect displayed by the client; if this is the case, there is little wonder that paradoxical interventions appear as mysterious and "paradoxical" ! A client is told, for example, to argue more with his spouse but returns a week later and claims to have experienced reduced

conflict. What has been overlooked is the client's (the system's) structure which determines the response to the intervention. That is, if we could somehow fantastically know all that there is to know about the client system (i.e. their constructions, principles of organization, etc.) there would be little surprising or paradoxical about the client's "new" behavior. It is important that some conceptual clarity be extended, or at least attention brought to to the issue of paradox, to serve as groundwork for discussing the active mechanisms underlying paradoxical interventions. Further, there is the need to address the perceived novelty of these interventions, and the confusion evident in the literature. This study will define paradoxical interventions as those which place the client in some kind of positive double-bind.

A distinction should be made between symptom prescription and paradoxical intention. A pioneer of paradoxical intention, Victor Frankl (1960), insists that paradoxical intention refers to an intervention which instructs the client to approach what they are ultimately avoiding, and symptom prescription includes those interventions which instruct the client to persist at exhibiting some symptom. For example, in the case of a hand washing compulsion, paradoxical intention would entail the client attempting to allow his hands to become extremely soiled and perhaps becoming as anxious as possible about the dirty hands; a symptom prescription would instruct that the client persist at, or even increase, the frequency of hand washings. It may be the case that symptom prescription activates different change mechanisms than does paradoxical intention. For instance, with a hand washing compulsion, paradoxical intention may precipitate a more intense change process as the person engages with the focus of the phobia opposed to the relatively non-threatening, albeit tiresome, practice of washing one's hands. There is little discussion on this matter in the literature, and confusion arises from the fact that the two terms persist and are used with little deference to such a distinction. It is

nonetheless reasonable to conceptualize symptom prescription and paradoxical intention as members of a class, paradoxical interventions. Conceptually, it is important to make this distinction as there are a number of target problems which imply different intervention formulations for paradoxical intention and symptom prescription, such as with the above example; however, there are some target problems were an appropriate paradoxical intention intervention and symptom prescription appear to be one and the same. For example, instructing an individual complaining of panic attacks to engage purposefully in the panic attacks would instantiate either symptom prescription or paradoxical intention. It seems that in order to create differing symptom prescription and paradoxical intention interventions for the same presenting problem, the presenting problem must have a distinct behavioral component (e.g. hand washing) and a distinct affective-cognitive component (e.g. anxiety about dirty hands). This study is directed at examining an intervention which would best fit the definition of a symptom prescription: the instruction to attempt to stay awake, is directed at a behavior (i.e. lying awake) rather than the ultimate outcome of lying awake (i.e. anxiety and frustration), although this focus does not preclude cognitive and affective changes.

Mechanisms Accounting for Paradoxical Intervention Phenomenon

Explanations accounting for the phenomena of paradoxical interventions fall roughly into four groupings:

1. An **anticipatory anxiety cycle is disrupted** through attempts at flooding, failure to bring on the symptom or its anticipated consequences, and a commensurate enhancement of sense of control.

2. The promotion of reattributions. **Attributions** to another source may reduce the perceived danger or distressfulness of the problem.

3. **A positive double bind** is created. The intervention creates a "win-win" bind where the client perceives greater control over the problem, and constructs a less disconcerting, less dysfunctional perception.

4. More generally, a **reframe** or a **decontextualization** of the problem is produced. The context of the problem shifts and,irrevocably, the meaning and the function of the problem is altered.

Anticipatory anxiety

Frankl (1975), provides a two level explanation for the effect of paradox. First, a cycle of *anticipatory anxiety* is disrupted. Frankl describes this cycle as consisting of some symptom which evokes anxiety (e.g. the primary anxiety associated with the inability to fall asleep), and then the person develops a secondary conditioning of becoming anxious about the prospect of experiencing the primary symptoms (e.g. " I am anxious about becoming anxious), and thus an escalating spiral of anxiety is created.   Frankl maintains that paradoxical intention disrupts this cycle That is, the person focuses upon deliberately attempting to evoke what they are desperately trying to avoid, and thus the established cycle is disrupted.

The second level of explanation follows from Frankl's existential orientation. The client begins to perceive a non-volitional response as volitional, and in so doing the client moves towards responsibility for their difficulty. For instance, the individual who "panics" at the prospect of a panic attack, likely perceives themself to be out of control. By deliberately attempting to produce (although usually unsuccessfully) a panic attack, the individual has gained some control where they had once believed themself to be helpless. Frankl also adds that paradox serves to evoke humour, a

response not only incompatible with anxiety, but a capitalization of a powerful human resource.

Frankl's anticipatory anxiety hypothesis leads to perhaps the most parsimonious explanation of paradox: that it produces a desensitization process; that "...it utilizes principles of human learning to extinguish, satiate, or aversely reduce the presentation of the symptom" (Raskin & Klein, 1976, p. 550.) Simply, the client learns a diminished response to the primary response through repeated, unsuccessful attempts (i.e. following paradoxical intervention instructions) at evoking some undesired behavior. For example, a client fearing the consequences of a panic attack is instructed to induce panic attacks, a series of attempts to do so typically results in the experience of a response much less noxious than anticipated. In fact, Johnson (1986) argues that behavioral theory provides not only a parsimonious explanation, but is fully adequate to account for the observed phenomena. Omer (1981), on the other hand, argues that behavioral explanations are plausible under conditions of massed practice and reinforcement, but fall short in explaining paradoxical phenomena when clients act on the instructions only a few times.

Attributions

Another possible mechanism can be derived from attribution theory. Storms and Nisbett (1970) conducted a study where insomniacs were led to misattribute arousal to a placebo "arousal pill". Subjects were told that they may experience an inability to sleep after taking the pill. Storms and Nisbett found that the "arousal pill" subjects fell asleep faster than a control group. The authors concluded that the placebo group fell asleep quicker as they attributed any arousal to an external source, the pills, opposed to some internal process. Analogously, it may be the case that insomniacs who are given the paradoxical instruction to attempt to stay awake, may hence attribute any arousal and failure to fall asleep to the act of following an

intervention as opposed to an uncontrollable internal response; and as a result, further arousal and anxiety is minimized and consequently time to sleep onset is reduced. This hypothesis has yet to receive much theoretical, let alone empirical, attention.

Double binds

Certainly forceful, are those constructs derived from communication theory and contained in strategic theory (Haley, 1963; Watzltawick, Weakland, and Fisch, 1974). Central to this theory are the concepts of *first order* and *second order* change. First and second order change can be demonstrated expediently by example: A person in the cold during the winter who responds to the outdoors by donning sweater after sweater is applying a first order solution to the problem of cold. Such a first order solution could become dysfunctional when the person runs out of sweaters or becomes so encumbered that they can no longer move. A second order response might be to simply move indoors. Likewise, a client system may be "stuck" in a cycle of applying first-order (more of the same) solutions to a perceived problem. For example, an insomniac may re-double their effort at forcing themself to fall asleep. In such a case, the solution may be rightly considered as the problem. Accordingly, second order change may be initiated by the paradoxical instruction for the client to allow themself to stay awake; the client invokes a solution foreign (hence paradoxical) to the "set" of solutions attempted or conceived heretofore. Therefore, one outcome of a paradoxical intervention is the promotion of a second order change. Creating second order change is a function of placing the client in a *positive double bind*. A "solution" which maintains some dysfunction does so as it continues to operate within the current structure as part of the very structure. By placing the client in a double bind, the "solution" is replaced with an instruction which leads to an alteration in the function and the meaning of the "solution", and therefore the "solution" can no longer be invoked as before. The client "wins" irrespective of

whether or not they display the symptom. For example, instructing a client who historically attempts to forcefully prevent ("the solution") panic attacks to, say, bring on five panic attacks each day would place the client in a positive double-bind. If the client was able to bring on a panic attack, then, the client had displayed some control over the symptom (where the client had perceived none). If, on the other hand, the client had failed to bring about a panic attack, then, they had displayed control by limiting the symptom. Either way, the client can construe a gain in control. A second-order change would be evidenced in that the client had evoked "a solution" qualitatively outside of their previous set. In sum, strategic theory proposes that paradoxical phenomena are a consequence of placing the client in a positive bind, which leads to second order change, and ultimately the client's re-construction of the problem and the solution.

Reframing / Decontextualization

Considering Watzlawick's et al. theory of second order change further, another, but related, level of explanation of paradoxical phenomena, based upon *Game Theory*, is revealed. Watzlawick et al. (1974) argue that:

1. We categorize the objects of our world into classes. These classes are mental constructs, and therefore are of a different logical order than the objects themselves.

2. Once an object has been categorized as a member of some class, it is extremely difficult, for the person, to perceive the object as a member of some other class. Typically, the person will deem others who categorize the object as member of another class as bad or mad.

3. The power of reframing, therefore, lies in that once we perceive the alternative class membership (the reframe), it is difficult, if not impossible, for the person to construe the problem as before. (p.98)

Watzlawick et al. (1974) cite Howard's (1971) *existential axiom* to illustrate their point:

> ...if a person comes to "know" a theory about his behavior, he is no longer bound by it but becomes free to disobey it...a conscious decision maker can always choose to disobey any theory predicting his behavior. We may say that he can always transcend such a theory. This indeed seems realistic. We suggest that among socio-economic theories, Marxian theory, for example, failed at least partly because certain ruling class members, when they became aware of the theory, saw it was in their interest to disobey it. (p. 64)

It seems apparent that a well crafted paradoxical intervention creates some new frame, re-classification of an object or event, which prevents employing previous dysfunctional constructions. It is as if the "wind has been taken out of the sails" of the problem. The example of reframing a family's fighting as a "valuable type of communication" is a case in point. As soon as the fighting is perceived to be a "valuable type of communication", it no longer can be seen as wholly bad and useless, and therefore the function of the family quarrel can no longer persist as before.

In a general sense, reframing (or redefining) refers to the process of changing the meaning (construction) of the symptom through disrupting its function and/or context. Many acknowledge reframing as a key active component of paradoxical interventions: Dowd and Milne (1986); Frankl (1975); Mahoney (1986); Selvini-

Palazzoli, Boscolo, Cecchin, and Prata (1974); and, Watzlawick, et al (1974). As discussed, Frankl maintains that the individual framing their fear as something that they can challenge, take control of, even laugh at, is instrumental. Watzlawick et al (1974), essentially consider the act of providing a paradoxical intervention, such as the suggestion that the client engage in the problem behavior, as creating a shift in the function and meaning of the behavior and ultimately creating a shift in the system's manner of utilizing, coping, and solving the problem. A paradoxical intervention may force a shift in the way the system has historically tried to solve the problem. Stemming from the theory of Watzlawick et al, Selvini-Palazzoli and the Milan group utilize paradoxical interventions, particularly positive connotation, to reframe family behavior. Through labelling behavior perceived as "bad" as having some positive function (e.g. family fighting as a important means of communicating), the behavior is less likely to be perceived as problematic, less likely to retain its function, and thus less likely to exacerbate family dysfunction. Mahoney, in fact, argues that the power of paradoxical interventions "...stems from their capacity to challenge forcefully a client's prevailing assigned meanings" (p. 286). In short, reframing mechanisms are one of the most commonly identified explanations of paradoxical intervention phenomena.

In contrast to Waltzawick's utilization of the theory of logical types, Cronen, Johnson, and Lannamann (1982) employ the concept of *reflexive loops* to account for paradox. The concept of *reflexivity*, developed by Bateson and the Palo Alto Group (Bateson, Jackson, Haley, & Weakland, 1956), refers to a condition "...whenever two elements in a hierarchy are so organized that each is simultaneously the context for and within the context of the other" (p. 95). That is, a communication involves two levels of meaning: one, the context, and two, the content, and when a communication fails to adequately provide/receive these two levels, confusion ensues. For example, as two children are play fighting, two

messages have been given: a) we are fighting (the content); b) our fighting is play (the context); but, if the context has not been provided, or is misinterpreted, the children's behavior could be perceived as violence. From this position paradoxes are considered to operate as reflexive loops. Telling an insomniac client to try to stay awake creates a reflexive loop insofar as the content, try to stay awake, is an ill fit with the counseling context (e.g. "the counselor should be telling me how to fall asleep, not that I should stay awake"). The most immediate means the client has to reconcile this loop, is to accept the context as given—that is a helping context, and in so doing the symptom has been reframed as a "component" of an intervention opposed to a noxious, out of control problem. By altering the context of the symptom, the meaning and function of the symptom are altered.

A more parsimonious, but related, account of paradox is provided by Omer's (1981) concept of *decontextualization,* which he argues, fully accounts for the observed phenomena of paradoxical interventions. The power of paradox lies not in the directive per se but in the decontextualization of the symptomatic behavior: the counselor's transformation of the problem's context is such that the symptom loses its function and meaning. This decontextualization may render the problem as absurd, as humorous, as benign, or as controllable: it can no longer function as it once had. On the face of it, however, there appears to little substantial difference between Omer's concept of decontextualization and Watzlawick's et al account.

Experimental Investigations of Paradoxical Interventions

First this section will briefly review studies utilizing paradoxical intervention, particularly symptom prescription, for the amelioration of sleep onset latency. Next, presented is a review and discussion of evidence pertaining to to the issue of paradoxical interventions and indications/contraindications.

Investigations of Paradoxical Interventions for the Amelioration of Sleep Onset

Latency

There exists relatively few controlled experimental studies of paradoxical interventions, however, a survey of the literature reveals a trend of growing interest in the systematic investigation of these interventions. The earliest controlled case study of a paradoxical intervention for the treatment of insomnia was published in 1975 (Ascher); and it was not until 1978 (Ascher & Efran) that the first controlled experimental study was published, but after this date the number of publications increased substantially. In their review of controlled studies of paradoxical interventions, Ascher, Bowers, and Schotte (1985) speculate that the relative dearth of controlled studies reflects that the greatest utility of paradoxical interventions lies in their spontaneous application by creative counselors. Quite simply, it is difficult to apply experimental method to the study of spontaneous paradoxical interventions. Most of the controlled studies reviewed investigate relatively simple and specific interventions which lend themselves well to broad application and systematic behavioral analysis.

Ascher and Efran (1978) investigated five clients complaining of long term sleep onset difficulties who had not responded adequately to a 10 week program of progressive relaxation strategies. Prior to receiving any treatment, clients monitored sleep onset time for two weeks. Three of the clients were instructed *to try to remain awake,* and provided with the rationale that the failure of the preceding treatment was due to "insufficient" information about their sleep behavior. It was suggested that the clients should attempt to stay awake as to experience their thoughts prior to sleep onset. The remaining two clients were told to increase the number of progressive relaxation steps even if it meant "resisting the urge to sleep." Two weeks prior to the administration of these instructions, the five clients kept a record of time to sleep onset. Across three therapy sessions during a two week intervention phase, clients

typically reported that they were unable to complete the task as they had fallen asleep too quickly. At this time, the therapists encouraged clients to double their efforts to remain awake. At the end of the two week intervention phase, one client was instructed to return to the previous progressive relaxation intervention for three weeks, then at the end of these three weeks he was given the paradoxical instructions again, thus constituting with this one client an ABCBC design. Mean sleep onset time dropped from a pretreatment 48.6 minutes to 9.8 minutes at the end of the two week intervention period. Moreover, the one ABCBC client experienced an increase from a six minute sleep onset mean (C, the paradoxical intervention) to a mean time of 28.33 minutes at the end of a three week (B) resumption of the initial progressive relaxation intervention, and then dramatically sleep onset plunged to a mean of 7.5 minutes after readministration of the paradoxical intervention (C). These authors speculate that difficulty in falling asleep is created by a performance anxiety spawned by perceiving the occasional inability to fall asleep as "abnormal". Subsequent bedtimes then develop as some test of the person's ability to fall asleep. They conclude that performance anxiety, which includes attempts at trying "harder" to fall asleep, is decreased by redefining the client's circumstances through the paradoxical intervention.

A time-series analysis design was employed by Relinger, Bornstein, and Mungas (1978) to investigate the treatment of insomnia with paradoxical intention. The single subject was directed to attempt to stay awake so as to "become aware" of the thoughts and feelings which were keeping her awake. Further, a counterdemand instruction was given: she was told not to expect improvement until after four weeks. Within the first week time to sleep onset dropped from the baseline mean of 64.37 minutes to a mean time of 15.07 minutes. Further, there were significant reductions in the client's ratings of difficulty falling asleep, difficulty falling back asleep, and increases in reported restfulness upon awakening and personal functioning.

Follow-ups at one month, three months, and at 12 months revealed continued declines in sleep onset times. Relinger et al subscribe to the hypothesis that paradoxical intention interrupts an *exacerbation cycle* (Ribordy & Denny, 1977); that is, difficulty falling asleep is compounded by the insomniac's solution to fall asleep (try harder). This solution then operates as an anxiety-eliciting stimulus which exacerbates autonomic arousal and ultimately difficulty falling asleep. "Attempting" to stay awake interrupts the cycle through eliminating the anxiety-eliciting stimulus.

Turner and Ascher (1979) were the first to publish an investigation of a paradoxical intervention incorporating control groups and a comparison with other interventions. They randomly assigned 50 clients to one of five groups: a) paradoxical intention b) stimulus control c) progressive relaxation d) placebo, and e) no treatment. A 10 day baseline period was followed by five treatment sessions across four weeks. The paradoxical intention group was instructed to simply to try to stay awake, but to not engage in any behavior which would specifically prevent sleep, and provided with an "up-front" rationale which was based upon the author's current hypotheses about the mechanisms underlying paradoxical interventions (i.e. interruption of the pattern of attempting to force oneself to all asleep). Clients in the placebo control were given "quasi-desensitization" instructions consisting of a task of constructing neutral images which were to be experienced twice daily. The no-treatment clients were simply asked to forgo treatment for five weeks. Analysis revealed that all three treatments significantly reduced sleep onset, however no significant differences between the three treatments were observed. The authors speculate that any differences between the efficacies of the three treatments may lie in their effect upon specific client types, and that the random assignment of clients would have obscured any differences between groups. Further, they hypothesize that all three interventions share a common mechanism, they invest the client with attributions of self-control.

In the interest of replicating the effect of paradoxical intention with insomniacs, Ascher and Turner (1979 [a]) randomly assigned 25 clients to either a paradoxical intention group, placebo control group, or to a no treatment control. As before, they provided a complete, up front rationale for the paradoxical intention group. At the end of four weeks, the paradoxical intention group demonstrated superior reductions in sleep-onset latencies.

As a further test of the claim of the efficacy of paradoxical intention with chronic insomniacs, Relinger and Bornstein (1979) employed a multiple baseline design with four chronic and severe insomniacs. Self-report sleep charts supplemented with observations by spouse or roomate tracked sleep behavior. After a baseline period of 10 days, subjects were given five, half-hour daily sessions in which an "upfront" rationale, counterdemand instructions, and paradoxical intention instructions were provided. At the end of the treatment period all participants revealed a significant reduction in sleep onset, number of awakenings, difficulty falling asleep, and an increase in restfulness. The same improvement trends were observed at four week, eight week, and 12 week follow-ups. Overall, a mean reduction of sleep onset from baseline to 12 week follow-up of 81% was observed.

An investigation of stimulus control procedures for sleep-onset insomnia inadvertently produced support for the effectiveness of paradoxical instructions (Zwart & Lisman, 1979). A countercontrol group was instructed to engage in some activity (e.g. read, watch television) if they were unable to fall asleep within 10 minutes. In effect, countercontrol participants were given the implicit message: "if you cannot fall asleep, then stay awake". Both the stimulus control group and this counterdemand group displayed significant reductions in sleep-onset relative to a control group, but there were no significant differences between the two groups in respect outcome.

Two of the studies discussed thus far (Ascher & Efran, 1978; Relinger, et al, 1978)) delivered a paradoxical intervention with a rationale consistent with the components of an intervention administered previously to the participants (i.e. monitoring sleep behavior, cognitions). That is, the rationale suggested that it was important for the client to lie awake and observe some phenomenon (type **B** administration). Ascher and Turner (1979 [b]) recognized that the value of such a delivery had been subject to little scrutiny, and put this delivery to test by comparing it with a delivery which provided the client with a straight-forward rationale based upon the authors' understanding of paradoxical interventions (type **A** administration). The type A rationale explained that performance anxiety exacerbates sleep difficulties, and that a logical solution would be to employ paradoxical intention to disrupt the pattern. In addition, two controls were employed: one, a "quasi-desensitization" group as described in Turner and Ascher (1979); and two, a waiting list control. After a 10 day baseline period, subjects were randomly assigned to the four conditions, and four 30 minute sessions were administered across four weeks. Analysis revealed that the type A administration was superior to all other groups in the reduction of sleep onset. The authors maintain that the straight-forward rationale produced superior effects for the simple reason that it made good sense to the clients (which was confirmed with post-study interviews). On the other hand, they speculate that part of the observed difference may have been due to some "overly compliant" clients in the type B administration who attempted to prevent themselves from falling asleep so as to "collect" observations about their thoughts while trying to fall asleep.

In fact, it does appear that paradoxical intention for the treatment of difficulties in falling asleep can, in some cases, lengthen sleep onset. First, to test Ascher and Turner's (1979 [b]) hypothesis that giving some "overly compliant" clients the rational that they are to attempt to stay awake as to observe their thoughts would increase sleep onset, Ott, Levine, and Ascher (1983) presented this rationale (i.e. the need to

observe thoughts) to one group and compared outcome to another group who were given the same instructions but with the additional task of coding data from a sleep monitor each morning. The authors hypothesized that the task of collecting objective data would underscore the *explicit* (i.e. try to stay awaked) demands of the paradoxical intention. As predicted, the objective data group displayed a significant increase in sleep-onset, while the paradoxical intention only group demonstrated a significant decrease in sleep-onset times. Second, Espie and Lindsay (1985) administered a paradoxical intention procedure to six chronic insomniacs with mixed results. They instructed the clients to attempt to stay awake, to not engage in any behaviors which would prevent sleep, and to not expect any improvement as a counterdemand instruction. Three of the clients displayed dramatic reductions in sleep onset, while the other three demonstrated an increase in sleep onset. In fact, one of the three clients was so "successful" at following the instructions that he was removed from the study as he was profoundly sleep deprived! Clearly, appropriate delivery of the intervention and characteristics of the client ought to be considered.

One flaw identified by Turner and Ascher (1979) about their own study was that a single therapist (Turner) administered all of the interventions. No therapist effect has been demonstrated for progressive relaxation and stimulus control procedures (Carr & Woolfolk, 1979; Nicassio & Bootzin, 1974; Steinmark & Borkovec, 1974; Tokarz & Lawrence, 1974), however no investigation of a paradoxical intervention had examined therapist factors. In response to this shortcoming, Turner and Ascher (1982) conducted a quasi-experimental study employing three clinicians-in-training who administered treatments to 60 subjects across three treatment conditions (paradoxical intention, progressive relaxation, and stimulus control). The data from this investigation was then compared with data obtained from the parallel design (except that only one therapist was involved) of Turner and Ascher (1979). The authors observed a significant therapist effect. Post-treatment sleep onset times

for the experienced therapist group were in the 20 minute range, while onset times for the novice therapist group were in the 40 minute range. The magnitude of this effect did not significantly differ between treatment conditions. As Turner and Ascher (1982) observed a significant therapist effect with progressive relaxation and stimulus control, which conflicts with Carr and Woolfolk, 1979; Nicassio and Bootzin, 1974; Steinmark and Borkovec, 1974; and, Tokarz and Lawrence, 1974, there are grounds to approach the study with caution. Nonetheless, there is a lack of sound empirical evidence to evaluate the impact of counselor effects on outcome with a symptom prescription procedure.

Lacks, Bertelson, Gans, and Kunkel (1983) investigated the effectiveness of three treatments (progressive relaxation, stimulus control, and paradoxical intention) for sleep onset latency in relation to the variable of symptom severity. They found stimulus control to be superior across all levels of symptom severity. Yet, at a 16 week follow-up, the differences between treatments were marginal. Moreover, Ascher, Bowers, and Schotte (1985) point out that Lacks et al included a counterdemand in each of the three treatments; that is, all clients were instructed to not to expect any change until at least the fourth week. This counterdemand was included as a control for all groups as it was a feature of the paradoxical intervention. Ascher et al (1985) argue that this counterdemand constitutes an independent paradoxical intention component, and thus the treatment procedure of Lacks et al could be appropriately labelled as paradoxical intention plus progressive relaxation, paradoxical intention plus stimulus control, and paradoxical intention alone, and therefore the results of this study are, at best, difficult to interpret.

Reviews of the paradoxical intervention literature indicate that paradoxical interventions, particularly for the amelioration of sleep-onset latency, are equal or superior to other behavioral interventions (Ascher et al, 1985; Dowd & Milne, 1986; Katz, 1985). Shoham-Salomon and Rosenthal (1987) performed a meta-anlysis on

12 experimental investigations of paradoxical interventions. The authors conclude that: 1. paradoxical interventions are as effective, but not more so, than conventional strategies 2. gains made with a paradoxical intervention are more likely to persist one-month post treatment than with compliance based interventions 3. paradoxical interventions are relatively more effective with severe cases. Survey of the literature leads the author of this thesis to conclude that generally paradoxical interventions are effective, however important issues exist about the optimal match between presenting problem and intervention type. The next section, then, will address specific variables in relation to paradoxical interventions.

Paradoxical interventions: indications and contraindications

One concern that is often expressed about paradoxical interventions is that their potency is contingent upon some degree of client naivete (Mahoney, 1986). They suggest that once the client becomes aware of the "truth" of the intervention, the intervention is rendered impotent. It may reasonable to suggest that some constructions of some paradoxical interventions derive some of their potency from an aire of mystery and "paradox", but as suggested earlier, there is little particularly paradoxical about many "paradoxical" interventions. Ascher and Turner (1979[b]) obtained support for the superiority of delivery of a paradoxical intervention with a straightforward rationale; they conclude that a clear explanation of the rationale often makes good sense to clients. It could also be crucial to include the element of positive connotation with the delivery. A chief finding of Shoham-Salomon and Rosenthal's (1987) meta-analysis is that large treatment effects are typically associated with deliveries incorporating positive connotation. Nonetheless, further experimental investigation of this issue is indicated.

Some support has been obtained for the superiority of paradoxical intention with stress-prone clients, with severe and persistent sleep onset difficulties, and in

respect to durability of treatment effect. Shoham-Salomon and Jancourt (1985) hypothesized that stress-prone individuals would respond more favorably to a paradoxical intervention for stress reduction than those who were not prone to stress. Participants were first subjected to a stress induction procedure (a version of the Stroop Test), then received one of three treatments: one, symptom prescription; two, a placebo control comprised of a skeletal guided fantasy treatment; or, three, a self-help group where participants were instructed to "try to relax in your own way". Stress level was determined by pulse rate. After the treatment had been administered, subjects were given a visual search task as a performance measure. The results partially supported the hypothesis. There was no significant interaction between treatment and heart rate (stress), but there was a highly significant interaction between treatment and performance on the visual search task. Analysis of cell means revealed that the paradoxical intervention was superior in facilitating test performance amongst high stress-prone individuals.

Ascher and Efran (1978) found that paradoxical intention was dramatically effective for the reduction of sleep-onset amongst those who failed to achieve satisfactory results with either progressive relaxation or stimulus control. Ascher and Turner (1980) found that those high in symptom severity responded most favorably to symptom prescription. Further, Shoham-Salomon's and Rosenthal's meta-analysis revealed a general superiority of paradoxical interventions with those displaying high levels of symptom severity. The meta-analysis also indicated that paradoxical interventions produced superior outcome levels, relative to compliance based interventions, one-month post-treatment. The demonstrated durability of paradoxical interventions, the authors speculate, suggests a "sleeper effect" phenomenon. That is, the impact of the intervention is not fully manifest until after some extended period.

One general claim about paradoxical interventions is that they are the interventions of choice with reactive or non-compliant clients (Rohrbaugh, Tennen,

Press, & White, 1981). As a sound paradoxical intervention places the client in a double-bind, a reactive client should experience greater gains with a paradoxical intervention than they would with a compliance based intervention; since, the client is placed in a position to benefit even if they "resist" the intervention. However, there is scant experimental support for the claim. Again, Shoham-Salomon and Jancourt's (1985) study of the effectiveness of a paradoxical intervention with stress-prone clients assessed client resistance with a post-treatment questionnaire containing eight four-point scales (e.g."the intervention helped me"; " the experimenter nagged me"). They observed a correlation between resistance and performance under the paradoxical directive of r (15) = .35, p < .05. Yet, the validity of their means of assessing resistance has yet to be established.

An investigation of client resistance and intervention outcome in relation to intervention type was performed by Westerman, Frankel, Tanaka, and Kahn (1987). 30 clients were randomly assigned to one of twelve counselors, and then to one of two groups: one, a behavioral condition which administered relaxation training, assertion training, and the like; two, a paradoxical intervention which always included symptom prescription as the central strategy. Initial target problems were identified, and level of distress and adjustment were assessed by independent doctoral level counselors; these same indices were assessed post-treatment, and the difference between post- and pre- levels provided an outcome measure. Resistance was operationalized as the level of client cooperation which was assessed by raters who evaluated videotapes of sessions for quality of *coordinating style* (Westerman, Frankel, Tanaka, & Kahn, 1986). Coordinating style refers to the assessed quality of client contributions to the working counselor-client relationship. Overall, they observed a significant main effect for coordinating style, F = 20.81 (p< .001). As the authors predicted, there was a significant interaction between coordinating style and treatment condition, F= 6.71 (p < .02). Analysis of this interaction revealed that the

negative relation between noncoordinating style and improvement was significantly larger in the behavioral condition compared to the paradoxical condition (r= -.88 vs . r= -.57). Westerman et al (1986) is the only experimental investigation which has specifically examined, and supported, the claim that paradoxical techniques are superior to non-paradoxical interventions with high-resistant clients. It should be stressed, however, that *coordinating style* is not synonymous with psychological reactance. Psychological reactance is conceptualized by Dowd et al (1986) as a stable, motivational element which mediates intervention outcome, while coordinating style refers to the quality of client-counselor interaction which may affected by variables (perhaps situational) other than client reactance. Westerman et al (1987) have failed to demonstrate what it is precisely that coordinating style taps.

Most recently, Shoham-Salomon, Avner, and Neeman (1988) have conducted a two study investigation of the relationship between perceived self-efficacy, treatment outcome, and reactance with paradoxical and self-control procedures for the reduction of procrastination. The first study assessed reactance by rating samples of each subject's voice (e.g. level of spitefulness in client's voice). The second study experimentally manipulated reactance by first having participants choose, amongst two treatment options, their preferred intervention method. Then, one-third of the subjects (high-reactance condition) were told, without explanation or apology, that they would not receive the treatment of their choice and instead receive a less attractive intervention.

Shoham-Salomon, Avner, and Neeman (1988) argued that paradoxical interventions effect change for one of two reasons: the person reacts against the instructions and thus symptoms are reduced, or complying with the instructions leads to perceptions of increased self-efficacy. Overall, they found that reactant subjects reduced procrastination more in the paradoxical condition than in the self-control condition. In the first study, they observed a correlation between reactance and

increased study time of $r = .49$ in the paradoxical group, and $r = -.11$ in the self-control group. In the second study, they observed a significant interaction between level of reactance (high, low) and type of treatment (paradoxical, self-control), $F = 2.96$. $p < .05$. This interaction suggests that high-reactant subjects in the paradoxical group reduced procrastination more than high-reactant subjects in the self-control treatment condition.

There are, however, some questions regarding Shoham-Salomon et al.'s (1988) investigation about the validity of their method of assessing and manipulating reactance. First, in respect to the measurement of reactance, acceptable levels of inter-judge reliability were obtained only when three out of six assessment scales were discarded. Left were spiteful - non-spiteful, uninhibited - inhibited, and active - passive scales. This raises the question about whether or not ratings of voice quality along these scales constitute a valid assessment of psychological reactance. There appears to be no evidence in the literature to evaluate the validity of this method. Second, there is the issue of ecological validity. Having clients choose the treatment that will receive, then telling them that they will not have their choice and that they will receive a less desirable treatment, is not routine counselling practice. It is unclear if the client experiences that this manipulation precipitated are congruent with what Brehm (1966) defines as psychological reactance. In short, the findings of Shoham-Salomon et al (1988) support the contention that paradoxical interventions are superior to non-paradoxical interventions when reactance is high. Yet, their methods of assessing and manipulating reactance needs to be evaluated.

Stimulus Control Procedures

Background

Stimulus control procedures are under the umbrella of behavioral interventions where the process of conditioning is held to be fundamental in understanding both the genesis of the presenting problem and the development and implementation of an intervention. Stimulus control procedures have been effectively employed in ameliorating a number of presenting problems, from thought stopping (Martin, 1982) to weight control (Carroll & Yates, 1981). For the amelioration of sleep-onset latency, stimulus control procedures have been developed from a operant analysis of sleep onset insomnia by Bootzin and Nicassio (1978). Bootzin conceptualizes falling asleep as an "...instrumental act emitted to produce reinforcement (i.e. sleep). Thus, stimuli associated with sleep become discriminative stimuli for the occurrence of reinforcement" (p. 29). Therefore, insomnia may be a result of inadequate stimulus control. Inadequate control may be due either to a failure to establish strong discriminative stimuli for sleep and/or the development of discriminative stimuli which are incompatible with sleep.

Some studies have demonstrated that falling asleep behavior is subject to increases in frequency with reinforcement, and controlled through discriminative stimuli. For example, Wyrwicka and Sterman (1968) demonstrated that the frequency of brain wave patterns corresponding with sleep onset can be increased with milk rewards in food deprived cats. Rats have been trained to fall asleep (Wilcox, 1970) at the sound of a tone when they are reinforced with food at wake up. Bootzin contends that many bedtime behaviors interfere with sleep onset, and the bed or bedtime may operate as cues for behaviors incompatible with sleep. For instance, television watching, eating, reading, or even worrying may be elicited as a response to bedtime stimuli. Furthermore, Bootzin proposes that the bedroom or

bedtime may eventually become a cue for experiencing the frustration and anxiety associated with the inability to fall asleep. A stimulus control procedure for insomnia, therefore, is squarely directed at eliminating cues which are incompatible with sleep, and establishing the bed and bedtime context as cues for falling asleep.

Experimental investigations of stimulus control procedures for the amelioration of sleep onset latency

As mentioned, stimulus control procedures have a demonstrated efficacy for the amelioration of a wide range of presenting problems. Bootzin (1972, 1978) pioneered the development and investigation of stimulus control procedures for the treatment of insomnia. The first controlled study (Bootzin, 1972) included a self-relaxation group, a no-treatment group, or a stimulus control group. The results were dramatic. At post-treatment, 57% of the stimulus control group had reduced their mean sleep onset times to 25 minutes or less, while only 29% of the of the progressive relaxation group and 22% of the no treatment group had attained this criterion.

Zwart and Lisman (1979) randomly assigned insomniacs to one of five conditions: stimulus control, noncontingent control, countercontrol, temporal control, or waiting list. The results indicated that both the stimulus control group and the countercontrol group had significantly reduced sleep onset relative to the waiting list. However, as discussed previously, the countercontrol group (clients were instructed to get up and engage in some activity if they were unable to fall asleep within 10 minutes which in some respect constituted a paradoxical intervention component,was superior to all other groups! The authors hypothesize that the countercontrol effect was due to the punishment of continued wakefulness, that is subjects found repeatedly getting up and engaging in some activity aversive.

Nonetheless, this study demonstrated stimulus control to be an effective procedure for reducing sleep onset times.

Ascher and Turner's (1979 [a]) study incorporated a multiple baseline design, with six clients, as to experimentally establish some order of a cause-effect relationship between stimulus control method and sleep-onset reduction. All clients, after they had ultimately received the stimulus control treatment, reduced sleep onset times by at least 67%. Five of the six clients had reduced sleep onset to less than 20 minutes. Of special interest is that all six clients, in individual post-treatment interviews, reported that the stimulus control instructions served to interfere with lying in bed awake and thinking about concerns. This report contrasts with the theory that re-conditioning is responsible for stimulus control procedure phenomena.

Again, Ascher and Turner's (1979 [b], 1982) controlled comparison of progressive relaxation, paradoxical intention, and stimulus control for insomnia resulted in no significant differences between treatment groups, but all groups significantly reduced sleep onset in relation to a no treatment group. In contrast, the controlled comparison between progressive relaxation, paradoxical intention, and stimulus control conducted by Lacks et al (1983) demonstrated stimulus control to be superior across all symptom severities. But as discussed, each condition included a counterdemand which may have functioned as an independent paradoxical intervention component, thus rendering the observed superiority of stimulus control as less than unequivocal.

In sum, stimulus control procedures have been demonstrated to significantly reduce sleep-onset latency with chronic and severe insomniacs. However, there is no sound experimental evidence to support any claim of superiority of stimulus control for the management of insomnia. At this point in time, it would be reasonable to state that stimulus control is at least as effective for the treatment of insomnia as is

paradoxical intention. Nonetheless, the question persists as to whether or not some client variables potentiate-depotentiate the impact of stimulus control upon reductions in time to sleep-onset.

Insomnia

Epidemiological surveys have revealed that 10 to 15% of the general North American population experience severe insomnia, and an additional 10 to 15% report occasional or mild insomnia (Borkovec, 1982). In DSM-III (American Psychiatric Association, 1980), insomnia is designated as *disorders of initiating and maintaining sleep* (DIMS). In all, there are nine subtypes of DIMS. This study is concerned only with the first subtype, *Psychophysiological DIMS* , which is defined as:

> Insomnia based on chronic somatized tension-anxiety and negative conditioning. Often diagnosed by exclusion: an objectively verified insomnia that seems unrelated to either medical disease or serious psychiatric problems. It is postulated that an organic predisposition towards poor sleep and hyperarousal is aggravated, in a viscous cycle, by behavioral factors. Other characteristics of this type of insomnia: patient sleeps better away from the customary sleep environment or falls asleep easily when not trying to sleep.

According to DSM-III, this subtype comprises 15.3% of all DIMS diagnoses. The other eight subtypes cover DIMS associated with a variety of organic disease, psychiatric disturbance, and substance abuse. In particular, this study is concerned with, as a target population, sleep-onset latency insomnia (difficulties falling asleep) falling roughly under the above defined DSM-III, *Psychophysiological DIMS*, subtype.

A number of notable differences, apart from the obvious, exist between poor sleepers and good sleepers. First, there is a relative deficiency of REM phase sleep (Gaillard, 1978; Munroe, 1967). Although poor sleepers tend to experience an equivalent number of REM phases, these phases tend to be shorter relative to those of good sleepers. Typically, the ratio of REM to non-REM sleep of good sleepers is 40% greater than that of poor sleepers. Second, Munroe (1967) found higher levels of autonomic arousal prior to and during sleep amongst poor sleepers. However, a number of studies have failed to observe significant differences in autonomic arousal between good and poor sleepers (Brownman & Tepas, 1976; Good, 1975; Johns, Gay, Martsen, and Bruce, 1971). Overall, most investigations of psychological and physiological arousal of poor sleepers have observed significant arousal levels (Borkovec, 1979; Geer & Katlin, 1966; Kales, Caldwell, Preston, and Healey, 1976). Observations of intrusive bedtime thoughts and CNS arousal are the norm with poor sleepers. Third, insomniacs tend to score higher on measures of depression and anxiety (Borkovec, 1982). It is interesting that most studies have failed to find significant personality differences between good and poor sleepers (Beutler, Thornby, & Karacan, 1978; Gering and Mahrer, 1972; Johns et al, 1971), yet Kales et al (1976) observed that a significantly high number (85%) of 124 patients diagnosed with primary insomnia had one or more elevated scales (predominantly depression, psychasthenia, or conversion hysteria) on the MMPI. Yet as Borkovec (1982) has argued, no study has indicated any causal direction between the inability to fall asleep and various personality and physiological characteristics; that is, it is not clear as to whether or not, say, depression is a cause of sleep difficulties, a concomitant symptom of sleep-onset latency, or is itself a result of the chronic inability to fall asleep.

Both Borkovec's (1982) review of insomnia research and Kales et al (1976) investigation of 132 insomniacs support the hypothesis that, excluding organic

disease and psychotic disturbance, excessive sleep-onset latencies are associated with bedtime emotional / CNS arousal, intrusive and worrisome cognitive style, and performance anxiety. These conclusions are most consistent with the hypothesized mechanisms of paradoxical intention and stimulus control as presented in preceding discussion of theory: established and persistent cognitive and behavioral patterns interfere with sleep onset; interruption of these patterns through either control of anxiety evoking cues or via shifting the "task" of falling asleep to a less anxiety producing activity results in reduced sleep-onset time.

Summary

The foci of this chapter were as follows: In respect to the rubric of paradoxical interventions, an attempt was made to define the essential features of this strategy. Next, hypothesized mechanisms underlying paradoxical intervention phenomena were discussed, then a review of empirical evidence pertaining to paradoxical interventions for the amelioration of difficulties falling asleep was presented, and then indications and contraindications for this strategy were identified. The next two sections presented the theory underlying stimulus control procedures and summarized the history of investigations of stimulus control procedures for difficulties falling asleep. Finally, a brief discussion about insomnia was provided.

A paradoxical intervention was defined as a strategy where some aspect of the presenting complaint is prescribed or positively connoted for the purpose of reducing symptomology. As for mechanisms underlying paradoxical intervention phenomena, four were presented: one, disruption of the cycle of anticipatory anxiety; two, attributions about the cause of insomnia are shifted to a source less distressful than the belief of being out of control; three, a positive double bind is created which results in perceptions of increased control over symptoms; and four, the problem is reframed or decontextualized. As for the efficacy of paradoxical interventions for

insomnia, all of the 13 studies reviewed observed significant reductions in time to sleep onset. There is some support for the superiority of paradoxical interventions with high-stress clients, with those experiencing severe and persistent sleep difficulties, and with clients who display non-compliant behavior. In general, investigations of stimulus control procedures demonstrate that this procedure is effective in reducing the time it takes to fall asleep, however there is no sound evidence to support the claim that this strategy is superior to a paradoxical intervention. Finally, the brief discussion of insomnia makes the point that there are several "types" of insomnia with presumably different etiologies; and that this study is concerned with *Psychophysiological DIMS* which is essentially a sleep difficulty related to a cycle of dysfunctional behaviours and cognitions.

Chapter III

Method

Subjects

79 people volunteered to participate in this research. Subjects were solicited through a campus newspaper advertisement, a brief article about the study in a campus journal, a brief article in a daily newspaper, posters displayed about a university campus, and two local radio interviews. Of the 79 people who volunteered, 25 were from off-campus, while the other 54 were either full or part-time Simon Fraser University students. Fifty-six of the volunteers met the following criteria for participation in the study: 1. they routinely took more than 30 minutes to fall asleep 2. they did not suffer from a physical disorder which would profoundly inhibit sleep 3. they were not taking any medication which would either significantly facilitate or inhibit sleep (eg. narcotics, stimulants).

The screening information used to determine the suitability of candidates for this study was obtained from a written application form (see appendix A) and a brief telephone interview conducted by the researcher. All 56 qualifying participants completed the first phase of the study, but only 41 completed all three phases of the study. Attrition was 26.8 %. Of the participants completing the study, 36 (87.8 %) were solicited from campus, while 5 (12.2 %) were from off campus. Most of the candidates who were not S.F.U. students were respondents to the radio interviews, and typically reported symptoms during the personal telephone interview which contraindicated the interventions employed by this study (eg. difficulty staying asleep rather than falling asleep, significant physical illness). For those individuals who were not suitable for the study, referral suggestions were typically made (eg. family physician). Of the 41 subjects who completed the study, 16 (39%) were male (mean

age = 30.3 yrs.) and 25 (61%) were female (mean age= 31.9 yrs.). Mean age of the sample was 31.3 years.

Procedure

The study was a 2 X 2 design. There were two levels of interview type: a) no interview b) one-hour interview; and two levels of treatment: a) symptom prescription b) stimulus control. All but five of the 41 participants were randomly assigned to one of four treatment cells: **1.** symptom prescription - no interview **2.** stimulus control - no interview **3.** symptom prescription plus one-hour counselling interview **4.** stimulus control plus one-hour counselling interview. The five off-campus participants were unable to coordinate a counselling interview with counsellor availability, and were randomly assigned to one of the no interview conditions: groups one or two. An overview of the procedure is presented in Figure 1.

Insert Figure 1 about here

Prospective clients were contacted by the researcher via telephone. Typically clients were contacted within two days after the researcher had received notice of the client's interest in participating. Volunteers were first given a brief description of what was required of them: sign a consent form, complete two questionnaires, monitor sleep behavior with a sleep-log across three one-week phases, and follow a self-help manual for difficulties falling asleep.

If the person had been randomly selected as a candidate for one of the two counselling interview groups, and if the telephone interview confirmed their eligibility for the study, a counselling interview was set up. Instructions were given about picking up and returning packages (students who regularly attended the main

Figure 1

Procedure

Condition 1 no-interview, symptom prescription	Condition 2 no-interview, stimulus control	Condition 3 interview, symptom prescription	Condition 4 interview, stimulus control

Phase One

- Receive brief telephone interview and information about the study

- Receive in the mail and complete the application form, the TRS, and the SOS

- Document sleep behavior on supplied sleep-log for seven days

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Phase Two

- return phase one material by mail	- return phase one material to counselor at a counseling interview
- recieve in the mail, or pick-up a package containing a seven-day sleep-log and a self-help manual	- receive a 45 min counseling interview complete the CRF-S and the WAI-C, and receive a package containing a seven-day sleep-log and a self-help manual

- follow self-help manual and document sleep-behavior on sleep-log for seven days

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Phase Three

- return phase two sleep-log by mail or campus drop-off

- recieve, in the mail, a sleep-log for phase three

- document sleep behavior on sleep log for seven days

- return completed phase three sleep-log in the mail

campus picked-up and dropped-off packages at a department mailbox). Finally, participants were wished good luck and appreciation for their participation was given. Participants received no further personal contact with the researcher.

The study consisted of three phases, with each phase spanning seven days. During phase one (baseline), subjects tracked sleep behavior on a sleep log. At phase two, 20 of the 41 participants received a one-hour counselling interview. During this second phase all subjects received a self-help manual for sleep difficulties (either symptom prescription or stimulus control) and continued to track sleep behavior. At phase three, participants continued to implement the instructions contained in their self-help manual and track sleep behavior in the sleep log.

Administration of all the treatments was on an individual basis. Thus, any particular participant could, at any given time, be at a different point along the program phases relative to other participants. As soon as completed material from one phase was received from a participant, the material for the next phase was mailed out. Total span of participation for individuals ranged between 28-34 days. The lag created by the return and delivery of intervention packages accounts for this range. All participants received the same package for the first phase. This first package contained a sleep log and two pencil-and-paper measures. The second phase package, containing one of the two intervention manuals and a sleep log, was delivered by the counsellor for those in groups three and four, while groups one and two received the material in the mail. For phase three, a sleep log was mailed for all subjects. Instructions were included with each phase sleep log.

The interview

Two counsellors were involved in the study: one male and one female. Each were Masters level counselling students, and both have had extensive experience interviewing clients. The goal of the interview was to provide the participant with an

opportunity for "being heard". That is, the counsellor attempted to act in a manner which would maximize the likelihood of the participant leaving the interview with the experience that their perceptions about their sleep difficulties have been listened to by an empathic helper. This meant that the counsellor took the role of supporting the client's position about their sleep problem rather than offering judgement or advice.

Counsellors were provided with an interview instruction manual (see Appendix B) which stated concrete goals and listed the steps of the interview procedure. Each counsellor was trained for the interview under the supervision of the researcher during two one-hour training sessions. During the training the researcher assumed various clients roles with each counsellor, ranging from that of a cooperative client to that of a skeptical client. The purpose of the role-play was to provide preparation for the variety of queries that participants might pose to the counsellor (eg. "Can you give me your opinion on what my chances are with the self-help manual."). The counsellors were both accomplished at generic counselling skills, and hence training focused on anticipating and responding to those queries which, if improperly handled, might compromise the validity of the study.

During counsellor training considerable emphasis was placed upon responding to participant's queries about the particulars of the self-help manual. In essence, if subjects made queries about the manual, counsellors acknowledged the participant's curiosity, and informed the person that much care went into ensuring that the instructions are complete and clear. At no time did the counsellors reveal that they were blind to the specific contents of the self-help manual, and to the interventions employed by this study. In sum, the counsellors were instructed to avoid problem solving, and instead, with active listening skills, focus upon helping the participant articulate their position.

Within one to three days after completing Phase One, each subject in treatment groups groups three and four meet individually, in an interviewing room located on campus, with one of the counsellors (the assignment of subject to counsellor was random and counter-balanced). First, the counsellor greeted the participant and then obtained written permission to tape record the interview. After the participant and counsellor had made themselves comfortable, the first 15 minutes of the interview focused upon the person freely expressing their perceptions of their sleeping problem: the counsellor used reflecting and paraphrasing here. The next 10 minutes were directed towards exploring the participant's hypotheses about the consequences of losing their sleep problem. Next, ten minutes were spent directing the client towards articulating about past attempts to solve their sleep difficulties; here some effort was made to normalize the person's difficulties (ie. through counsellor self disclosure), however counsellors were instructed to be cautious about minimizing the participant's difficulties. The final 10 minutes of the 45 minute session were spent summarizing the interview with the counsellor paying particular attention to being empathic. Again judgements were kept to a minimum by carefully reflecting content and meaning. After the interview participants completed the Counsellor Rating Form-Short (Corrigan & Schmidt, 1983) and the Working Alliance Inventory-Client (Horvath, 1981). Concurrently, the counsellor completed the Working Alliance Inventory-Therapist (Horvath, 1981) in another room. After the participant had completed the two instruments, the counsellor gave the subject a sealed package containing a self-help manual and a set of seven daily sleep logs. The counsellors were unaware of the specific form of the interventions which were under investigation in this study, and they were instructed to avoid any comment about the nature of the self-help manual. Although the two counsellors were aware that the researcher's theoretical orientation encompassed paradoxical interventions, no information about the nature of the interventions was revealed to the counsellors prior to or during the study.

Intervention manuals

Both the stimulus control and symptom prescription manuals were written adaptations of instructions utilized in previous of investigations of these two procedures (eg. Ascher & Turner [b], 1979; Bootzin, 1978; Haynes et al, 1982; Lacks et al, 1983). It should be noted that in previous investigations, instructions were delivered verbally in conventional counselling settings. Part of the instructions contained in the stimulus control manual (see Appendix C) were taken directly from Bootzin (1978). Added to the Bootzin stimulus control instructions was an approximately 300 word description of the rationale underlying a stimulus control procedure. In essence, the stimulus control manual described the importance of establishing the bed and bedtime context with the act of falling asleep and detailed the following instructions: abstain from the consumption of caffeine within three-hours of bedtime, abstain from smoking within one-hour of bedtime, limit use of the bed to sex and sleeping only, lie down in bed only when sleep is intended, get up and go into another room whenever sleep is not achieved within 10 minutes, and to avoid napping during the day.

The instructions contained in the symptom prescription manual (see Appendix D) were based on the directions provided to participants by Ascher & Turner (1979[b]). Added to the symptom prescription instructions was an approximately 300 word, straight forward explanation of the rationale behind such an intervention. In essence, the manual described the dysfunctional cycle of attempting to force oneself asleep, suggested that giving oneself the instruction to attempt to stay awake would disrupt this cycle and promote falling asleep, and, as with the stimulus control manual, instructed the participant to avoid caffeine and tobacco near the bedtime. As discussed in Chapter 2, supplying such a rationale has been demonstrated to produce superior treatment effects -- as opposed to no rationale, or to a rationale which describes the purpose of trying to stay awake as one of collecting data about

nighttime cognitions. Care was taken to craft the rationale of both manuals in simple, jargon free, language.

Measurement

Dependent variables

A sleep log (see Appendix E), based on the Monroe Sleep Questionnaire (Monroe, 1967), was used to obtain levels for all dependent variables. The sleep log contained 9 items for Phase One and 10 items for Phases Two and Three. The additional item for the second and third phases consisted of a report of the frequency of intervention utilization; apart from this, the logs were identical. Frequency of intervention utilization refers to the reported estimated number of times that subjects in the symptom prescription condition (SP) told themselves to stay awake, and for the stimulus control condition (SC), the estimated number of times that subjects got out of bed after being unable to fall asleep within ten minutes. Each morning subjects recorded, on the log, estimates of minutes to sleep onset and total minutes asleep during the night. In addition, subjects indicated levels of restfulness, anxiety, and general mood each on five-point scales.

The use of subjective report of time to sleep onset has been a matter of some controversy (Borkovec, 1982). There is a tendency for insomniacs to overestimate sleep onset latencies, however subjective report has been widely used by researchers (e.g.: Ascher & Turner, 1979 [a]; Bootzin & Nicassio, 1978; Turner & Ascher, 1982). Munroe (1967) found that self-report criteria successfully identified insomniacs from non-insomniacs as determined with objective measures of sleep. Moreover, Ott, et al (1983), Tokarz and Lawrence (1974), and Turner and Ascher (1979, 1982) have compared objective and subjective measures of sleep onset and

have found overall differences to be insignificant. Therefore, given the formidable logistics of employing objective measures of sleep behavior and the small differences between objective and subjective measurements of sleep, the researcher concluded that subjective report of sleep behavior was a reasonable procedure.

Moderator variables

The Symptoms of Stress Inventory (Leckie & Thompson, 1977) and The Therapeutic Reactance Scale (Dowd et al, 1986) , were included in the Phase One package for all participants. In addition, participants who had received a counselling interview, completed the Counsellor Rating Form-Short (Corrigan & Schmidt, 1983)) and the Working Alliance Inventory (Horvath, 1981, 1982) immediately after a single 45 minute interview with a counsellor. An instruction on the outside of an envelope that contained the Counsellor Rating Form-Short and the Working Alliance Inventory assured participants that the counsellor would not have access to their responses on the measures and instructed the participant to seal the envelope after completing the instruments

The Symptoms of Stress Inventory (SSI).

The SSI (see Appendix F) is a self-administered, paper-and-pencil, assessment tool tapping physiological, behavioral, and cognitive components of stress responses. There are 94 items yielding 10 subscales. The SSI has high face validity. Convergent validity is supported by high correlation with the Symptom Checklist (SCL-90) (Derogatis, Rickels, & Rock, 1976), a measure of psychological distress, of .82 (Leckie & Thompson, 1977). Reliability of the measure is evidenced by an internal consistency of .97 (Cronbach's alpha), and a test-retest correlation of r=.83 (Kogan, 1987). The SSI was selected for this study as it is simple to administer and it is designed to measure stress comprehensively: it provides somatic, cognitive, affective, and behavioral indices of stress.

The Therapeutic Reactance Scale (TRS) .

The TRS (see Appendix G) consists of 28 items derived from an initial pool of 112 items. The TRS renders verbal and behavior subscales. Mass administrations of the 28 items have produced factor loadings on a verbal dimension and a behavior dimension for each item (Dowd, Milne, & Wise, 1986). The TRS was developed to quantify individual differences in psychological reactance. The *Theory of Psychological Reactance* (Brehm, 1966; Brehm & Brehm,1981) describes psychological reactance as a motivational state precipitated by the person's perception that their freedom of choice has been eliminated or threatened by some external source. This state is conceptualized as a function of four aspects: a) the value the person places on a particular freedom b) the belief that the individual possesses the freedom in question c) the perceived magnitude of the threat to a freedom d) the number of freedoms perceived to be jeopardized by a specific threat. Dowd et al conceptualize psychological reactance as an individual difference variable; that is, as a stable style of the individual which may be manifest across situations.

The TRS is self-administered. Clients respond to 28 statements along a four point Likert scale. Dowd et al (1986) reported test-retest reliability coefficients ranging from .57 to .76, and internal consistency reliability ranging from .75 to .84. Morgan (1986) reported support for the convergent validity of the TRS by observing a significant negative correlation ($p=-.48$, $p < .0005$) between TRS scores and the K Scale of the MMPI (taps desire to impress and to be socially appropriate), and a significant positive correlation ($r=.35$, $p< .0005$) between the behavioral subscale of the TRS and the Rotter Internal-External Locus of Control Scale (higher scores reflect a greater perceived internal locus of control).

Counsellor Rating Form-Short (CRF-S).

The client's perception of counsellor attributes (eg. trustworthiness, expertise, attractiveness) has been hypothesized to impact upon intervention outcome (Strong, 1968). The Counsellor Rating Form was developed by Barak and Lacrosse (1975) to measure the client's perception of counsellor attributes. The Counsellor Rating Form-Short (CRF-S) (see Appendix H) is a self-report, paper-and-pencil instrument derived from the 36 items on the original Counsellor Rating Form which showed the highest factor loadings. The CRF-S contains 12 adjectives, each accompanied with a 7-point bipolar scale. Three subscales are extracted from the CRF-S -- attractiveness, expertness, and trustworthiness -- with reported split-half reliabilities for each subscale of .85, .87, and .91 respectively. Validity of the measure is supported by high levels of goodness of fit between patterns of group ratings of interviews which utilize the CRF and patterns of group ratings of the same interviews with the CRF-S (various samples generating X^2 values ranging from 498 to 1,242) (Corrigan & Schmidt,1983). A two-step hierarchical factor model most reliably predicts CRF-S scores (Tracey, Kokotovic, & Glidden, 1988). That is, variance amongst CRF-S scores is best accounted for by a primary factor which reflects the client's general perception of the counsellor's non-specific charismatic qualities and a secondary factor derived from the client's perception of the counsellor's level of attractiveness, trustworthiness, and expertness.

The Working Alliance Inventory (WAI).

The WAI (Horvath, 1981, 1982) is a measure based on Bordin's (1975) construct of Working Alliance. A strong working alliance between counsellor and helper is characterized by: 1. a mutual sense of agreement about the goals 2. a mutual sense of agreement that the tasks of the helping process are relevant to to goals. 3. a mutual sense of bond between counsellor and client based on shared

trust, liking, understanding, and caring. (Horvath & Greenberg, 1986). The WAI is a self-report instrument of 36 items (see Appendix I). Each item contains an anchored seven-point Likert scale. There are two parallel forms of the WAI: one is constructed for the client (WAI-C) and the other for the therapist (WAI-T). Each of the two forms has three scales: Goal, Task, and Bond. Correlations between tike WAI-T and WAI-C scales are .80 for Goal, .78 for Task, and .53 for Bond (Horvath, 1982). Reasonable levels of reliability are evidenced by Hoyt values for individual dimensions ranging from .88 to .68, while Cronbach alphas of .93 were observed for the client composite score and .87 for the counsellor composite score (Horvath, 1982). The reader should note that the WAI was developed for evaluating an alliance developing across a number of sessions, while this study employed the WAI for evaluating the quality of alliance developed in a single interview.

Chapter IV.

Results

Overview of Analysis Procedure

This chapter is organized by the reasearch predictions made in *Chapter I,* namely:

1. Clients who display high levels of psychological reactance will tend to fall asleep faster with a symptom prescription intervention than with a stimulus control procedure.

2. The written delivery of stimulus control and paradoxical prescription procedures will significantly reduce the time to sleep onset relative to pre-treatment levels.

3. Overall decreases in time to sleep onset will not differ significantly between a written stimulus control and written symptom prescription procedure.

4. The quality of client-counsellor relationship will be significantly more positively related to improvement in sleep-onset in the symptom prescription condition than in the stimulus control condition:

5. Overall, severity of stress will be negatively correlated with improvement in sleep-onset.

6. Individuals with high levels of stress will tend to fall asleep faster with a symptom prescription procedure than with a stimulus control procedure.

Independent Variables

Three independent variables were analysed. One, *intervention condition* of which there were two levels: symptom prescription and stimulus control. Two, *interview condition* of which there were also two levels: no-interview and one-hour interview. Three, *treatment phases* of which there were three levels: baseline, first week of intervention, second week of intervention. Thus, this is a 2 (intervention type) X 2 (interview condition) X 3 (phase) design.

Dependent Variables

In all, four dependent variables were examined: *minutes to sleep onset, minutes asleep, subjective ratings of restfulness* , and *frequency of intervention utilization* (see Chapter III). For the purposes of multivariate analysis, treatment phase means were calculated for each of the four D.V.'s. Since reports of frequency of intervention utilization were made only during the latter two phases, only two phase means could be calculated for frequency of intervention utilization. In addition, for the purposes of correlational analysis, reduction in minutes to sleep onset was calculated for each subject. Reduction in minutes to sleep onset was calculated by subtracting the mean minutes to sleep onset at phase three from the mean minutes to sleep onset at phase one (baseline).

Analysis

In essence, the goals of the analyses were threefold. One, a multivariate analysis of variance was performed to determine if there were differences, in respect to levels of the dependent variables, between the two interventions, between the two interview conditions, or amongst the three treatment phases. Two, *t-tests* were performed to determine if there were statistically reliable differences in frequency of intervention utilization between the two interventions, between the two interview

conditions, or between the second and third treatment phases. Three, correlation coefficients were calculated to determine if Therapeutic Reactance Scale (TRS), Symptoms of Stress Inventory (SSI), Counsellor Rating Form (CRF-S), or Working Alliance Inventory (WAI) scores were significantly associated with reduction in minutes to sleep onset. Next, each hypothesis will be discussed in light of the results.

Prediction 1

Clients who display high levels of psychological reactance will benefit more from a symptom prescription intervention than from a stimulus control procedure.

In the introductory chapter, the case was made that high levels of psychological reactance would likely be positively associated with client benefit with a symptom prescription procedure and negatively associated with client benefit with a stimulus control procedure. Reactance was measured with the Therapeutic Reactance Scale. A greater positive correlation between TRS scores and client benefit for the SP condition relative to the correlation observed for the SC condition would support this prediction.

A statistically significant correlation between TRS scores and pre-treatment to post-treatment reduction in minutes to sleep onset was observed for the symptom prescription condition ($r = .47$, $p < .05$) (see Table 1). The correlation between TRS scores and reduction in minutes to sleep onset failed to reach a level of statistical significance in the stimulus control condition ($r = -.37$, $p > .10$). The difference between these two correlations is, however, statistically significant ($Z = 2.67$, $p > .01$). This statistically reliable difference between the two correlations supports the first prediction. High levels of reactance were associated with large reductions in time to sleep onset in the symptom prescription condition, but high

levels of reactance were associated with lesser reductions in time to sleep onset in thestimulus control condition.

Insert Table 1 about here

Prediction 2

The written delivery of stimulus control and paradoxical prescription procedures will significantly reduce the time to sleep onset relative to pre-treatment levels.

Treatment phase means for dependent variables can be viewed in Table 2 and Figure 2. Overall, there were significant reductions in time to sleep onset, increases in amount of sleep, and increases in levels of restfulness. Collapsing intervention and interview conditions, the MANOVA revealed a statistically reliable main effect for time (treatment effect), $F = 9.17$, $p < .001$ (see Table 3). That is, there were statistically significant differences between the three phases. It should be noted that interpretations of main effects in this study are not complicated by interaction effects. No statistically reliable interaction effects were observed: $F = 1.40$, $p = .24$ (intervention condition X interview condition X time); $F = .29$, $p = 94$ (intervention condition X time); $F = 1.74$, $p = .18$ (intervention condition X interview condition); and, $F = .62$, $p = .71$ (interview condition X time).

Table 1

Correlations between the Therapeutic Reactance Scale and Reduction in Minutes to Sleep Onset for the Two Interventions and the Two Interview Conditions

	Intervention		
	Symptom Prescription	Stimulus Control	Combined
Interview Condition			
No interview	.10 (11)	- .81** (10)	-.24 (21)
One-hour Interview	.69* (10)	- .17 (10)	.28 (20)
Combined	.47* (21)	- .37 (20)	- .01 (41)

Note: Numbers in brackets refers to the number of subjects

* $p < .05$

** $p < .01$

Insert Table 2, Figure 2, and Table 3 about here

Since the MANOVA indicated that there were some statistically reliable differences between the three treatment phase levels of the Dependent variables (minutes to sleep onset, minutes asleep, and subjective ratings of restfulness), three unviariate analyses of variance (ANOVA) were conducted (Tabachnick & Fidell, 1983). First, F - $tests$ were performed for each dependent variable across the three treatment phases. Thus it could be determined, in respect to a particular dependent variable, if there was at least one phase mean contrast (ie. 1 vs. 2, 1 vs. 3, or 2 vs. 3) which reached a level statistically reliable level. If the ANOVA of a particular dependent variable revealed a statistically reliable difference between phase means, a post-hoc analysis of each of the possible phase mean contrasts was performed using $Scheffe's$ procedure.

The results of the ANOVA's are found in Tables 4 and 5. A statistically reliable difference between treatment phase means was found for minutes to sleep onset, $F = 41.00$, $p < .001$. A post-hoc analysis revealed significant differences in minutes to sleep onset between the first and second phase, F $(Scheffe) = 25.63$, $p < .05$; between the first and third phase, $F_{(S)} = 35.01$, $p < .05$; but not between the second and third phases, $F_{(S)} = 0.74$, $p > .05$. Minutes asleep varied significantly across phases, $F = 6.99$, $p < .002$. A post-hoc analysis indicated that there were statistically reliable differences between the first and second phase, $F_{(S)} = 4.89$, $p < .05$; between the first and third phase, $F_{(S)} = 5.57$, $p < .05$; but the difference between the second and third phase was not significant, $F_{(S)} = 0.02$, $p > .05$. Finally, a statistically reliable difference between phases was observed for subjective

Table 2

Dependent Variable Means and Standard Deviations by Treatment Phase

	Phase					
	1		2		3	
	M	S.D.	M	S.D.	M	S.D.
Sleep Onset [a]						
SP	65.6	28.5	38.0	20.3	31.2	23.2
SC	57.6	32.9	30.6	14.7	28.3	20.0
Overall	61.8	30.2	34.4	18.0	29.8	29.8
Amount of Sleep [a]						
SP	384.6	57.6	408.1	43.2	412.6	57.2
SC	404.9	53.2	424.4	44.0	422.6	54.0
Overall	394.5	55.7	416.0	43.8	417.5	55.2
Utilization [b]						
SP	—		4.10	3.16	2.87	2.84
SC	—		1.00	1.10	.69	.84
Overall	—		2.59	2.83	1.81	2.36
Restfulness [c]						
SP	2.71	.56	2.98	.523	3.23	.71
SC	3.16	.54	3.34	.48	3.44	.54
Overall	2.90	.59	3.16	.53	3.33	.63

a. Minutes

b. Frequency of intervention utilization

c. Rated on a five-point Likert type scale

Figure 2

Mean Minutes to Sleep Onset for the Two Invervention Types across Phases

Table 3

MANOVA of the Dependent Variables

Independent Variable	Value (Hotellings)	Exact F	Hypoth. df	Error df	p
Intervention Conditions					
	.207	2.41	3	35	.083
Interview Conditions					
	.237	2.77	3	35	.056
Phases					
	1.72	9.17	6	32	.001

ratings of restfulness, $F = 12.05$, $p < .0001$. *Scheffe's* procedure produced values of 3.79, $p < .05$ and 11.99, $p < .05$ for comparisons between phases one and two, and between Phases one and three respectively. The difference between the second and third phases was not statistically reliable, $F(S) = 2.30$, $p > .05$. In sum, the second prediction was supported. Overall, administration of symptom prescription and stimulus control procedures, in written format, resulted in significant reductions in minutes to sleep onset, and increases in minutes asleep and reported levels of restfulness.

Insert Tables 4 and 5 about here

Prediction 3

There will not be a significant difference between the symptom prescription group and the stimulus control group in respect to reductions in time to sleep onset.

Treatment phase means for each dependent variable for each intervention condition can be found in Table 2. A MANOVA (see Table 3) of these means indicated that there was no statistically reliable main effect for intervention type, $F = 2.41$, $p > .08$. That is, there were no statistically reliable differences between SP and SC in respect to levels of three dependent variables at each of the three treatment phases.

Table 4

ANOVA of Overall Means For Each Dependent Variable

Dependent variable

Source	df	SS	MS	F	p
Onset[a]					
Between	40	43825.2	1095.7		
Within	82	48579.7	592.4		
treatments	2	24579.0	12289.5	41.0	.0001
residual	80	24000.8	300.0		
Total	122	92404.9			
Sleep[b]					
Between	40	245360.0	6134		
Within	82	91137.4	111.4		
treatments	2	13558.7	6779.4	6.99	.0016
residual	80	77578.7	969.7		
Total	122	336497.4			
Restfulness[c]					
Between	40	29.6	.74		
Within	82	14.8	.18		
treatments	2	3.4	1.71	12.05	.0001
residual	80	11.4	.14		
Total	122	44.4			

a. Minutes to sleep onset

b. Minutes of sleep

c. Rated on a five-point Likert scale

Table 5

Post-hoc comparisons (Scheffe's Procedure) of Overall Phase Means for Dependent Variables

Dependent variable		
Comparison (Phase)	F	p
Minutes to Sleep Onset		
1 vs 2	25.6	<.05
1 vs 3	35.0	<.05
2 vs 3	0.74	>.05
Minutes of Sleep		
1 vs 2	4.89	<.05
1 vs 3	5.57	<.05
2 vs 3	0.02	>.05
Restfulness [a]		
1 vs 2	3.79	<.05
1 vs 3	11.99	<.05
2 vs 3	2.30	>.05

a. Rated on a five-point Likert scale

Prediction 4

The quality of client-counselor relationship will be more positively related to improvement in sleep-onset in the symptom prescription condition than in the stimulus control condition.

In the introduction a case was made that measures of the quality of the client-counsellor relationship would be more positively associated with treatment outcome in the SP condition than in the SC condition. Treatment phase means for the two interview conditions are found in Table 5. The MANOVA (see Table 3) indicated that there were no statistically reliable differences, in respect to dependent variables, between the two interview conditions at each of the three treatment phases, $F = 2.77, p = .06$. It should be noted that the p value of .06 just falls above the established criteria of .05 for rejection of the null hypothesis.

Insert Table 6 about here

No statistically reliable relationship was observed between CRF-S scores (see Chapter III) and reduction in minutes to sleep onset. A correlation of $r = .01$ was observed between CRF-S scores and reduction in minutes to sleep onset in the SP condition, and a correlation of $r = .23$ for the SC condition. The difference between these two correlations is not statistically significant. These correlations suggest that CRF-S scores are not related to client benefit at statistically reliable levels.

Correlations between WAI scores (see Chapter III) and reduction in minutes to sleep onset failed to reach levels of statistical reliability. Bivariate analysis of WAI-C scores and reduction in minutes to sleep onset generated a $r = -.03$ for the SP

Table 6

Dependent Variable Means and Standard Deviations for Treatment Phases

by Interview Condition

	Phase					
	1		2		3	
	M	S.D.	M	S.D.	M	S.D.
Onset [a]						
No-interview.	58.2	(28.3)	27.8	(12.3)	25.6	(19.3)
Interview	65.6	(32.3)	41.3	(20.5)	34.1	(23.2)
Sleep [b]						
No-interview	385.2	(57.3)	407.2	(49.3)	408.5	(59.5)
Interview	404.4	(53.7)	425.4	(36.1)	427.0	(50.1)
Utilization [c]						
No-interview	—		2.10	(2.3)	1.88	(2.80)
Interview	—		3.11	(3.30)	1.73	(1.90)
Restfulness [d]						
No-interview	2.94	(.57)	3.05	(.54)	3.22	(.62)
Interview	2.91	(.62)	3.26	(.50)	3.45	(.64)

a. Minutes to sleep onset

b. Minutes of sleep

c. Frequency of intervention utilization

d. Rated on a five-point Likert scale

condition (n = 10), and a r = -.00 for the SC condition (n = 10). The difference between these two correlations is not reliable. Analysis of WAI-T scores and reduction in minutes to sleep onset produced a r = .48 for the SP condition and a r = .14 for the SC condition. Neither of these correlations, nor the difference between them, are statistically reliable.

Considering these findings, the fourth prediction was not supported. Treatment outcomes between the two interview conditions did not differ at statistically reliable levels. The CRF-S was not associated with reduction in minutes to sleep onset. Neither WAI-C or WAI-T scores were associated with reduction in minutes to sleep onset.

Prediction 5

Overall, severity of stress will be negatively correlated with improvement in sleep-onset.

A case was made in the introduction that high levels of stress would reduce benefit subjects obtained with either a stimulus control intervention or a symptom prescription intervention. In other words, stress scores were expected to correlate negatively with treatment outcome. Stress, as measured with the SSI, was not reliably associated with reduction in minutes to sleep onset. Overall, a correlation of r = -.07 between SSI scores and reduction in minutes to sleep onset was observed. This low correlation fails to meet a level of statistical reliability, and thus the fifth prediction was not supported.

Prediction 6

Individuals with high levels of stress will tend to fall asleep faster with a symptom prescription procedure than with a stimulus control procedure.

As discussed in the introductory chapter, there are theoretical and empirical grounds to suspect that high-stress individuals would fare better with a symptom prescription procedure than with a stimulus control procedure. If this is the case, correlations between SSI scores and reduction in minutes to sleep onset for the SP group would be expected to be less negative than those observed for the SC group. A correlation of $r = .06$ was observed for the SP condition and a correlation of $r = .12$ was observed for the SC condition. The difference between these correlations is not statistically reliable, and therefore the sixth prediction was not supported.

Frequency of Intervention Utilization

Although there were no specific predictions in respect to frequency of intervention utilization, report of this behavior was analyzed for exploratory purposes. This dependent variable was not included in the MANOVA as it was tracked for only phases two and three. Thus, t - tests were performed on differences between the phases two and three for each intervention type and for each interview condition. The SP group reported that they told themselves to stay awake a mean frequency of 4.1 times at Phase Two and 2.87 times at Phase Three. The difference between these means is statistically reliable, $t = 2.25$, $p < .04$. The SC group reported that they got out of bed, after 10 minutes of lying awake, a mean frequency of 1.0 times at Phase Two and .69 times at Phase Three. The difference between these two means is not statistically reliable. There were no statistical differences, in respect to mean

frequency of intervention utilization, between the two SP conditions (no-interview: mean = 3.20 , interview: mean = 3.56), nor between the two SC conditions (no-interview: mean = .94, interview: mean = 1.13).

There were significant differences in frequency of intervention utilization between the two treatment conditions. At Phase Two, an overall mean frequency of 4.1 (s.d. = 3.16) was observed for the SP group and 1.0 (s.d. = 1.1) for the SC group. The difference between these means is statistically significant, t = 4.15, p <.000. At Phase Three, the SP group reported a mean frequency of intervention utilization of 2.87 (s.d. = 2.84) and the SC group a frequency of .69 (s.d. = .84). The difference between these two means is significant, t = 3.29, p <.002. The reader should be cautioned that comparing intervention utilization frequencies of the two interventions is problematic. A cognitive event (telling oneself to stay awake) is compared with a behavior (getting out of bed). A strong case can be made that it is much easier to tell oneself to stay awake than it is to get oneself out of bed, and therefore comparisons between the frequency of these two behaviors may be inappropriate.

In addition, for exploratory purposes, correlation coefficients were calculated between frequency of intervention utilization and reduction in minutes to sleep onset (see Table 7). Overall, the correlation between frequency of intervention utilization and reduction in minutes to sleep onset did not reach a level of statistical reliability. For phase two, a coefficient of r = .13 was observed; and for phase three a value of r = .00 was obtained. In respect to intervention conditions, there were no statistically reliable correlations between intervention utilization and reduction on minutes to sleep onset. For the SP intervention, coefficients of r = .12 and r = - .03 were observed for phases two and three respectively. As for the SC condition, coefficients of r = .15 and r = -.13 were obtained for the second and third phases. No statistically reliable correlations were observed for interview conditions. In the no-interview condition , a correlation of r = .02 was observed for phase two, and a value of r = .16

was observed for phase three. For those who received a one-hour interview, coefficients of r = .19 and r = -.15 were observed for the second and third phases respectively.

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Insert Table 7 about here

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Summary

The first prediction was supported. Reactance was more positively correlated with reduction in minutes to sleep onset in the SP condition than in the SC condition. Support was obtained for the second prediction. Overall, participants displayed statistically reliable decreases in minutes to sleep onset between the first and second phases and between the first and third phases. Further, significant increases in minutes asleep and ratings of restfulness were observed between the first and second phase, and between the first and third phases. The third prediction was also supported. There was no statistically reliable difference in outcome between the two interventions. The fourth prediction, however, was not supported. Indices of the quality of the counsellor-client relationship were not associated with treatment effects. No support was obtained for the fifth prediction. Level of stress correlated weakly with treatment outcome. Finally, the sixth prediction was not supported. The levels of association between stress and outcome for each of the two interventions were not significantly different.

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Table 7

Correlations between Frequency of Intervention Utilization and Reduction in Minutes
to Sleep Onset

| | Phase | |
Condition	2	3
SP	.12 (21) [a]	-.03 (21)
SC	.15 (20)	-.13 (20)
No-interview	.02 (21)	.16 (21)
Interview	.19 (20)	-.15 (20)
Overall	.13 (41)	.00 (41)

a. Numbers in brackets refers to number of subjects in that condition.

Chapter V

Discussion

Summary of Results

As predicted, high levels of reactance were associated with high reduction of symptomology in the symptom prescription condition, but high levels of reactance were associated with smaller reductions of symptomology in the stimulus control condition. This finding supports the contention that a symptom prescription procedure is more effective with reactant clients than is a stimulus control procedure. The no-interview and interview conditions were not differentially effective, nor were client-counsellor alliance or client perception of the social influence qualities of the counsellor associated with reductions in time to sleep onset at statistically reliable levels. Thus, support was not received for the prediction that the counselling interview would enhance treatment outcome in the symptom prescription condition. A main effect for treatment was observed. That is, overall there were significant pre-treatment to post-treatment reductions in minutes to sleep onset, and increases in the amount of time asleep and subjective ratings of restfulness. This observation supports the prediction that symptom prescription and stimulus control procedures administered in written, self-help format would effect significant reductions in the time it takes to fall asleep. No statistically reliable main effect was observed for intervention conditions. Stimulus control and symptom prescription interventions did not produce differential treatment effects. Finally, stress was not associated with treatment outcome. Thus support was not obtained for the prediction that stress would be negatively associated with treatment outcome in general, and to a lesser extent in the symptom prescription condition relative to the stimulus control condition.

Implications

Reactance

The results of this study support the claim that paradoxical interventions produce superior treatment effects, relative to non-paradoxical interventions, as the level of psychological reactance increases. Apart from the very recent investigation of reactance and treatment outcome conducted by Shoham-Salomon et al (1988) , no published study has reported differential effects for a paradoxical and non-paradoxical intervention across level of psychological reactance. Correlations were observed between reactance and treatment outcome of $r = .47$ in the paradoxical condition, and $r = -.37$ in the non-paradoxical condition. Shoham-Salomon et al (1988) provide support for the findings of this thesis: they found correlations between reactance and treatment outcome of $r = .49$ in a paradoxical intervention group and $r = -.11$ in a non-paradoxical intervention group. In short, this study can make no strong claims in respect to the mechanisms underlying changes with high-reactant and low-reactant clients, yet it can, in concert with Shoham-Salomon et al (1988), contest the claim (as suggested by Dowd, 1987) that paradoxical interventions are equally effective for high-reactant and low-reactant clients.

Two hypotheses best account for the differential effectiveness of a symptom prescription and stimulus control procedures for the amelioration of sleep onset insomnia with high- and low-reactant clients. First, as Espie and Lindsay (1985) have observed, some clients tend to take the task of attempting to stay awake too literally. As discussed in *Chapter II* , Espie and Lindsay reported that time to sleep onset increased dramatically for three out of six of their clients. Although, in the end, attempting to stay awake is effective in disrupting dysfunctional sleep behaviors for many low-reactant clients, low-reactant clients may not reduce time to sleep onset as

they may approach the task of attempting to stay awake too earnestly. Second, if it is the case that reactant clients tend not to comply with the stimulus control instruction to get out of bed if sleep does not occur within ten minutes, then obviously a stimulus control procedure is not a sound strategy with reactant clients. But, as discussed, a sound paradoxical strategy creates a positive, or *win-win* , bind for the reactant client regardless if they comply with intervention instructions. If the reactant client does comply with the symptom prescription, that is they attempt to stay awake, then dysfunctional sleeptime patterns will likely be interrupted (e.g. trying to force oneself asleep), and sleep would ensue faster than it would otherwise. If, on the other hand, the reactant client acts counter to the instruction to stay awake then presumably they are left with the option of falling asleep. It should be emphasized that a person does not *necessarily* react to "*win-win*" paradoxical binds through some conscious process. It is not as if the person must declare to themself " well, I have a choice here...I can either try to stay awake or I can fall asleep...since I am a reactant sort, I will go against the instruction and fall asleep...". This researcher maintains that a paradoxical bind is processed and active at an unconscious level. Such a hypothesis is, however, difficult to either support or falsify experimentally.

As discussed in *Chapter II* , Shoham-Salomon et al (1988) has obtained empirical support for the argument that administration of a paradoxical intervention will likely result in either reduced symptomology or increased levels of perceived self-efficacy. Briefly, they suggest that when levels of reactance are high, the client will oppose the paradoxical instruction and display reduced symptomology. However, when perceived controllability is low, it is unlikely that the individual would believe that they could generate and control oppositional behaviours. Since such an individual believes that they cannot behave reactively (i.e. contrary to the intervention instruction), they are then left with the option of compliance. By complying, that is following intervention instructions, they have then in fact displayed control over the

symptom (i.e. they are able to produce it as per intervention instructions) which may then lead to the increases in perceived control over the symptom. And, as according to Bandura (1978), increases in perceived self-efficacy should lead to decreased symptomology.

For some of the high-reactant individuals, Shoham-Salomon's et al hypothesis may account for the observed reductions in time to sleep onset. This study agrees with Shoham-Salomon's claim that reactance is one key component of symptom reduction with a paradoxical intervention. However, since their study addressed procrastination behavior, it may be misguided to interpret the outcome of the present study in light of their "self-efficacy hypothesis". First, immediate reductions in time to sleep onset were observed in this study. It is unlikely that significant increases in perceived self-efficacy would take place in such short order. Instead it is more plausible that attempts to stay awake (or to "not stay awake") immediately interfered with the onset of anticipatory anxiety or cognitive rumination, and consequently the time it took to fall asleep decreased. Second, procrastination is much more an issue of motivation rather than, as with sleep onset, performance. Exerting greater efforts to reduce procrastinating behavior could result in reductions of the offending behavior. However, with sleep onset latency, trying harder to fall asleep typically results in increased time to sleep onset -- as discussed in *Chapter II* this is indeed a chief component of difficulties falling asleep. The point is, the effect of increases in perception of control over symptoms may be contingent upon the degree to which the desired behavior can be controlled volitionally. On other hand, increases in perceived control over falling asleep may indeed contribute towards the amelioration of difficulties falling sleep insofar as the cycle of anticipatory anxiety which exacerbates difficulties falling asleep would be diminished. Anticipatory anxiety can be described as an escalating spiral of fear of being out of control, and thus, any intervention which ultimately enhances perception of self-control would

help snub this cycle. Conceptually, the issue is one of sequence. That is, does disruption of dysfunctional patterns precede or follow perceptions of increased self-efficacy, or do the two phenomena emerge concurrently and interactionally? In the end, this issue requires careful experimental examination and consideration of theory. As Shoham-Salomon et al (1988) point out, one shortcoming of their study was that they did not perform follow-up measures to determine if increases in perceived self-efficacy, amongst those in the paradoxical intervention, ultimately lead to reduced symptomology.

As reported in the previous chapter (see Table 1) there were notable, but statistically non-significant, correlations between Therapeutic Reactance Scale scores and reduction in minutes to sleep onset in the two interview conditions for each of the two interventions. In the SP intervention group, a correlation of .01 was observed for the no-interview condition and a coefficient of .69 was observed for the one-hour interview condition. The SC group generated a correlation of - .81 for the no-interview condition and - .17 in the one-hour interview condition. These results suggest that high-reactant individuals might fare better if they receive a counselling interview.

This researcher hypothesizes that the interview enhanced reactant client's perceptions of threats to their freedom, intensified the positive double-bind created by the paradoxical intervention, and consequently these subjects tended to react against the instructions to stay awake more vigorously than those in the no-interview group. For many, the interview may have been an intense, and perhaps threatening, experience; and as a result interviewees may have become more invested in the study, either positively or negatively, than those in the no-interview condition. The more invested the SP subject became in the study, the greater the force of the bind. The client is instructed to do something ("try to stay awake") which appears to be counter to the helping context ("they should be telling me how to fall asleep, not that I

should stay awake"). At some level the client faces a benevolent dilemma: one, they can accept the implicit helping context and attempt to comply with the instructions (which, as argued, typically reduces time to sleep onset through disrupting dysfunctional patterns), or two, they can oppose the instructions by falling asleep. It should be noted that neither the client perceptions of the social influence qualities of the counsellor (as measured with the CRF-S), nor the quality of client-counsellor alliance (as measured with the WAI) were associated with treatment outcome at statistically reliable levels. This observation does not negate the soundness of the above hypothesis. Perhaps these two devices were insensitive to some aspect of counselling process which impacted upon reactant subjects in particular. As an expedient here, we might label the client's degree of "involvement" with the study as level of *client engagement*. Here this term refers to qualitative and quantitative aspects of the client's involvement with the task of reducing symptomology. This does not refer simply to level of "motivation", but to the extent to which the client embraces the challenge of change - very much akin to "courage" and "responsibility" in the existential sense. With this in mind, this researcher proposes that the level of client engagement is, in part, dependent upon the information which emerges from the dialectical process between counsellor and client. Through this dialectic, the client experiences memories, sensations, patterns of information, and the like, which would not occur *sans* interview. Client engagement is, in part, a function of these experiential elements.

In respect to the SC group, there was a negative, but not statistically reliable, relationship between reactance and client benefit. This relationship was weaker in the interview group than in the no-interview group. The interview may have very well contributed to client engagement, as with the SP interview group, but also the perceived creditability of the study may have increased relative to SC subjects in the no-interview condition. Any enhancement of the perceived credibility of the study

could have reduced the likelihood of a reactant subject not complying with the stimulus control procedure. Again, in contrast to a paradoxical intervention, genuine efforts to comply with the intervention are crucial to client benefit. The high, and statistically reliable, negative correlation between reactance and client benefit in the SC no-interview group suggests that high reactant individuals might have been skeptical of the intervention, had relatively little investment in the program, did not attempt to comply with the procedure, and consequently did not reduce time to sleep onset as dramatically as did their low-reactant (compliant) counterparts[3].

To summarize, high-reactant clients tend to benefit less with a stimulus control procedure as this strategy requires that they attempt to comply with specific instructions. But, high-reactant clients tend to do well with symptom prescription as this technique is effective in disrupting-dysfunctional sleeptime behavior and cognition irrespective if they comply with or defy the instructions. Low-reactant clients may tend to vigourously comply with instructions to stay awake, and thus benefit less from a symptom prescription procedure. Stimulus control would seem to be the intervention of choice with low-reactant clients as they tend to follow the intervention instructions - which are indeed effective in disrupting dysfunctional bedtime patterns. In light of the results of this study, a prudent counsellor would make some assessment of client reactance before choosing to implement either a symptom prescription or stimulus control intervention for problems falling asleep. If reactance was assessed as high, it would be rational to employ symptom prescription. If reactance was assessed as low, it would be sound to first implement a stimulus control procedure.

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[3] Correlations between reactance and intervention utilization were not statistically reliable.

Intervention Delivery

Reductions in time to sleep onset were observed with the implementation of invariant written self-help manuals. The magnitude of these effects were similar to those observed by past investigations of symptom prescription and stimulus control procedures employing conventional counselling setting deliveries (eg. Ascher & Turner, 1979; Turner & Ascher, 1982). In the introduction, it was argued that paradoxical techniques might not be effective in mass administered written form as paradoxical techniques require that a helper assess the client and carefully tailor intervention and delivery language in light of this assessment. In administering interventions, this study was not responsive to any individual client or system properties. The identical paradoxical intervention was delivered to all subjects in the S.P. group with good overall results. Thus, it would appear to be sound counselling practice to implement written, self-help symptom prescription or stimulus control manuals for difficulties falling asleep.

It seems then, that the instruction to attempt to stay awake with a brief description of the the rationale for this instruction is generally sufficient to elicit client processes which lead to reductions in time to sleep onset. Unlike the implementation of paradoxical interventions with individuals, the task of administering sound paradoxical interventions with families requires that the complexities which emerge from the aggregate of the family be considered (Selvini-Palazzoli et al, 1978). As Fisher et al (1981) caution, with families, "...the effective use of a paradoxical intervention requires a through knowledge of the family as a dynamic system" p. 34. Therefore, rather than claiming that it is not critical that paradoxical instructions are carefully tailored, it would seem more reasonable to suggest that with relatively simple client systems (e.g. an individual), tailoring of paradoxical interventions may not be as critical as with complex client systems.

Level of Stress

The data indicated that the two interventions were not differentially effective across levels of stress. Despite a wide range of stress levels, with a distribution of scores very similar to a reference sample of 532 participants in a stress management program (Leckie & Thompson, 1979), there was no notable correlation between level of stress and reduction in time to sleep onset. It could be that stress is not an important component of difficulties falling sleep. More importantly, it may be a question of how one goes about the task of falling asleep, and particularly how one responds to difficulties falling asleep. In other words, the absence or presence of functional bedtime strategies for falling asleep may overshadow whatever impact stress may have upon time to sleep onset. In the case of this study, the interventions provided sound methods for falling asleep quickly which were effective irrespective of stress level. Perhaps it is simply that some persons, whatever their level of life stress, have good strategies for falling asleep while others do not. Participants in this study likely entered the program with dysfunctional sleeptime behaviors but received apparently good strategies for reducing time to sleep onset, which minimized any impact of stress upon intervention outcome. In short, the results of this study suggest that level of client stress is not an important consideration in implementing either a stimulus control or symptom prescription procedure for sleep onset difficulties. Yet, given that this is the first study to investigate the relationship between life-stress and outcome with a paradoxical intervention for difficulties falling asleep, hard conclusions are unwarranted.

Limitations of the Study

In some respects this study is non-experimental in design. That is, TRS, SSI, CRF-S, and WAI scores (I.V.'s) were not experimentally manipulated. Herein lies a fundamental limitation in making conclusions about the data. There are at least five aspects of this study which limit the generalizability of the results:

One, difficulties in obtaining adequate numbers of suitable subjects prevented the construction of large experimental groups of high- and low-reactant individuals. Greater validity could have been secured by administering the TRS to a large sample of insomniacs and then randomly selecting only those scoring at the extremes of the distribution of TRS scores. Two groups would then be formed: high-reactant and low-reactant insomniacs; comparisons could be made between the two groups, and thus a truly experimental investigation could have been conducted.

All conclusions in respect to the relationship between reactance and decrease in time to sleep onset are qualified by the limitations of a bivariate analysis. Correlations statistically demonstrate some quantity of association, but not causal relationship. That is, two variables can be highly correlated, yet there may be no causal relationship between the two. A third unknown variable may account for the correlation between two variables. For example, although this is quite implausible, it could be that high anxiety levels cause psychological reactance, and the high anxiety levels which contribute to insomnia respond more favorably to paradoxical interventions than to stimulus control. If this was the case, we would expect that with a paradoxical intervention, high reactance would be associated with superior decreases in time to sleep onset relative to outcome with a stimulus control procedure .

Campbell and Stanley (1963) argue that the extent to which one can make claims about causal relationships with a correlational design is determined by the presence of a plausible causal hypothesis and the absence of plausible rival hypotheses. Indeed, I have provided causal explanations (e.g. double-bind theory) to account for differential effectiveness of stimulus control and symptom prescription procedures with high- and low-reactant individuals. The question is, are there plausible rival hypotheses to account for the observed relationship between psychological reactance and reductions time to sleep onset? At this point in time, I have no plausible alternative hypotheses which would contradict a causal relationship between reactance and outcome with a paradoxical intervention. Yet, even if persistent efforts to construct plausible rival hypotheses failed, this would not necessarily demonstrate that the correlations between reactance and client benefit are causally related, but it would provide support for the likelihood of a causal relationship. In end, we are left with a cautionary note about correlations, yet with good theoretical grounds to maintain that psychological reactance is a variable mediating between the implementation of either a stimulus control or symptom prescription intervention for difficulties falling asleep and reductions in time to sleep onset. High levels of reactance are related to small treatment effects when a stimulus control procedure is employed and relatively large treatment effects when a symptom prescription procedure is used.

Two, no significant correlations were observed between the quality of relationship established during the one-hour counselling interview (as measured by the WAI) and reduction in time to sleep onset, nor between subject's perception of social influence qualities of the counselor (as measured with the CRF-S) and reduction in time to sleep onset. I hesitate to make any strong claims about the relative importance of both the quality of client relationship and the client's perception of the counselor for the implementation of either a stimulus control or a

symptom prescription procedure for falling asleep difficulties. The single one-hour interview may have been inadequate to develop both the quality of relationship and the perception of social influence qualities of the counsellor which could be reliably measured with WAI and CRF-S. In other words, the CRF-S and WAI scores obtained in this study may have reflected immediate, superficial impressions rather than stable perceptions which would influence participant behavior. The subjects may have indeed left the interview with "something", but it was something not captured by either the WAI of CRF-S.

Three, the use of subjective reports of sleep behavior has been criticized (Borkovec & Weerts, 1976; Haynes, Adams, & West, 1982; Karcan, Salis, & Williams, 1973). The principal criticism is that insomniacs tend to overestimate time to sleep onset. This study did not compare samples of insomniacs and non-insomniacs, therefore the issue is whether or not any overestimation phenomenon was stable or variable across the three phases. That is, were overestimations, if any, greater during the first phase than during the second and third phases? This study was not designed to control for this effect. The use of objective measures of sleep would have eliminated concerns about variable time to sleep onset overestimation. On the other hand, there appears to be no information in the literature, theoretical or experimental, which would warrant one to make the case that overestimations of time to sleep onset systematically decrease over time. In fact, Ott et al (1983) suggest that one phenomenon which preserves subjective report of sleep as reliable is that the insomniac's tendency to overestimate time to sleep onset is consistent. Therefore, it is unlikely that subjects decreased overestimations of time to sleep onset over treatment phases, but the possibility of variable overestimation of sleep onset cannot be dismissed entirely.

Four, this study did not employ a control group. It can be argued that the reductions in time to sleep onset were a product of monitoring reactivity (Nelson,

Lipsinski, & Black, 1976). That is, observed reductions in time to sleep onset may have been a function of the activity of monitoring sleep behavior rather than the impact of the intervention. If a control group had been included, monitoring reactivity could have been partialled out in the statistical analysis, allowing for a less equivocal statement about any cause and effect relationship between the implementation of the intervention manuals and reduction in time to sleep onset. An exploratory analysis of the sleep behavior reported during the first seven days (baseline) indicated that there was no monitoring effect (i.e. reduction in time to sleep onset over these seven days). However, there is still the chance that monitoring reactivity was a component of observed reductions in time to sleep onset over the subsequent two phases. The literature review did not reveal any information on the issue of monitoring reactivity with the subjective measure of sleep behavior. In the end, there are few grounds to claim that monitoring reactivity was a significant factor in this study, but the phenomenon of monitoring reactivity influencing the results of this study cannot be dismissed categorically.

Five, the findings of this study are of limited generalizability to the population of paradoxical interventions. The symptom prescription manual used in this study was simple, specific, and not representative of the whole of the spectrum of paradoxical interventions. It is unclear, for example, as to how the relationship between psychological reactance and intervention outcome observed in this study applies to other presenting problems and client populations. In the first and second chapters the observation was made that there is a dearth of experimental research on paradoxical interventions. One objective of this thesis was to investigate the relationship between psychological reactance and treatment outcome with a paradoxical intervention. Indeed a noteworthy finding was made, yet I believe it to be a grave error to generalize the findings of this study to other paradoxical

interventions. It should be emphasized that paradoxical interventions are a diverse array of techniques with the common feature of *appearing* to be paradoxical.

Depending upon the context, the presenting problem, and the method of delivery the same paradoxical strategy can activate different change mechanisms. For instance, if we add the component of *restraining* to the delivery of a symptom prescription for an insomniac high in psychological reactance, we might end up activating resistance (i.e. the client acts counter to instructions) as a mechanism of change. The delivery might go something like this: " I think that at this time it is somewhat unlikely that you will be able to get over your insomnia very quickly. As an experiment, I believe that you must attempt to stay awake whenever you have difficulties staying awake." In contrast, with a insomniac client low in reactance who routinely tries "too hard" to fall asleep, we might elicit cooperative behavior with symptom prescription with the aim of disrupting a cycle of anticipatory anxiety. For example, "Whenever you find yourself feeling frustrated and anxious during sleeptime, I'd like you to simply give yourself permission to stay awake." Although both of these examples are instances of symptom prescriptions for insomnia, they would most likely elicit different change mechanisms. These two examples illustrate a real problem about the research of paradoxical interventions: the label *paradoxical* leads to the illusion that one intervention labelled as paradoxical necessarily precipitates the same change mechanisms as some other intervention labelled as paradoxical. In general, paradoxical intervention phenomena can be explained with a common language of communication theory, however at the level of specific interventions, deliveries, presenting problems, and clients, differences in detail are of great pragmatic importance.

Future Research Directions

As discussed there are some limitations to this study, and only a partial resolution is provided for the problems presented in *Chapter I,* namely:

1. The claim that paradoxical interventions are the treatment of choice with resistant clients.

2. Whether, or not, a written self-help manual incorporating a paradoxical intervention will help insomniacs fall asleep faster.

3. The efficacy of a paradoxical intervention is more sensitive to the quality of the client-counsellor relationship relative to a non-paradoxical intervention.

4. That individuals experiencing a high level of stress will respond more favorably to a paradoxical intervention than to a non-paradoxical intervention.

A number of research directions follow from the development and findings of this thesis. As discussed, there is a lack of research on the relationship between client reactance and intervention outcome with the spectrum of paradoxical interventions. This investigation observed differential relationships between psychological reactance and intervention outcome with paradoxical and behavioral interventions. The results of this study support the claim that paradoxical interventions may be the treatment of choice with reactant clients, however the correlational analysis of reactance with outcome does limit the forcefulness of this conclusion. Alternative plausible hypotheses could account for the observed relationship between reactance and intervention outcome. With the exception the very recent Shoham-Salomon et al (1988) investigation, only two studies (unpublished) (Hughes & Dowd, 1985; Dowd and Brockbank, 1985) have examined the relationship between psychological reactance and treatment outcome with a

paradoxical intervention. The latter two studies failed to observe any significant interaction between reactance and intervention type. As discussed earlier in this chapter, Shoham-Salomon et al (1988) observed a relationship between reactance and treatment outcome with a paradoxical intervention very similar to the one observed in this study.

It is unclear as to what extent there are common mechanisms underlying stimulus control procedures and paradoxical interventions. This study observed reductions in time to sleep onset, with both a symptom prescription procedure and a stimulus control procedure, in line with the magnitude of effect reported by previous investigations of these two procedures (e.g. Lacks et al, 1983; Ott et al, 1983). The survey of the literature on stimulus control and symptom prescription procedures for insomnia consistently revealed an absence of treatment effect differences between these two procedures when they are employed with two or more randomly selected groups. This study, too, observed a lack of outcome differences between the two procedures. Perhaps, then, these two procedures share some common underlying mechanisms. In particular, it is plausible that both of the procedures invest the client with increased perceptions of self-control and that dysfunctional behavioral and cognitive patterns are disrupted.

As discussed in *Chapter II*, the findings of Shoham-Salomon et al (1988) are consistent with the hypothesis that persons who receive a paradoxical intervention will respond in one of two ways: the person reacts against the instructions and thus symptoms are reduced, or complying with the instructions leads to perceptions of increased self-efficacy. However, and this is most important, these authors did not observe a positive relationship between increases in self-efficacy and symptom reduction in the paradoxical intervention group. With a paradoxical intervention, they found that clients either experience reactance and reduced symptomology, or show less reactance and increases in perceived self-efficacy, but "...increases in perceived

self-efficacy are unrelated to reduced symptomology." (p. 21). As Shoham-Salomon et al suggest, we are then left with two important questions regarding paradoxical interventions. One, if reactance leads to reduced symptomology, will this reduced symptomology ultimately result in perceptions of increased self-efficacy? Two, will reduced symptomology persist unless accompanied by increased perceived self-efficacy? Certainly these two questions are worthy of experimental attention, particularly with experimental designs incorporating long-term follow-up.

Earlier in this chapter it was suggested that it may be inappropriate to interpret the results of this study in light of the findings of Shoham-Salomon's et al (1988). There are important differences in the etiology of procrastination and insomnia. Thus, it would be worthwhile to directly test the hypothesis that it is the disruption of dysfunctional patterns (e.g. anticipatory anxiety) which is most responsible for reduction of time to sleep onset with a paradoxical intervention. In addition, the following hypothesis should be tested: administration of a paradoxical intervention for insomnia first results in the interruption of dysfunctional patterns which leads to reduction in time to sleep onset which eventually leads to increased perceived self-efficacy which in turn enhances sleep-onset performance. This hypothesis reflects my suspicion that symptom prescription for problems falling asleep does lead to increased perceived self-efficacy over the problem. However, changes in self-efficacy would be a consequence of repeated experiences of diminished sleep onset time resulting from either reactive behavior (going against the instructions) or disruption of dysfunctional sleep-time patterns.

Some have argued that the stimulus control paradigm, as presented by Bootzin (1972) is flawed. Haynes, Follingstad and McGown (1974) failed to observe any differences between insomniacs and non-insomniacs in respect to sleep-incompatible behaviors. If indeed sleep onset latency is a consequence of dysfunctional stimulus control, differences between good and poor sleeper's bedtime

behavior would be expected. Further, Haynes et al (1982) found that changing routine nighttime stimuli (i.e. shifting the environment from home to laboratory) did not alter time to sleep onset for poor sleepers. Haynes et al (1982) suggest that this finding should caution one about accepting the construct validity of the stimulus control paradigm of sleep onset latency. Haynes et al (1982) speculate that modifications of subject's attributions or concerns about sleep difficulties, or other cognitive events, may be underlie treatment effects.

A parsimonious explanation of stimulus control is suggested by the comments supplied by the stimulus control subjects; namely, getting out of bed is aversive. For example: " It is difficult to get out of bed, even after only 10 minutes..."; or, " ...I feel that getting up after 10 mins. is disruptive."; or, " For me to get up after ten minutes is very disturbing."; or, " 10 minutes to fall asleep isn't long enough, it's just disturbing. I'll agree to 20 (*minutes*), if you will". Such comments were common. If it is the case that most subjects found getting out of bed every time they were unable to fall asleep within ten minutes aversive, and that they did indeed reduce time to sleep onset with this procedure, there may be some validity to this *aversiveness* hypothesis. Two similar theoretical positions are congruent with this hypothesis: One, the client simply avoids the punishment of not falling asleep by falling asleep (avoidance behavior as explained by S-R learning theory). Two, as per the rationale underlying *Ordeal Therapy* (Haley, 1984), having the symptom is made to be more of an ordeal than not having it and consequently the client gives up the symptom. With a stimulus control procedure, not falling asleep means having to repeatedly climb out of bed. Most of us can well imagine how much of an ordeal it would be to keep getting out of bed -- especially when we have the option to just lay there and fall asleep. Being the comfort loving creatures that we are, it is little wonder that the stimulus control procedure encourages reductions in time to sleep onset. In addition, initial reductions in time to sleep onset with a stimulus control procedure, which may be

ultimately attributable to "ordeal phenomena", may enhance perceived self-efficacy which would contribute towards the maintenance of reduced symptomology. In short, there may be considerable theoretical profit to be gained in examining mechanisms, other than those proposed by Bootzin, underlying a stimulus control procedure.

In respect to counsellor effects, this study did not observe a statistically reliable relationship between indices of the quality of the counselling interview and treatment outcome . Given the lack of previous research on this matter, further study is indicated. Perhaps the greatest deficit in the paradoxical intervention literature is evidence to evaluate the importance of the client-counsellor relationship. Turner and Ascher (1982) and Westerman et al (1987) are the only studies to report on the matter. I believe that this issue is important insofar as in identifying some of the counsellor or relationship properties which facilitate change, with a paradoxical strategy, some light would be shed on mechanisms underlying client gain with a paradoxical intervention. That is, if certain counsellor or client-counsellor relationship qualities impact upon intervention outcome, then these qualities are elements related to the mechanisms underlying a paradoxical intervention. For instance, the client's trust in the helper may be crucial for the creation of a potent bind for the client. Obviously, if particular counsellor or counselling relationship qualities promote paradoxical intervention outcome, then it behooves the counsellor employing paradoxical interventions to facilitate these qualities.

Most of the research problems identified in this thesis have been restricted to investigations employing insomniacs or procrastinators as a target population. The literature, or this study, do not lend themselves to broad claims about the properties of paradoxical interventions in general. The question persists as to whether or not that which holds for, say, the amelioration of insomnia with a paradoxical intervention holds true for child management problems in the context of a family. The direction of

experimental research should move towards the spectrum of routine presenting problems that are addressed clinically with paradoxical interventions.

Finally, in their review of paradoxical interventions, Dowd and Milne (1986) observed a lack of studies which track change patterns associated with paradoxical interventions over an extended period of time. As Shoham-Salomon and Rosenthal's (1987) meta-analysis suggests, the effects of a paradoxical intervention tend to be more durable relative to non-paradoxical interventions. Perhaps Shoham-Salomon and Rosenthal's finding of client gain to be more salient, one month post-treatment, with a paradoxical intervention than with a non-paradoxical intervention is reflective of a *sleeper effect* ; that is, the impact of a paradoxical intervention is not maximally manifest until some period after the delivery of the intervention. Further, paradoxical interventions may initiate changes that are more resistant to extinction than are behavioral interventions. This study observed group reductions in time to sleep onset which were immediate after the administration of the intervention manuals. At Phase Three reductions persisted (depending on the particular subject, 17 - 20 days post-administration). Yet, there were no significant differences in reduction in time to sleep onset between symptom prescription and stimulus control. It would be interesting to measure the participant's sleep behavior over an extended period (e.g. follow-ups at one-month, six-months, 12 months) to determine if the symptom prescription is generally superior over time, if patterns of client change with a paradoxical intervention are different relative to stimulus control, or if the two interventions ultimately result in differential increases in perceived self-efficacy.

APPENDIX A

DELTA PROJECT APPLICATION FORM

INTRODUCTION TO DELTA PROJECT

1. Your involvment in the project will be as follows:

i. Fill out four to five questionaires (general personal information, personal attitudes and impressions).

ii. complete a daily sleep-log for 21 days.

iii. follow a self-help manual for sleeping difficulties.

2. I recognize that this program is not a substitute for medical care from a physician.

3. I am aware that I may withdraw my participation at any time.

4. I am aware of the importance of completing all forms, records, and the like accurately. I realize that this information is vital for the project's investigation of sleeping difficulties and for future refinements of the procedures under investigation.

I _____ have carefully considered the above, and I voluntarily agree to comply with the procedures of the study in good faith.

SIGNATURE:_____ DATE_____, 1987

Thank You

Simon Fraser University

- INFORMED CONSENT BY SUBJECTS TO PARTICIPATE IN A RESEARCH PROJECT OR EXPERIMENT

Note: The University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of subjects. This form and the information it contains are given to you for your own protection and full understanding of the procedures, risks and benefits involved. Your signature on this form will signify that you have received the document described below regarding this project, that you have received an adequate opportunity to consider the information in the document, and that you voluntarily agree to participate in the project.

Having been asked by ___Mark Goheen_____ of the

_____Education_____ Faculty/School/ Department of Simon Fraser University to participate in a research project experiment, I have read the procedures specified in the document entitled:

___Introduction to Delta Project_____

I understand the procedures to be used on this experiment and the personal risks to me in taking part.

I understand that I may withdraw my participation in this experiment at any time.

I also understand that I may register any complaint I might have about the experiment with the chief researcher named above or with

_____,

Dean/Director/Chairman of _____Education_____ Simon Fraser University.

Copies of the results of this study, upon its completion, may be obtained by contacting:

_____ _____Mark Goheen   Faculty of Education_____

I agree to participate by _Fill out 4 to 5 questionaires (general personal_

information, personal attitudes). Complete a daily sleep-log for at least

3 weeks. Follow a self-help manual for sleeping difficulties.

                              (state what the subject will do)
as described in the document referred to above, during the period: _____

at _____Simon Fraser University_____
                    (place where procedures will be carried out)

NAME (Please print): _____

ADDRESS: _____

_____

SIGNATURE: _____ WITNESS: _____

DATE: _____

Once signed, a copy of this consent form and a subject feedback form should be provided to you.

DELTA PROJECT

PERSONAL INFORMATION

Please be as accurate as you can. ALL INFORMATION THAT

YOU PROVIDE WILL BE HELD IN THE STRICTEST CONFIDENCE.

THANK YOU

Name: _____

Phone: _____

Best time to contact:_____

1. Age: _____

2. Occupation:_____

3. Marital status : single___ married___ living together___ divorced___

4.. Please indicate the average number of times **per day** you consume one serving of the following: a) coffee_____ b) chocolate_____ .

c) tea___   d) cola___

5. On average, how many alcoholic drinks to you consume per week (a drink is defined as 1 oz. of liquor, or 1 beer, or 5 oz. of wine).

WEEKLY AVERAGE _____.

6 Are you currently being treated with any prescription drugs?

If so, what is the name(s)_____.

7. On average, how many times per week do you use the following over-the-counter drugs: a) sleep aids _____ b) diet pills___ .
c) wakeup pills___ d) decongestants___

8. On average, how many time per week do use some type of drug which is NOT obtained from a pharmacy: WEEKLY AVERAGE_____.

9. Date of your last check-up from your physician_____

10. Do you receive regular check-ups from your physician_____

11.. How would you rate your overall level of health:

poor   fair   excellent

1--------------2--------------3--------------4--------------5

12. Does your family have a history of sleeping problems, if so, who?

_____.

13.. Consider the past 21 days, what's your best estimate of the average number of <u>hours of sleep</u> per night _____.

14. Considering the same 21 days, on average how many **minutes** did it take you to <u>fall asleep</u> _____.

15. During a typical week, what's the **most** sleep you would get on a single night_____.

16. During a typical week, what's the **least** sleep you would get on a single night*_____.

17. During a typical week, on how many nights would it take you 30 min. or more to fall asleep _____.

18. How many nights per week do you <u>awaken during</u> the night _____

19. On these nights how many <u>times per night</u> do you awake _____.

20. How many times per month do you wake up and are <u>unable to</u>

<u>go back asleep</u> _____.

21. How much difficulty do you have in falling asleep:

no difficulty   some difficulty   great difficulty

1-------------2-------------3-------------4-------------5

22. How rested do you feel in the morning:

completely rested   somewhat rested   completely unrested

1-------------2-------------3-------------4-------------5

23. Overall, how much do you enjoy sleep:

much enjoyment   some enjoyment   no enjoyment

1-------------2-------------3-------------4-------------5

24. Have you ever received help specifically for a sleeping problem .

If so, what approach was taken_____

_____

_____
_____

25. When you have troubles falling asleep, what do you usually do about it:

_____

_____

_____

_____

_____

_____

26. Do you worry about things throughout the day:

never   sometimes   always

1---------------2-------------3-------------4-------------5

27. Do you worry about things at night:

never   sometimes   always

1-------------2-------------3-------------4-------------5

28. How much do you expect your sleep difficulties to change as a

result of participating in this study?

no   some   great

change   change   change

1-------------2-----------3-------------4-------------5

29. For how long have you had difficulties falling asleep?

years_____   months_____.

(cd_____)

APPENDIX B

INTERVIEW MANUAL

INTERVIEW SESSION GUIDE

The single interview is to be conducted as if it were the initial interview of a comprehensive intervention program. The general focus is to be upon providing a forum for the client to express their peceptions of their problem; for the client to be "heard". The goal is **not** one of a "problem-solving" session.

Specifically you have six goals which are to be addressed in the following sequence:

Have the client freely express their perceptions of their sleeping problem.Do not evaluate (judge) their perceptions, simply make it clear that you "hear" them and that you empathize with them (eg. have them give you their "theory" about their sleep problems, reflect, paraphrase, summarize, etc.). **(Spend at least 15 min. towards this goal)**

2. Direct the clent towards briefly exploring what/how things would be different if they "lost" their symptom (eg. " how would things be different if you no longer had difficulties falling asleep- what/who would it effect...?"). **(Spend approx. 10 min. here)**

3. Direct the client towards articulating about past attempts to solve "the problem". (eg. what have they tried, what happened, what is their theory about the failure of past attempts, etc.). Furthermore, when appropriate, attempt to "normalize" their circumstances through sharing experiences that you may have in common. Of course, beware not to minimize or trivialize their experiences.

On the other hand be careful not to endorse their position. **(Spend approx. 10 min. here)**

4 . "Wrap-up" the interview. Briefly summarize what has been expressed by the client. Strive to keep judgements or "advice" to minimum. **(Spend approx. 10 min. here. Total elapsed time: 45 min.)**

5. Deliver the *Client Perception* package as per instructions **(Allow 10 min. here)**

6. With no more than 5 min. left in the hour, deliver the treatment envelope when the participant has completed the client perception package. Hand the treatment envelope to the client with these instructions: "Enclosed you will find the self-help treatment manual and **all** of the instructions that you will need to complete the program, best of luck". Thank them warmly for their participation in the study, and show them to the door. If the client insists upon you commenting about the package, make a description of the format (eg. You will find the sleep-logs that you are already familiar with, a set of carefully worded instructions, and a self-help manual). If the client is especially persistant about you revealing information about the package, state: " I can appreciate your curiousity, a lot of research and care went into wording the instructions so as to ensure that they are complete and clear, frankly at this moment I don't think that there is anything that I might add which would be make things more complete or clear". With a "curious" client, be respectful of their concerns, but divert their concerns by listing the items contained within the envelope and maintaining confidence in the adequacy of the instructions. NEVER suggest that you cannot reveal any information the package.

APPENDIX C

STIMULUS CONTROL MANUAL

PLEASE READ THE FOLLOWING CAREFULLY

Although there may be as many different reasons for people having difficulties falling asleep as there are people, research has shown that the behaviors or "rituals" that we have around bedtime, and during our attempts to fall asleep, often get in the way of falling asleep. You may be surprised to realize that some of the behaviors that are believed to help one fall asleep, may in fact complicate the natural mechanisms which are responsible for falling asleep. A good example is that many people use the bedtime environment as a place to lie down and sort out the day's problems and create the plan of "attack" for the next day: a time to finalize and to "put to rest" the problems of the day . Using the bedtime environment for the purposes of sorting out problems can often lead to worry about life problems, and ultimately a lot of anxiety which can make sleep difficult. You may even have come to associate you own bed with feelings of anxiety. I'm sure that you can think of many, and perhaps more personally relevant, examples of bedtime rituals which, in the end, get in the way of falling asleep. Regardless of which specific behaviors are getting in the way of your falling asleep, the scientific literature leads to this conclusion: by persistantly associating your bed **ONLY** (sex being the sole exception) with the behavior of falling asleep quickly, you will develop a powerful pattern of falling asleep quickly. Of course, this is easier said than done. By carefully controlling your activities, by associating your bed with falling asleep, you can create a bedtime environment which will allow you to fall asleep more quickly. The key, then, is to be patient, but persistant, to stick to the instructions. As with most things in life, change is not spontaneous, but is achieved by striving towards goals with a sound plan.

It is most important that you **follow** the instructions below for the program to be effective. You may find that anywhere from a few days to a week is required for the suggestions to take effect.

1. Do not consume any products which contain caffeine with-in three hours of bedtime (eg. coffee [except decaf] , tea, chocolate, cola, some pain relievers).

2. If you smoke, do not smoke within one-hour of bed time.. If you must smoke, smoke as little as possible, and NEVER just prior to going to bed. If for some reason you cannot follow this step, try to keep your smoking to an absolute minimum.

3. Lie down intending to go to sleep **only** when you are sleepy.

4. Do not use your bed for anything except sleep; that is, do not read, watch T.V., eat, or worry in bed. Sexual activity is the **only** exception to this rule. On such occasions, the instructions are to be followed afterward when you intend to go sleep.

5. If you find yourself unable to fall asleep, **get up and go into another room.** Stay up as long as you wish and then return to your bedroom to sleep. Although we do not want you to watch the clock, we want you to get out of bed if you do not fall **asleep immediately.** Remember the goal is to associate your bed with falling asleep *quickly !* If you are in bed more than about **10 minutes** without falling asleep and have not gotten up, you are not following this instruction.

6. If you still cannot fall asleep, repeat step 3. Do this **as often** as is necessary throughout the night.

7. Set your alarm and get up at the **same time** every morning irrespective of how much sleep you got during the night. This will help your body aquire a consistent sleep rhythm.

8. Do not nap during the day.

9. **Reherse instructions 4, 5, and 6 every night, for the next 14 nights <u>before</u> going to bed.**

Some people find it useful to place these instructions in a place that one is likely to see just before bedtime (eg. the bathroom). This ensures that you have an opportunity to read the instructions to yourself just before bedtime.

APPENDIX D

SYMPTOM PRESCRIPTION MANUAL

READ THE FOLLOWING CAREFULLY

Unlike many of our daily behaviors, sleep is a psychological and physiological process not fully under our voluntary control. Sometimes our attempts to control the process of falling asleep are frustrated by the very fact that we attempt to control it. That is, the more that we try to fall asleep, the more frustrated we can become, and the more frustrated that we become, the harder it is to fall asleep. Sometimes it's as if we get on a "merry-go-round" we can't get off of. Research has shown that attempts to control the activity of our non-voluntary physiological systems (such as our Central Nervous System), which control some steps of the sleep process, can ironically result in an increased psychological sense of anxiety and frustration, and a consequent increase in wakefulness. In other words, the more that you try to make yourself fall asleep, the less likely it is that you will fall asleep quickly. It could be that you have already sensed the frustration of trying to force yourself to fall asleep, only to find that you have increased the difficulty of falling asleep. This is not to say that the process of falling asleep cannot be affected with sound treatment strategies. To the contrary! For most people the stumbling block preventing sleep is not lack of effort, but rather difficulty in channeling this desire to fall asleep in a manner which is sensitive to the complex nature of the process of falling asleep. This treatment program is directed at accomodating the complex physiological and psychological processes which are involved in the phenomenon of falling asleep.

As with most sound programs directed at helping people make positive changes, there are a number of steps to follow. However, the goal is not one of following instructions to the point of becoming frustrated, but rather to attempt to

use the steps that others have found helpful. There is no ultimate standard of success here, only your genuine attempts to overcome sleeping difficulties in a manner which respects the complexity of your physiological and psychological systems.

Nonetheless, we believe that the following constitutes the <u>minimum</u> suggestions that you <u>need</u> to follow. You may find that anywhere from a few days to a week is required for the suggestions to take effect.

1. Do not consume any products which contain caffiene with-in three hours of bedtime (eg. coffee [except decaf], tea, chocolate, cola, some pain relievers).

2. If you smoke, do not smoke with-in one hour of bed-time. If you must smoke, smoke as little as possible, and NEVER just prior to going to-bed. If for some reason you cannot follow this step, try to keep your smoking to an absolute minimum.

3. Once you have decided that it is your bedtime, do not do anything which would prevent you from falling asleep (eg. leaving the lights on, reading, watching T.V., etc.).

4. As you lay comfortably in your bed, give yourself permission to **<u>STAY</u> <u>AWAKE</u>**. If you do find yourself feeling hurried or worried about falling asleep, simply remind yourself that **this is O.K**. as you are in fact permitting yourself to **to stay awake**. Indeed, as you are laying in bed awaiting sleep, allow yourself to try to stay awake. In fact, if you find yourself, by some chance, laying in bed feeling frustrated about the possibility of not falling asleep, this is all the

more reason for you to remind yourself, that this is O.K. as you are trying to stay awake. In addition, you can allow yourself to observe the complex, subtle, and even pleasant ways in which your body has received the message that you are trying to stay awake. Simply observe the experience, there is really no need to explain or understand. Remember, feel free to give yourself the message: "try to stay awake".

5. However, if you start to fall asleep you <u>may</u> want to allow yourself to fall asleep; <u>this is perfectly fine</u>. But, if you decide not to sleep, this too is O.K. Go ahead and attempt to stay awake as instructed.

6. **Reherse instructions 4 and 5 every night, for the next 14 nights <u>before</u> going to bed.**

Some people find it useful to place these instructions in a place that one is likely to see just before bedtime (eg. the bathroom). This ensures that you have an opportunity to read the instructions to yourself just before bedtime.

APPENDIX E

SLEEP LOGS FOR PHASES 1,2, & 3

WEEK 1

WELCOME TO **DELTA PROJECT.** The enclosed forms are your SLEEP
LOGS for the next seven days (eventually you will have completed a total of 21
documents). These sleep logs are an indispensable part of the program as they
not only provide some important research information, they provide you with an
opportunity to monitor your own reactions. Therefore it is critical that you fill-out
all of them as directed and as accurately as you can. If for some reason you
forgot to, or could not fill one out, be sure to complete it as soon as possible.
Chances are that it may take a couple of days before you develop an automatic
routine of filling out your sleep-logs, this is O.K. You'll soon notice that only a
minute or so, twice daily, is needed to keep an accurate documentation.

Notice that the upper half of your sleep-log (questions 1-5) is to be filled out
BEFORE going to bed, and the latter half is to be filled out as SOON as you get
up in the morning. Also notice that in the upper left-hand corner, the number of
the night is printed (for example, the sleep log with # 1 in the upper left-hand
corner should have questions 1-5 completed before going to bed on night 1 ,
while questions 6-10 should be filled out the following morning, which will be
day 2. Note: in the upper right-hand corner there are some letters followed by a
number- this is your identity code which ensures your anonymity). If you have
the experience of waking-up in the night, and therefore repeating the process of
falling asleep, indicate how long it took you to fall asleep each time on sleep-log
item 7 (seperate **each and every** falling asleep period with a slash. eg. If you
had taken 35 min. to fall asleep when you went to bed, then awoke later and
had taken 33 min. to fall back asleep, you would record: 35 / 33. Most people
have found it worthwhile to mark-down on their calender the date
corresponding to Night #1, #2, #3, ...#7. Start to record your sleep behavior
tonight. (Please record today"s date: today is _____, 1987). After
the week is over, and the sleep logs have been completed, place them, and all
other materials, in the envelope provided and mail it immediately. Within a few
days after completeing the logs for week one, you will receive, in the mail, the
materials for week 2.

THANK YOU

WEEK 2

The enclosed forms are your SLEEP LOGS for the next seven days (for nights 8-14). It is likely that you have now developed an automatic routine which allows you to fill out the logs accurately in only a minute or two. Remember, if you have the experience of waking-up in the night, and therefore repeating the process of falling asleep, indicate how long it took you to fall asleep each time on sleep-log item 7 (seperate **each and every** falling asleep period with a slash. eg. If you had taken 35 min. to fall asleep when you went to bed, then awoke later and had taken 33 min. to fall back asleep, you would record: 35 / 33. After the week is over, and the sleep logs have been completed, place them, and any other materials, in the envelope provided and mail it immediately. Within a few days after completeing the logs for week two, you will receive, in the mail, the final materials for week three. (Please record today's date: today is _____, 1987)

This is your self help manual for sleeping difficulties. Please read it carefully, and allow yourself to implement the instructions for at least the next 14 days. Although you will soon memorize the instructions, it is important that you review the instructions so as to visually reinforce the specific details.

WEEK 3

The enclosed forms are your SLEEP LOGS for the next seven days (for nights 15-21). Remember, if you have the experience of waking-up in the night, and therefore repeating the process of falling asleep, indicate how long it took you to fall asleep each time on sleep-log item 7 (seperate **each and every** falling asleep period with a slash. eg. If you had taken 35 min. to fall asleep when you went to bed, then awoke later and had taken 33 min. to fall back asleep, you would record: 35 / 33. After the week is over, and the sleep logs have been completed, place them, and any other materials, in the envelope provided and return it . After completeing the logs for week three, you will receive, in the mail, a summary of the research. (Please record today's date: today is

_____, 1987)

THANK YOU

NIGHT # _____ DATE_____, 1987   sp_____

SLEEP LOG

IT IS VERY IMPORTANT THAT YOU FILL OUT THE SLEEP LOGS AS
DIRECTED. IF BY CHANCE YOU FORGET TO FILL OUT LOG, PLEASE FILL IT
OUT AS SOON AS POSSIBLE.

FILL OUT THE FOLLOWING **BEFORE YOU GO TO BED**:

1. How rested did you feel throughout the day:

    not very   moderately   completely

    1-----------2------------3------------4------------5

2. The time you expect to go to bed_____.

3. Your best estimate of the total time you spent napping today_____-___.

4. How anxious or "worried" did you feel today:

    not at all   a little   ·   very anxious

    1------------2------------3------------4-------------5

5. Rate your general mood tonight:

    lousy   not bad   great

    1-----------2------------3------------4--------------5

DID YOU FILL OUT Q.'S 1-5 BEFORE GOING TO BED?   YES___ NO___

****

FILL OUT THE FOLLOWING AS **SOON AS YOU GET UP IN THE
MORNING**:

6. Your best estimate of how long it took you to fall asleep (in min.):

    _____.

7. What time did you wake up at_____.

8. Make an estimate of how many times you told yourself, in some way,
    to stay awake: _____.

9. Total nights sleep: Hrs._____ Min. _____.

10. Rate the overall restfullness of the nights sleep:

    poor   fair   excellent

    1-----------2-----------3----------4-----------5

DID YOU COMPLETE QUESTIONS 6-11 THIS MORNING? YES___ NO___

PLEASE WRITE ANY COMMENTS OR OBSERVATIONS OF THE BACK

APPENDIX F

SYMPTOMS OF STRESS INVENTORY (SOS)

SYMPTOMS OF STRESS INVENTORY

A Self Assessment

SAMPLE

THIS QUESTIONNAIRE IS DESIGNED TO MEASURE
THE DIFFERENT WAYS PEOPLE RESPOND TO STRESSFUL
SITUATIONS. IN THE BOOK ARE SE: ... QUESTIONS
DEALING WITH VARIOUS PHYSICAL, PSYCHOLOGICAL
AND BEHAVIORAL RESPONSES. WE ARE PARTICULARLY
INTERESTED IN THE FREQUENCY WITH WHICH YOU MAY
HAVE EXPERIENCED THESE STRESS RELATED SYMPTOMS
DURING THE PAST ___ 4 WEEKS ___ .

DEPARTMENT OF PSYCHOSOCIAL NURSING
UNIVERSITY OF WASHINGTON

PLEASE CIRCLE THE MOST APPROPRIATE RESPONSE TO EACH QUESTION.

SOMETIMES PEOPLE UNDER STRESS EXPERIENCE
A VARIETY OF PHYSICAL RESPONSES. DURING
THE DESIGNATED PERIOD HAVE YOU BEEN
BOTHERED BY:

		Never	Infrequently	Sometimes	Often	Very Frequently
1.	Flushing of your face............	0	1	2	3	4
2.	Sweating excessively even in cold weather	0	1	2	3	4
3.	Severe itching...................	0	1	2	3	4
4.	Skin rashes	0	1	2	3	4
5.	Breaking out in cold sweats	0	1	2	3	4
6.	Cold hands or feet	0	1	2	3	4
7.	Hot or cold spells	0	1	2	3	4

HAVE YOU NOTICED ANY OF THE FOLLOWING
SYMPTOMS WHEN NOT EXERCISING:

		Never	Infrequently	Sometimes	Often	Very Frequently
8.	Pains in your heart or chest	0	1	2	3	4
9.	Thumping of your heart	0	1	2	3	4
10.	Rapid or racing heart beats	0	1	2	3	4
11.	Irregular heart beats	0	1	2	3	4
12.	Rapid breathing	0	1	2	3	4
13.	Difficult breathing	0	1	2	3	4

HAVE YOU EXPERIENCED:

		Never	Infrequently	Sometimes	Often	Very Frequently
14.	A dry mouth	0	1	2	3	4
15.	Having to clear your throat often	0	1	2	3	4

1

		Never	Infrequently	Sometimes	Often	Very Frequently
16.	A choking lump in your throat	0	1	2	3	4
17.	Hoarseness	0	1	2	3	4
18.	Nasal stuffiness	0	1	2	3	4
19.	Colds	0	1	2	3	4
20.	Colds with complications (e.g. bronchitis)....................	0	1	2	3	4
21.	Increased asthma attacks	0	1	2	3	4

HAVE YOU EXPERIENCED:

		Never	Infrequently	Sometimes	Often	Very Frequently
22.	Spells of severe dizziness	0	1	2	3	4
23.	Feeling faint	0	1	2	3	4
24.	Blurring of your vision	0	1	2	3	4
25.	Migraine headaches	0	1	2	3	4
26.	Tension headaches	0	1	2	3	4
27.	Sinus headaches	0	1	2	3	4
28.	Increased seizures (convulsions)	0	1	2	3	4.

HAVE YOU BEEN BOTHERED BY:

		Never	Infrequently	Sometimes	Often	Very Frequently
29.	Indigestion	0	1	2	3	4
30.	Nausea	0	1	2	3	4
31.	Severe pains in your stomach ..	0	1	2	3	4
32.	Increased appetite	0	1	2	3	4
33.	Poor appetite	0	1	2	3	4

2

34. Loose bowel movements or
    diarrhea 0   1   2   3   , 4

35. Heartburn 0   1   2   3   4

36. Constipation 0   1   2   3   4

MUSCLE TENSION IS A COMMON WAY OF EX-
PERIENCING STRESS.   HAVE YOU NOTICED
EXCESSIVE TENSION, STIFFNESS, SORENESS OR
CRAMPING OF THE MUSCLES IN YOUR:

37. Neck 0   1   2   3   4

38. Jaw 0   1   2   3   4

39. Forehead 0   1   2   3   4

40. Eyes 0   1   2   3   4

41. Back 0   1   2   3   4

42. Shoulders 0   1   2   3   4

43. Hands or arms 0   1   2   3   4

44. Legs 0   1   2   3   4

45. Abdomen or stomach 0   1   2   3   4

IN YOUR DAY-TO-DAY ACTIVITIES, HAVE YOU
NOTICED SYMPTOMS OF ANXIETY OR RESTLESSNESS,
SUCH AS:

46. Fidgeting with your hands 0   1   2   3   4

47. Pacing 0   1   2   3   4

48. Chewing on your lips 0   1   2   3   4

3

49.	Difficulty sitting still	0	1	2	3	4
50.	Increased eating	0	1	2	3	4
51.	Increased smoking	0	1	2	3	4
52.	Biting your nails	0	1	2	3	4
53.	Having to urinate frequently ...	0	1	2	3	4
54.	Having to get up at night to urinate	0	1	2	3	4
55.	Difficulty in falling asleep ...	0	1	2	3	4
56.	Difficulty in staying asleep at night	0	1	2	3	4
57.	Early morning awakening	0	1	2	3	4
58.	Changes in your sexual relationship	0	1	2	3	4

HAVE YOU NOTICED:

59.	Worrying about your health	0	1	2	3	4
60.	Stuttering or stammering	0	1	2	3	4
61.	Shaking or trembling	0	1	2	3	4
62.	Being keyed up and jittery	0	1	2	3	4
63.	Feeling weak and faint	0	1	2	3	4
64.	Frightening dreams	0	1	2	3	4
65.	Being uneasy and apprehensive ..	0	1	2	3	4

4

STRESS IS OFTEN ACCOMPANIED BY A VARIETY
OF EMOTIONS. DURING THE DESIGNATED
PERIOD HAVE YOU FELT:

		Never	Infrequently	Sometimes	Often	Very Frequently
66.	Alone and sad	0	1	2	3	4
67.	Unhappy and depressed	0	1	2	3	4
68.	Like crying easily	0	1	2	3	4
69.	Like life is entirely hopeless.	0	1	2	3	4
70.	That you wished you were dead .	0	1	2	3	4
71.	That worrying gets you down ...	0	1	2	3	4

DOES IT SEEM:

		Never	Infrequently	Sometimes	Often	Very Frequently
72.	That little things get on your nerves	0	1	2	3	
73.	You are easily annoyed and irritated	0	1	2	3	4
74.	When you feel angry, you act angrily toward most everything.	0	1	2	3	4
75.	Angry thoughts about an irritating event keep bothering you	0	1	2	3	4
76.	You become mad or angry easily.	0	1	2	3	4
77.	Your anger is so great that you want to strike something ..	0	1	2	3	4
78.	You let little annoyances build up until you just explode	0	1	2	3	4
79.	You become so upset that you hit something	0	1	2	3	4

5

IN YOUR DAY-TO-DAY LIVING DO YOU FIND:

		Nev	In	So	Oft	Fre
80.	Working tires you out completely	0	1	2	3	4
81.	Severe aches and pains make it difficult for you to do your work	0	1	2	3	4
82.	You get up tired and exhausted in the morning even with your usual amount of sleep	0	1	2	3	4
83.	You suffer from severe nervous exhaustion	0	1	2	3	4
84.	You get nervous and shaky when approached by a superior	0	1	2	3	4
85.	Your thinking gets completely mixed up when you have to do things quickly	0	1	2	3	4
86.	You become so afraid you can't move	0	1	2	3	4
87.	You must do things very slowly to do them without mistakes	0	1	2	3	4
88.	You get directions and orders wrong	0	1	2	3	4
89.	You are unable to keep thoughts from running through your mind .	0	1	2	3	4
90.	You are fearful of strangers and/or strange places make you afraid	0	1	2	3	4
91.	Sudden noises make you jump or shake	0	1	2	3	4

6

		Never	Infrequently	Sometimes	Often	Very Frequently
92.	Frightening thoughts keep coming back	0	1	2	3	4
93.	You become suddenly frightened for no good reason	0	1	2	3	4
94.	You have difficulty in concentrating	0	1	2	3	4

95. What other ways do you experience stress, tension or anxiety?

_____

_____

_____

_____

MEN GO TO ITEM 108.

The following section is for WOMEN ONLY:

AROUND THE TIME OF YOUR PERIOD DO YOU FEEL:

		Never	Infrequently	Sometimes	Often	Very Frequently
96.	Tense or jumpy	0	1	2	3	4
97.	Mildly depressed	0	1	2	3	4
98.	Moderately depressed	0	1	2	3	4
99.	Severely depressed	0	1	2	3	4
100.	Have you been pregnant within the last year	yes		no		
101.	Did you experience any complications during this pregnancy	yes		no		

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102. Did you experience any com-
     plications during or after
     delivery ....   yes   no

103. Have you had a hysterectomy ....   yes   no

104. Have you had both ovaries
     removed ....   yes   no

105. In the last year have you
     experienced any symptoms due
     to this surgery ....   yes   no

106. Have you experienced menopause .   yes   no

107. In the last year have you
     experienced any symptoms related
     to menopause ....   yes   no

CIRCLE THE APPROPRIATE NUMBERS IN ITEMS 108 - 111.

108.   How many cigarettes per day
       do you smoke?

     0. none

     1. less than 6

     2. between 7 and 19

     3. 20 (1 pack) or more

109. How much coffee or tea do you
     drink each day?

     0. none

     1. 3 cups or less

     2. 4 to 7 cups

     3. 8 or more cups

110. How often do you drink alcoholic
     beverages?

     0. never

     1. less than once per month

     2. once or twice per week

     3. weekends only

     4. daily or four or more days·per week

111. When you do drink, how much do you usually drink?

     0. none

     1. 1 or 2 drinks per occasion

     2. 3 to 4 drinks per occasion

     3. 5 or more drinks

112. What type of alcoholic beverage do you usually drink?
     (Circle all appropriate answers.)

     1. Beer   3. Liquor

     2. Wine

9

PERSONAL DATA

113. Age: _____

114. Sex: Female _____ Male _____

115. Occupation: _____

116. Ethnic background:

    1. Afro-American

    2. Asian American

    3. Caucasian

    4. Chicano or Spanish surnamed

    5. Native American

117. Circle the number of years of education you have completed:

8 9 10 11 12	13 14 15 16	17 18 19 more
High School	College	Graduate

118. Circle the highest educational degree you have completed:

    a. Grade school

    b. High school

    c. Community College (Associate degree)

    d. College (Bachelor's degree)

    e. Master's degree

    f. Doctoral degree

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APPENDIX G

THE THERAPEUTIC REACTANCE SCALE (TRS)

Personal Attitude Inventory

Instructions: Please answer each item by circling the appropriate answer.
SD = strongly disagree   **D** = disagree **A** = agree **SA** = strongly   agree

1. If I receive a lukewarm dish at a restaurant   SD   D   A   SA
   I make an attempt to let that be known.

2. I resent authority figures who try to tell me   SD   D   A   SA
   what to do.

3. I find that I often have to question authority.   SD   D   A   SA

4. I enjoy seeing someone else do something   SD   D   A   SA
   that neither of us are supposed to do.

5. I have a strong desire to maintain my   SD   D   A   SA
   personal freedom.

6. I enjoy playing "Devil's Advocate"   SD   D   A   SA
   whenever I can.

7. In discussions I am easily persuaded by   SD   D   A   SA
   others.

8. Nothing turns me on as much as a good   SD   D   A   SA
   argument!

9. It would be better to have more freedom   SD   D   A   SA
   to do what I want on a job.

10. If I am told what to do, I often do the   SD   D   A   SA
    opposite.

11. I am sometimes afraid to disagree with   SD   D   A   SA
    others.

12. It really bothers me when police officers   SD   D   A   SA
    tell people what to do.

13. It does not upset me to change my plans   SD   D   A   SA
    because someone else in the group wants to
    do something else.

14. I don't mind other people telling me what   SD   D   A   SA
    to do.

15. I enjoy debates with other people.   SD   D   A   SA

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16. If someone asks a favor of me, I will think twice about what this person is really after.   SD   D   A   SA

17. I am not very tolerant of other's attempts to persuade me.   SD   D   A   SA

18. I often follow the suggestions of others.   SD   D   A   SA

19. I am relatively opinionated.   SD   D   A   SA

20. It is important to me to be in a powerful position relative to others.   SD   D   A   SA

21. I am very open to solutions to my problems from others.   SD   D   A   SA

22. I enjoy "showing up" people who think they are right.   SD   D   A   SA

23. I consider myself more competitive than cooperative.   SD   D   A   SA

24. I don't mind doing something for someone even when I don't know why I'm doing it.   SD   D   A   SA

25. I usually go along with other's advice.   SD   D   A   SA

26. I fell it is better to stand up for what I believe in than to be silent.   SD   D   A   SA

27. I am very stubborn and set in my ways.   SD   D   A   SA

28. It is very important for me to get along well with the people I work with.   SD   D   A   SA

APPENDIX H

THE COUNSELOR RATING FORM - SHORT (CRF-S)

On the following page, each characteristic is followed by a seven-point scale that ranges from "not very" to "very". Please mark an "X" at the point on the scale that best represents how you viewed the counselor. For example:

FUNNY

not very _ : X : _ : _ : _ : : _: very

WELL DRESSED

not very _ : _ : _ : _ : _ : _ : X: very

These ratings might show that the counselor did not joke around much, but was dressed well.

Though all of the following characteristics we ask you rate are desirable, counselors may differ in their strengths. We are interested in knowing how you view these differences. The counselor will **not** see you responses.

1.
SOCIABLE

not very _ : _ : _ : _ : _ : _ : _ : very

2.
PREPARED

not very _ : _ : _ : _ : _ : _ : _ : very

3.
SINCERE

not very _ : _ : _ : _ : _ : _ : _ : very

4.
FRIENDLY

not very _ : _ : _ : _ : _ : _ : _ : very

5.
SKILLFUL

not very _ : _ : _ : _ : _ : _ : _ : very

6.
RELIABLE

not very _ : _ : _ : _ : _ : _ : _ : very

7.
LIKEABLE

not very _ : _ : _ : _ : _ : _ : _ : very

8.
EXPERIENCED

not very _ : _ : _ : _ : _ : _ : _ : very

9.
HONEST

not very _ : _ : _ : _ : _ : _ : _ : very

10.
EXPERT

not very _ : _ : _ : _ : _ : _ : _ : very

11.
WARM

not very _ : _ : _ : _ : _ : _ : _ : very

12.
TRUSTWORTHY

not very _ : _ : _ : _ : _ : _ : _ : very

THANK YOU .

APPENDIX I

THE WORKING ALLAINCE INVENTORY (WAI)

(CLIENT AND THERAPIST)

CLIENT CODE_____   COUNSELOR CODE_____   wai-c

On the following pages there are sentences that describe different ways a person might think or feel about his or her counselor. As you read the sentences mentally insert the name of your counselor in the place of the _____ in the text.

Below each statement inside there is a seven-point scale:

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

If the statement describes the way you always felt or thought throughout the session, CIRCLE the number 7; if it describes how you you never felt or thought, circle the number 1. Use the numbers in between to describe variations between these extremes.

This questionaire is confidential. The counselor will not see your responses.

Remember: work fast as your first impressions are the ones we would like to see. PLEASE DON'T FORGET TO RESPOND TO EVERY ITEM.

c. A.O. Horvath, 1987

1. I felt uncomfortable with _____

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

2. _____ and I agree about the things I need to do to help improve my situation.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

3. I am worried about the outcome of the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

4. What we did in the session gave me new ways of looking at my problem.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

5. _____ and I understood each other.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

6. _____ perceives accurately what my goals are.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

7. I found what we did in the session confusing.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

8. I believe that _____ likes me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

9 I wish _____ and I could have clarified the purpose of our session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

10. I had some disagreements with _____ about the goals of the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

11. I believe the time _____ and I spent together was not spent efficiently.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

12. _____ does not understand what I was trying to accomplish in the session

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

13. I was clear about what my responsibilities were in the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

14 The goals of the session were important for me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

15. I found what_____ and I were doing in the session was unrelated to my concerns

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

16. I feel that the things we did in session will help me accomplish the changes that I want.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

17. I believe that _____was genuinely concerned for my welfare.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always s

18. I was clear as to what_____ expected me to do in the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

19. _____ and I respect each other.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

20. I feel that_____ was not totally honest about his/her feelings toward me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

21. I was confident in _____'s ability to help me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

22. _____ and I were working towards mutually agreed upon goals.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

23. I felt that _____ appreciates me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

24. We agreed on what is important for me to work on.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

25. As a result of the session I am clearer as to how I might be able to change.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

26. _____ and I trusted one another.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

27. _____ and I had different ideas on what my problems were.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

28. My relationship with _____ was important to me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always s

29. I had the feeling that if I said or did the wrong things, _____ would stop working with me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

30. _____ and I had collaberated in setting the goals for the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

31. I was frustrated by the things we did in the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

32. We had established a good understanding about the kind of changes that would be good for me.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

33. The things that _____ asked me to do did not make much sense.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

34. I don't know what to expect as a result of the session.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

35. I believe the way we agreed to work on the problem is correct.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

36. I feel _____ cared about me even when I did things he/she did not approve of.

1	2	3	4	5	6	7
never	rarely	occaisonally	sometimes	often	very often	always

CLIENT CODE_____   COUNSELOR CODE_____

On the following pages there are sentences that describe different ways a counselor might think or feel about his or her client. As you read the sentences mentally insert the name of your client in the place of the _____ in the text.

Below each statement inside there is a seven-point scale: .

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

If the statement describes the way you always felt or thought during the interview, CIRCLE the number 7; if it describes how you you never felt or thought, circle the number 1.

This questionaire is confidential. The client will not see your responses.

Remember: work fast as your first impressions are the ones we would like to see. PLEASE DON'T FORGET TO RESPOND TO EVERY ITEM.

c. A.O. Horvath, 1987

1. I felt uncomfortable with _____

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

2. _____ seems to have agreed about the steps to be taken to improve his/her situation.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

3. I have some concerns about the outcome of the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

4. My client and I felt confident about the outcome of the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

5. I feel I really understood _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

6. _____ and I had a common perception of her/his goals.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

7. _____ found what we were doing in the session confusing.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

8. I believe that _____ liked me.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

9. I sensed a need to clarify the purpose of our session for _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

10. I had some disagreements with _____ about the goals of the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

11. I believe the time _____ and I spent together was not spent efficiently.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

12 I had doubts about what we were trying to accomplish in the session

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

13 I was clear and explicit about what _____'s responsibilities were in the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

14. The goals of the session were important for _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

15. I found what_____ and I were doing in the session was unrelated to his/her current concerns.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

16. I felt confident that the things we did in the session will help _____ to accomplish the changes that she/he desires.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

17. I was genuinely concerned for _____'s welfare.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

18. I was clear as to what I expected _____ to do in the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

19. _____ and I respect each other.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

20. I felt that I was not totally honest about my fellings toward _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

21. I was confident in my ability to help _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

22. We were working towards goals that seemed important to both of us.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

23. I appreciated _____ as a person.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

24. We agreed on what is important for _____ to work on.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

25. As a result of the session _____ is clearer as to how she/he might be able to change.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

26. _____ and I established mutual trust.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

27. _____ and I had different ideas on what his/her real problems were.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

28. Our relationship seemed important to _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

29. _____ seemed to have some fears that if she/he said or did the wrong things, I would disapprove of him/her.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

30. _____ and I had collaberated in setting the goals for the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes.	often	very often	always

.31. _____ seemed frustrated by what I suggested her/him to do in the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

32. We had established a good mutual understanding about what changes would be good for _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

33. The things that we were doing in the session did not make much sense to _____.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

34. _____ didn't seem to know what to expect as a result of the session.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

35. _____ believes the way we agreed to work on the problem is correct.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

36. I respected _____ even when he/she suggested things that I did not approve of.

1	2	3	4	5	6	7
never	rarely	occasionally	sometimes	often	very often	always

After listening to the client's perception of his/her sleep problem, do you believe their sleep difficulty to be primary ?

1	2	3	4	5	6	7
not at all			somewhat			absolutely

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