

**An Intervention to Increase Adherence to  
a Psychological Treatment Program**

by

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ABSTRACT

Non-adherence to treatment is a major problem faced by professionals in mental health-care. Non-adherence to treatment increases the costs of service, in financial terms, as well as in the investment of time and effort. In addition, research has shown that outcomes of service may be negatively affected as a result of non-adherence. One factor that has been found to increase adherence to treatment programs is commitment. The purpose of the present study is to examine the efficacy of an intervention designed to increase adherence to treatment by increasing client commitment to therapy. This intervention is based on Rusbult's Investment Model of commitment. The participants in this study were 6 clients being seen at a university psychological services center. A multiple baseline across subjects design was used to analyze the efficacy of this treatment. It was found that only two of the six subjects met criteria for success in this intervention. However, in five of the six subjects, adherence to treatment increased when seen from a more long-term perspective. No difference in satisfaction with therapy was found between the subjects who successfully completed the treatment and those who did not successfully complete the treatment. Other elements of the treatment, such as participant demographics, treatment outcome, and presenting problems were analyzed descriptively. The results indicate that this intervention is insufficient to address the problem of non-adherence to therapy. Explanations regarding the failure of this intervention are discussed

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### **The Problem of Adherence**

One of the most challenging problems facing health care professionals is client non-adherence to treatment programs. This problem affects patients across all ages, races, and socioeconomic status (DiMatteo & DiNicola, 1982). Non-adherence has been shown to be a problem in clients undergoing treatment for a wide range of ailments, including not only medical problems, but also psychological and behavioral problems (Coodin, Staley, Cortens, Desrochers, & McLandress, 2004; Zerbe, 2003; Charach, Ickowicz, & Schachar, 2004). Non-adherence has been shown to have a detrimental effect on treatment outcomes (Haynes, Taylor, & Sackett, 1979). Non-adherence may result in a lessening of the therapeutic benefit gained from treatment, and may increase the costs of service, in terms of money, time, and client suffering. A lack of client adherence to treatment has been shown to increase the length of time spent in treatment for psychological disorders, as well as to decrease the long-term efficacy of the treatment (Dunn, 2002; Rigbi, Shalev-Mevorach, Taller, Taller, & Lerer, 2003).

Adherence has been viewed by psychologists as a partnership between the client and the provider (Stone, 1979). Adherence is not merely an issue of the client complying with treatment, but it is a dynamic that is impacted by both client and provider factors. This is an optimistic view of the problem because, if providers are partially responsible for non-adherence, then it is possible for the providers to engage in behaviors that may increase adherence. Several such strategies have been suggested for use by providers in the areas of mental and behavioral health. First is the establishment and maintenance of rapport by displaying warmth, empathy, and genuineness (Openshaw, 1998). Another strategy that may aid in this area is to ensure that the client understands the assigned treatment and the benefits that may be gained by completing the treatment (Larabee,

1988). Self-monitoring may also aid in helping the client to see results of therapy, and therefore be more motivated to adhere to a treatment regimen.

### **Commitment**

One factor that may impact the client's adherence to treatment is commitment. Research by Amrhein, Miller, Yahne, Palmer, & Fulcher (2003) has shown that simple verbal commitment at the outset of therapy may have the effect of increasing the likelihood that a treatment regimen will be followed. Other studies have also found that expressed client commitment may impact behavior in therapy (Hall, Havassy, & Wasserman, 1990, 1991; Levy, 1977; Marlatt, Curry, & Gordon, 1988; McKay et al., 1999; Mussell et al., 2000). Because of this, some researchers have recommended commitment in the form of a written contract for treatment as a method of improving client adherence to treatment (Spiegler & Guevremont, 2003).

Because of the power of commitment on adherence that this body of research seems to indicate a more in-depth examination of commitment is warranted. Commitment can be defined as "the likelihood that an involvement will persist" (Le & Anew, 2003). Commitment, of course, is not limited to the domain of the therapeutic relationship. Commitment is important in romantic relationships, family relationships, and other domains that are traditionally thought of as interpersonal in scope. However, commitment may also be required in the context of employment, as well as in membership in clubs, sports teams, and other organizations. For this reason, commitment is a concept that the layperson understands at some level (Fehr, 1999). However, in order to develop techniques that allow the successful building and maintenance of commitment to a relationship, it is necessary to understand the factors that underlie this complex construct.

Commitment can be seen as having several major components, and these components may be different, based on the level of analysis. For example, Glidewell (1989) described commitment as being composed of two components, the cognitive and the behavioral. The cognitive component can be seen as a persistent determination to perform a specific class of acts as a means to some long-term goal. The behavioral component is the persistence of behaviors that are prescribed by the relationship. In essence, the cognitive component is dedication to a prescribed behavior, while the behavioral component is the observable behavior that is usually associated with that dedication. For instance, in the case of commitment to a romantic relationship, one may have the dedication to a certain principle, such as fidelity, and also engage in acts that preserve that fidelity.

Many models of commitment treat commitment as a dynamic construct. These models assume that individuals are motivated to maximize reinforcement, while minimizing punishment. In any given relationship, there are always many factors that will determine whether the relationship will persist, or whether it will dissolve. The determination is made by the interaction of factors that drive the individual away from the relationship, and factors that draw the individual to the relationship (Le & Agnew, 2003). Whenever the factors for maintaining the relationship are stronger, the individual will be committed. However, when the factors pushing for the dissolution of the relationship are stronger, then commitment will be less likely. This operationalization of commitment has led to an analysis of commitment as an interdependent interpersonal relationship (Thibaut & Kelly, 1959).

### **Elements of Interpersonal Relationships**

Just as commitment has been examined in the context of interpersonal relationships, many of the studies examining the factors that may affect commitment have focused on factors common to many interpersonal relationships. These studies often examine factors that create an initial attraction in the participants of the relationship (Rusbult, 1980). These factors have included a wide range of domains, from purely physical factors to more socially oriented ones. For example, physical characteristics have been shown to be important in determining the likelihood that two people will be attracted to each other (Walster, Aronson, Abrahams, & Rottman, 1966).

Aronson and Linder (1965) found that the positivity of evaluation by one member of the relationship will also increase the attraction of the other member. These researchers saw this process in the context of rewarding and punishing behavior. They stated that others' positive regard increases our self-esteem, and the other person comes to be seen as a source of reward. The results of this study seem to indicate that the more people like us, the more we will like them. This phenomenon has important implications to the study of commitment because the process may become self-propagating. Under conditions leading to commitment, each member of the relationship is both reinforced and is a source of reinforcement. Because of this, the longer the relationship continues, the more committed the individuals in the relationship will become. This phenomenon may explain investment as it relates to commitment.

Insko and Wilson (1977) reported that social interaction is another factor that is directly correlated with initial attraction in a relationship. They found that participants were more likely to report liking another participant after having direct social interaction with that individual more than if they just watched the other participant interact with



others. They also rated the individuals with whom they had direct interaction higher on other measures of social desirability, such as “has similar personality,” “has similar beliefs and attitudes,” and “is popular and well-liked.” In addition, they were also more likely to report that the participant with whom they had direct social interaction liked them more than participants with whom they did not had direct interactions. Inkso and Wilson explained this using a reward paradigm similar to the one described by Aronson and Linder (1965).

One problem in relating this body of research to commitment is that many of the factors that have been investigated were examined from the standpoint of attraction to new relationships, rather than as factors influencing commitment to existing relationships (Rusbult, 1980). While many of the factors, such as physical attractiveness, positivity of evaluation, and social reinforcement, may also play a role in commitment, other factors within the relationship may mediate the effects of these factors.

### **Elements Related to Commitment**

Several studies have examined features of commitment to interpersonal relationships, such as marriage (Adams & Jones, 1997). Some of these features that have been examined are an individual’s desire to maintain the relationship (Jayroe, 1979), feelings of loyalty to one’s significant other and a sense of obligation to the relationship (Stanley, 1986). These studies often equate commitment with the results of commitment, such as relationship length or the resiliency of the relationship in times of difficulty. However, when commitment is associated too closely with its end products, it becomes difficult to determine any kind of causal relationship.

Further research in the area of interpersonal relationships has revealed factors that more directly determine an individual's commitment to the relationship. Johnson (1991), for instance, discussed several aspects of a relationship that have an influence on whether or not the individual will make a decision to continue the relationship. Johnson stated that the factors that go into the experience of commitment were the result of both reinforcing and constraining factors. For instance, he stated that consistency in values and positive social reactions acted to reinforce the likelihood of commitment. Johnson also talked about constraining factors that increase commitment, such as feelings of obligations and difficulty in terminating the relationship. In addition to these reinforcing and constraining forces, Johnson also believed that the extent to which the relationship influences a person's self-identity also impacts the behavior of commitment. This factor, called relational identity, states that the more the relationship is incorporated into the individual's identity, the more likely the individual will be to continue the relationship.

Other aspects of relationships and their effect on commitment were examined by Arriaga and Agnew (2001). In a series of studies, these researchers found that the tendency to continue in a relationship was correlated with several components of the relationship. One component that they found to be related to commitment is the level of psychological attachment an individual feels towards the relationship. This is similar to Johnson's findings that the degree of relational identity invested in the relationship is correlated directly with the continuance of the relationship. The second factor that Arriaga and Agnew found to be related to commitment is a long-term orientation to the relationship. This component describes the individual's sense that the relationship will still exist in the future. An individual is more likely to relate to and be committed to a

relationship that the individual believes will persist over time. The third factor that Arriaga and Agnew examined, intention to persist in the relationship, describes the motivational factor involved in commitment. This again relates to the idea that relationships must be reinforcing, and that this reinforcement, at some point, becomes internalized and results in a high motivation to continue in the relationship.

### **Rusbult's Investment model**

Rusbult has developed a model with the goal of predicting the degree of commitment an individual may have to a current relationship. Rusbult conceptualized commitment, as others have, as an interdependent interpersonal relationship. Working from this conceptualization, she based her model on the notion that individuals are motivated by the desire to maximize reward while minimizing cost. Although many factors have been shown to be important in increasing or decreasing commitment in a relationship, Rusbult's Investment model of commitment (Rusbult, 1980) focuses on three factors: satisfaction, quality of alternatives to the relationship, and investment in the relationship.

Satisfaction, as Rusbult defined it, is "the degree of positive affect associated with a relationship" (Rusbult, 1980). This satisfaction is based on the subjective perception of reward, as well as on how this perception compares to the individual's expectation of rewards and costs (comparison level). Thus, the individual's satisfaction will be highest in a condition where rewards are relatively high, cost is relatively low, and expectations are low. The comparison level in this model is the average relationship that the individual has come to expect, and is the product of the quality of the relationships that the individual has been involved with in the past, as well as comparison to other relationships

that are similar to the relationship in which the individual is currently involved, such as the relationships of friends or parents. In order for commitment to exist in the relationship, the satisfaction in the current relationship must exceed the threshold of the comparison level.

The second factor in Rusbult's model, quality of alternatives to the relationship, is related to the idea of satisfaction. Rusbult stated that the individual assesses the "value" of alternative relationships in much the same way that they assess the value of the current relationship. They then compare the value of the alternatives to the value of the current relationship. Rusbult stated that commitment to the current relationship depends partly on the assessment of the current relationship as being more valuable than any of the alternatives. It should be noted that satisfaction with the current relationship and the quality of alternative relationships are related to commitment in oppositional ways. This means that, while an increase in satisfaction with the current relationship strengthens commitment to that relationship, an increase in the quality of alternatives weakens commitment to the relationship. In order for commitment to exist, the satisfaction level of the current relationship must not only exceed the threshold of the comparison level, but must also exceed the satisfaction expected from the alternatives.

The last component that Rusbult included in her model is the size of the investment that has been made in the current relationship. The value of a relationship may be seen from the perspective of a cost-benefit analysis. It has been stated that Rusbult based the Investment Model on the notion that individuals are motivated to maximize rewards and minimize costs. When investments have been made in a relationship, the cost of withdrawing from the relationship is increased, and this may

moderate the subjective feelings of value of the current relationship versus the value of the alternative. For example, an individual may have made an investment of time and money into a romantic relationship. The individual may have the belief that, if the relationship is dissolved, then this investment will be lost. This belief may lead the individual to value the current relationship to a greater extent, and make commitment to the relationship more likely. In this model, investments may be material, such as the investment of money or other resources, or the investment may be less tangible, such as the investment of time, self-disclosure, or emotional energy.

Considering these three factors, Rusbult developed a mathematical equation to predict commitment. This equation is as follows:

$$\text{COM}_x = O_x + I_x - O_y$$

In this equation,  $\text{COM}_x$  is the commitment to the current relationship,  $O_x$  is value of the current relationship,  $I_x$  is the investment in the current relationship, and  $O_y$  is the value of the alternate relationship.

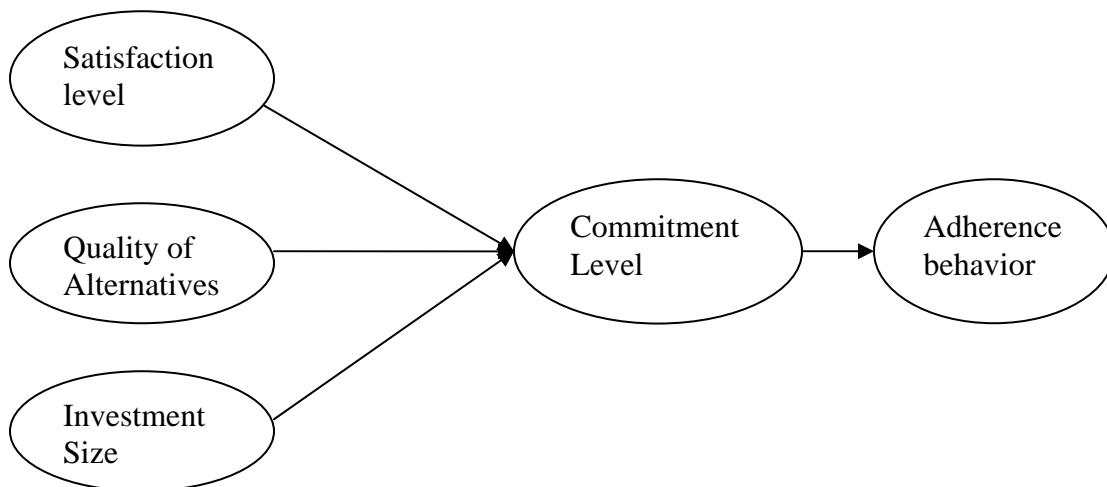


Figure 1. Rusbult's Investment Model

Rusbult originally developed this model to explain commitment to romantic, heterosexual relationships. Several studies have shown the validity of this model. Rusbult (1983), in a longitudinal study conducted with 17 heterosexual couples, showed that the factors in this model predicted the commitment of the individuals in the relationships, as defined by their behavior of continuing the relationship. In a meta-analysis of 52 studies, Le and Agnew (2003) showed that the three variables in Rusbult's model accounted for more than 60% of the variance in commitment. Similar results have been found across ethnicities (Davis & Strube, 1993) and sexual orientations (Duffy & Rusbult, 1986). The factors in this theory have also been examined to explain why victims remain in abusive relationships (Choice & Lamke, 1999).

Although this model was developed to explain commitment in romantic relationships, it has been used to predict commitment in many different types of relationships. It has been used to explain adherence to medication regimens (Putnam, Finney, Barkley, & Bonner, 1994) as well as to treatment in residential communities (Lyons & Lowery, 1989). Commitment to organizations such as colleges and sports teams has also been examined using this model (Carpenter & Scanlan, 1998; Geyer, Brannon, & Shearon, 1987; Raedeke, 1997). In addition, job commitment has also been found to be impacted by the factors in this model (Farrell & Rusbult, 1981).

The problem of non-adherence has important implications in the realm of psychotherapy. Non-adherence to treatment is a problem faced by many practitioners and clinics. This has been found to be a problem among clients, regardless of age, race, and socioeconomic status (DiMatteo & DiNicola, 1982). Several outcomes of treatment have been shown to be negatively affected by non-adherence, including hospitalization,

symptom reduction, relapse, and even mortality (Dunbar-Jacob & Schlenk, 1996).

Because of the prevalence of non-adherence, and its serious, often fatal consequences, this is an area that bears further study.

### **The Current Study**

The purpose of the current research was to examine an intervention strategy based on Rusbult's Investment Model. This intervention addressed the factors of Rusbult's model, with the intent of increasing commitment and, therefore, adherence to treatment. This adherence to treatment was operationalized as the attending of scheduled appointments, as well as being actively engaged in treatment and completing homework assignments. Two hypotheses were examined. First, it was hypothesized that this intervention will increase adherence to treatment in the participants. Secondly, it was hypothesized that those participants who complete the intervention will report higher levels of satisfaction than those participants who do not complete the intervention.

## Methods

### Participants

The participants in this study were six individuals who were, at the time the study began, being treated at the Psychological Services Center (PSC) at Virginia Tech for various psychological problems. Five of the subjects were female, and one was male. The subjects ranged in age between 20 and 35 years. These subjects included three Caucasians, one Hispanic, one African, and one Indian. A description of subject characteristics can be found in Table 1. The criterion for a client being chosen for inclusion in the study was that the client had missed more than 20% of their scheduled appointments. Minors were excluded from this study, as they are usually brought to the PSC by parents or guardians, and thus do not have control over their appointment keeping behavior. In addition, clients who had recently begun a medication treatment regimen were excluded, due to the possibility that the effects of the medication would confound the outcome of the study.

### Procedure

Potential participants were drawn from the pool of clients seen at the PSC by using a computer database that is used to keep records of client appointments, and whether or not these appointments are kept. We identified clients who had missed more than 20% of their last five scheduled appointments. After identifying the client as a potential participant, his or her therapist was contacted by the researchers. A meeting took place between the researchers and the therapist, at which time the therapist was given information regarding the purposes of the study, and the model used for the intervention was explained. They were then instructed in the protocol to be used for the



intervention. During the client's next session with the therapist, the subject of commitment was addressed, and the therapist asked the client to participate in the study. The therapist then explained the nature and procedures of the study to the client, and addressed any questions that the client may have had regarding their participation. The client was then given an Informed Consent form to read and sign. At this point, the therapist followed the protocol for the first session.

### Protocol

After the client agreed to participate in the study, the therapist and the client reviewed all steps that had been taken to resolve the presenting problem, and the client was verbally reinforced for his or her effort in this resolution. Next, an informal rating of the client's satisfaction with therapy was taken. The therapist and client then compared the client's choices with regards to therapy (i.e., therapy at the PSC vs. treatment elsewhere or no treatment). Next, a change in the therapeutic plan was discussed, and both parties (client and therapist) helped to decide the procedure to be used, chosen from a list of options provided by the therapist. At this point, the client decided if continuing therapy at the PSC was the best option for him or her at that time. A written contract was then made, in which the client agreed to attend and engage in therapy for a predetermined number of sessions.

In each subsequent session, the client was engaged in a structured activity (i.e. role-playing, relaxation training, etc.). When appropriate, the therapist reviewed any out of session monitoring (e.g., homework) that the client completed, and reinforced the client for such efforts. The therapist also discussed any out of session activities that he or she engaged in that may have impacted the resolution of the problem. During the final

session of the intervention, a measure of client satisfaction was taken. See Appendix A for full protocol.

### Measures

*Adherence.* Adherence to treatment was measured by the client's attendance to therapy sessions. This measure was taken by checking the therapy notes for that session and determining whether the client attended the session. Reliability for this measure was obtained by checking the database for appointments at the PSC to determine if the client attended the scheduled session.

*Treatment Integrity.* All sessions were videotaped and these videotapes were viewed after the sessions to ensure treatment integrity. A checklist of behaviors derived from the protocol for the initial and subsequent sessions of the intervention was used to ensure that the intervention had been properly carried out. See Appendix B for the treatment integrity checklist.

*Biographical Information Form-Adult.* The Biographical Information Form, given to all adult clients during their first appointment at the PSC, included basic biographical information such as age, race, sex, marital status, and income. It also provided information regarding medical, family, and counseling history. The current problem for which they were initially referred to the PSC was also included on this form. See Appendix C for a copy of the Biographical Information Form- Adult.

*Outcome Questionnaire (OQ-45.2).* The OQ-45.2 (Lambert et al., 1996), given to clients at the PSC, was designed to assess different aspects of psychopathology, such as depression, interpersonal problems, and suicidality. This questionnaire consists of 45 statements, such as "I feel stressed at work/school." The client was asked to rate if this

statement applies to them Never, Rarely, Sometimes, Frequently, or Almost Always. This questionnaire was given to the client during the initial session and every three sessions thereafter. A full reference for the Outcome Questionnaire (OQ-45.2) can be found in Appendix D.

*Client Satisfaction Questionnaire (CSQ-8).* Client satisfaction was measured at the beginning and end of the intervention using the Client Satisfaction Questionnaire. The pretest measure used a slightly modified version of the CSQW-8, which had the last question removed due to its irrelevance to ongoing therapy. The CSQ-8 has eight questions related to the client's satisfaction with the treatment received. Research regarding the psychometrics of the CSQ-8 (Larsen, Attkisson, Hargreaves, & Nguyen, 1979) reveals a reasonable degree of internal consistency ( $\alpha=.93$ ). This scale has also shown social validity, as demonstrated by its moderate correlation (.53) with a measure of global improvement in symptomatology. A full reference for the Client Satisfaction Questionnaire (CSQ-8) can be found in Appendix D.

### Research Design

A single subject design was utilized in this study. Data for each subject included a Baseline phase (A) and an Intervention phase (B). Baseline data consisted of the client's show rate prior to the beginning of the intervention, while data for the Intervention phase consisted of the client's show rate for the sessions that they had agreed, in writing, to attend. Specifically, a multiple baseline across subjects design was utilized. This increased the confidence that any changes in the target behavior were a result of the intervention, and not some confounding variable. In addition, multiple clients seeing the

same therapist were asked to participate, whenever possible, in order to increase the homogeneity of service received across subjects.

## RESULTS

The criterion for a successful intervention in this study was defined as a 75% attendance rate in the intervention phase. A baseline measure of attendance was taken, which was the percentage of their last five scheduled appointments that the subject had attended. At baseline, four subjects had an attendance rate of 40%, and two showed an attendance rate of 60%. The results of this study show that only three out of the six subjects, subjects A, C, and E, met the criterion for a successful intervention, with attendance rates of 100%, 75%, and 80%, respectively, in the intervention phase. However, although he did not meet criterion for a successful intervention, another subjects, subject B, did show an increase in the percentage of sessions he attended during the intervention phase. In addition, five out of the six subjects showed an improvement in rate of attendance over the long-term, when followed up until the end of therapy or the present. Information regarding the percentages of appointments kept in the baseline and intervention phases, as well as long-term, is summarized in Table 2. Attendance data for all subjects can be found in Figure 1.

A questionnaire was given to the therapist of each of the subjects in order to assess which parts of the intervention that the therapist may already have engaged in prior to the beginning of the intervention. It was found that all therapists had engaged in activities to address at least some of the same concepts that the intervention was designed to target. For example, all of the therapists had engaged in some form of verbal reinforcement of efforts taken by the subject to resolve the problem. In one case, that of

subject C, the therapist indicated that he had addressed 100% of the concepts included in the intervention. Information regarding this baseline measure can be found in Table 2.

The measure of treatment integrity indicates that the intervention was adhered to reasonably well by the therapists. Integrity checks were done by first listing the critical elements of the therapy. Then, the tapes of each session were coded according to whether or not the therapist covered each of the critical elements. During the initial session, all of the therapists covered 100% of these critical elements. The measure of subsequent sessions is an average of the accuracy of the therapist in following the protocol over all sessions of the intervention phase. During subsequent sessions, the treatment protocol was followed with 92% accuracy by one therapist, the therapist of subject A. The therapist in all other cases followed the treatment protocol with 100% accuracy. In addition to the critical elements, one item was included that was not critical for every session. A percentage was taken of the times this supplemental item was addressed in session. Three of the therapists, those in the cases of A, C, and E, addressed this item in 67% of sessions. For the remainder of the cases, the therapist addressed this item in 100% of sessions. Information regarding interobserver agreement was collected on 25% of all sessions. This involved a second coder watching the videotapes of the sessions and comparing the second coder's scores to the initial coder's scores. The formula used to determine interobserver agreement was  $\frac{\text{number of agreements}}{\text{number of agreements} + \text{number of disagreements}}$ . An overall agreement of 96% was observed across all subjects. Information regarding treatment integrity is summarized in Table 3.

No clinically significant differences for satisfaction with treatment were found between subjects who successfully completed the intervention and subjects who did not

successfully complete the intervention. Subjects who successfully completed the intervention scored, on average, 31.6 on the CSQ-8 (out of a possible 32). Subjects who did not successfully complete the intervention scored an average of 29 on the CSQ-8. This is a difference of only 2.6. The authors of the measure recommend using a standard deviation of 4.01 as a cut-off point for determining significance (Attkisson & Greenfield, 2004). The data, therefore, suggests that the difference found in these two groups is neither clinically nor statistically significantly different. Similarly, no significant difference was found in the pre-test measures of satisfaction between these two groups. The successfully completed group scored an average of 27 (out of a possible 28), while the unsuccessful group scored an average of 26.7. In the pre-test, the final question, “If you were to seek help again, would you come back to our program?”, was omitted. For this reason, the scale of this score is only 1-28, and no normative data is available for this type of administration of the test. However, the difference between the two groups does not appear to be clinically significant. In order to directly compare the pre-test and post-test data for this measure, scores were converted to a percentage of the highest possible score for each version of the measure. These scores can be found expressed as a percentage in Table A bar graph illustrating this information can be found in Figure 2.

Two of the subjects who successfully completed the intervention reported a significant improvement on the total scores of the Outcome Questionnaire 45.2 (OQ45.2). A change of 15 points is considered to be clinically significant on this scale. Subject A showed a 48-point improvement, while subject E showed a 23-point improvement from pre-test to post-test. Subject C, who showed an improvement in attendance rate, but failed to complete the intervention, showed a significant increase in symptomatology.

Two subjects, B and D, showed no significant difference between the pre-test and post-test measure on this instrument. Subject F could not be considered in this analysis, because that subject did not complete post-test measures. Data from the OQ45.2 is summarized in Table 4.

## DISCUSSION

The results of this study indicate that this intervention was insufficient to address the problem of non-adherence to therapy. Only two out of the six subjects met criteria for success in this intervention. However, four of the subjects showed some improvement in percentage of appointments kept in the intervention phase. In addition, five out of the six subjects showed an improvement in percentage of appointments kept in the long-term. This finding seems to be consistent with the assertion of Amrhein, Miller, Yahne, Palmer, & Fulcher (2003) that a verbal commitment by the client may increase the likelihood that a treatment regimen will be followed. The issue here is that, although the intervention did have some impact on adherence behavior, the impact was not strong enough in three cases to meet the study's operational definition of success.

An explanation regarding the failure of the intervention to affect adherence to treatment more fully can be found by examining Rusbult's model of commitment. Rusbult's Investment Model states that there are three determinants of commitment: satisfaction with the current relationship, quality of available alternatives, and investment size (Rusbult, 1980). Although satisfaction and quality of alternatives were addressed in this intervention, the only determinant in the model that could be directly manipulated was investment. Investment was the focus of this intervention because it is the only one of these determinants that could be directly manipulated. Satisfaction cannot be

manipulated directly; it may only be indirectly manipulated by changing other conditions. Manipulating quality of alternatives is equally problematic. In an outpatient setting, the therapist simply does not have enough control over the client to manipulate the kinds of treatment alternatives that may be available.

The subjects in this study were treated for a wide range of psychological problems. However, no discernable pattern could be found linking success or failure of this intervention to any specific disorder or type of disorder. There simply were not enough subjects in this study to be able to draw a conclusion regarding a correlation between the types of disorders and the efficacy of this intervention.

Although the intervention was unsuccessful in the majority of cases, those who did complete the intervention seem to have benefited from doing so. The post-test data from the Outcome Questionnaire 45.2 (OQ-45.2) showed that the two subjects who successfully completed the intervention phase improved significantly on that measure. The subject who improved her rate of attendance, but dropped out of therapy before completing the number of sessions to which she had committed showed an increase in symptom severity. The three unsuccessful subjects for whom post-data was collected showed no improvement in symptom severity.

That the majority of the subjects showed some improvement in attendance rate is logical when examined from the point of view of Rusbult's Investment Model. Since only one out of the three factors in Rusbult's model was manipulated, it is not surprising that the intervention was only partially successful. The increase in long-term attendance rates shown by the majority of the subjects indicated that the factor that was manipulated, investment, did have some effect on the behavior. The failure of this intervention does



not imply that investment is unimportant. Rather, it implies that investment alone may be insufficient to determine adherence behavior.

Satisfaction was not shown to be related to the success of this intervention. No significant difference was found between the subjects who successfully completed the intervention and those who did not on the measure of satisfaction either before or after the intervention. Several possible reasons for this finding exist. First, all of the subjects in this study had been seen at the clinic for at least two months. It is logical to assume that, if they were not satisfied with service, they would have discontinued therapy prior to the beginning of the intervention. This resulted in a restriction in the variability of scores on the satisfaction measure. A second possible explanation for this finding is that, although satisfaction was high in all subjects, other factors, such as lower perceived investment or an increase in the perceived quality of alternatives, caused the level of commitment displayed by the subjects to be reduced. If this is the case, then satisfaction may have had the effect of increasing commitment in all subjects, but not a strong enough effect to overcome other factors in the subjects who were unsuccessful in the intervention. This view would be consistent with Rusbult's Investment Model.

Although sufficient for the purposes of this study, there are some features of the methodology used in this study that may be reconsidered in future studies. Because of the way that subjects were recruited in this study, the therapists used were not chosen directly. Therapists were chosen based on the fact that they had a client who met criteria for inclusion in this study. The study ended up with only male therapists. For this reason, it is not known if a differential effect may have been found had members of both genders served as therapists. Another weakness in the methodology used in this study involves the

lag in time between the time subjects were chosen and when they were initially presented with the option of participating. Because of this lag, subjects often had another session with their therapist between the time of selection and the initial session. In one case, the result was that the client had two sessions in a row that they attended before the intervention was put in place. This may call into question the effect of the treatment, as it seems that the subject began to improve before the intervention. Another weakness in this intervention involves the other factors in Rusbult's Investment Model. As stated previously, this intervention did not manipulate either satisfaction or quality of alternatives. Both of these factors were addressed in some way, but due to the previously mentioned constraints, they were not directly manipulated.

Future research in this area should focus on the factors of Rusbult's model that were not manipulated in this study. Because of the difficulties in manipulating these factors, a group design may prove to be necessary. With a group design, differences in satisfaction and quality of alternatives could at least be controlled for. Group designs may also be appropriate for studying the investment factor. Once the efficacy of increasing investment has been reliably shown using single subject designs, a group design may help to show the generalizability of the intervention.

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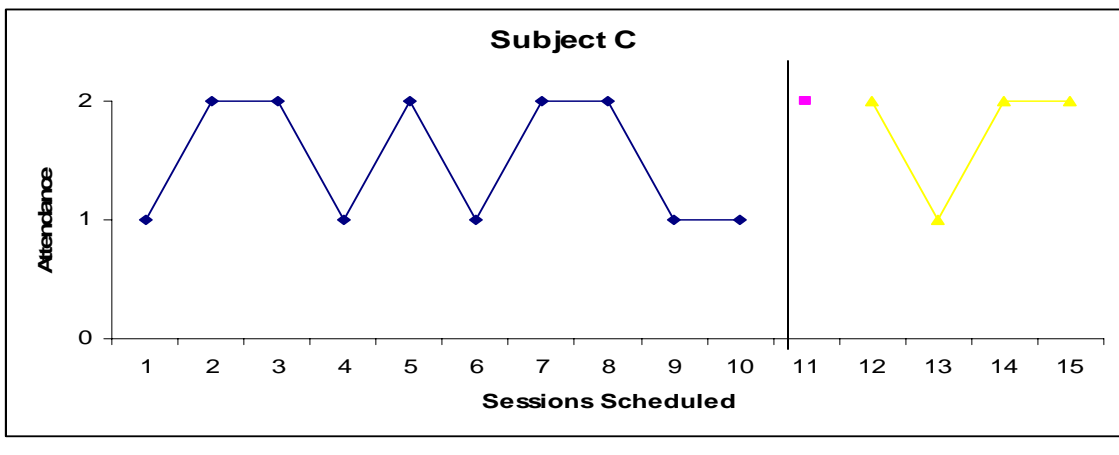
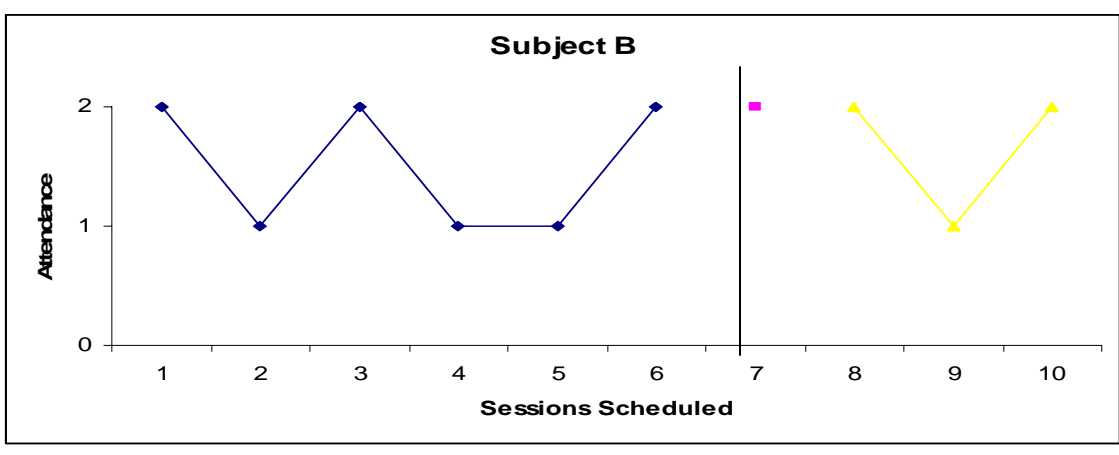
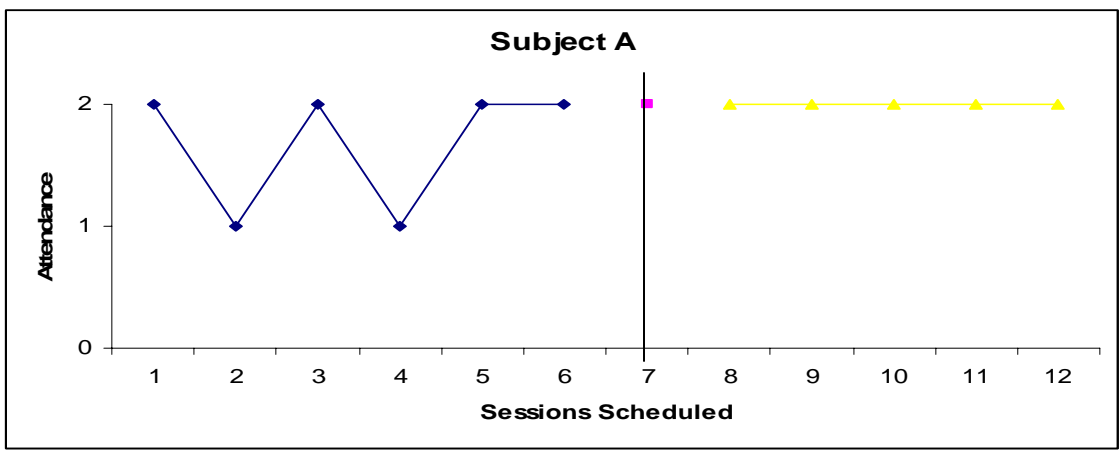
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Figure 1. Attendance charts for all clients.



Figure 1. Attendance charts for all clients.



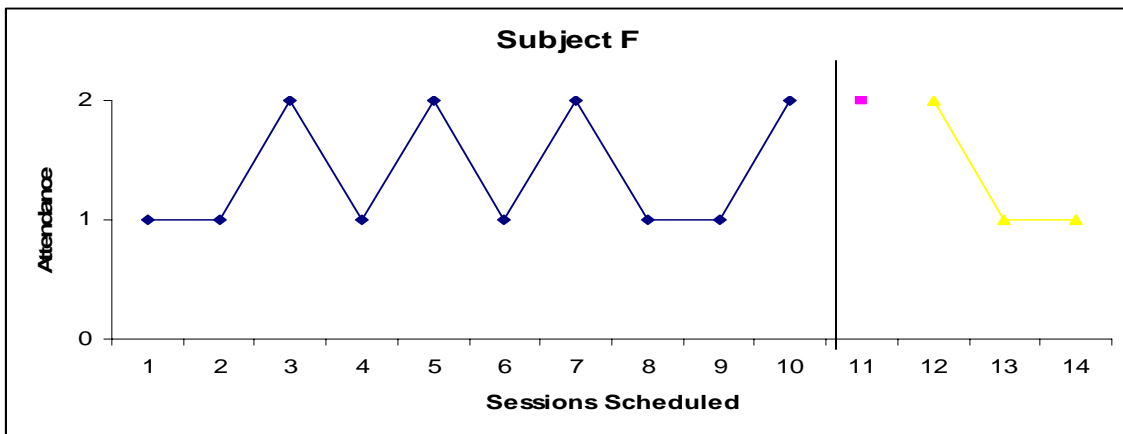
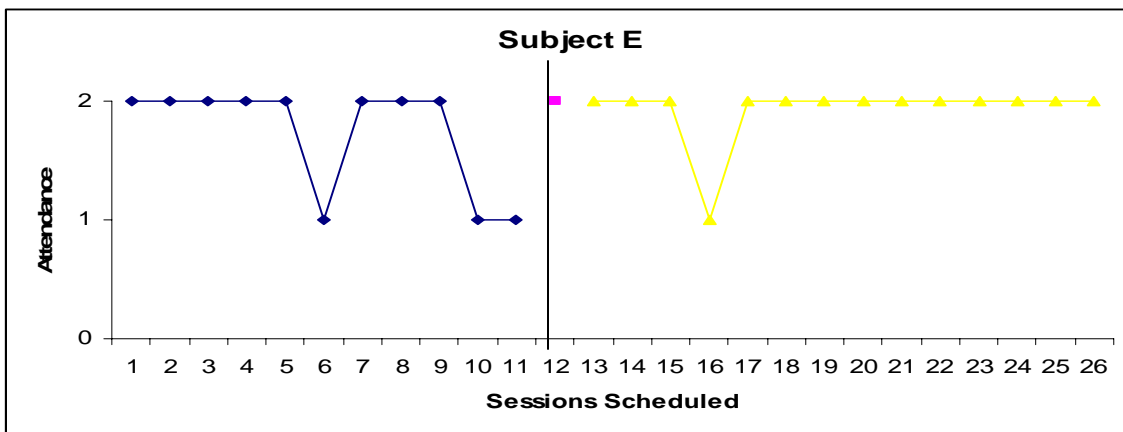
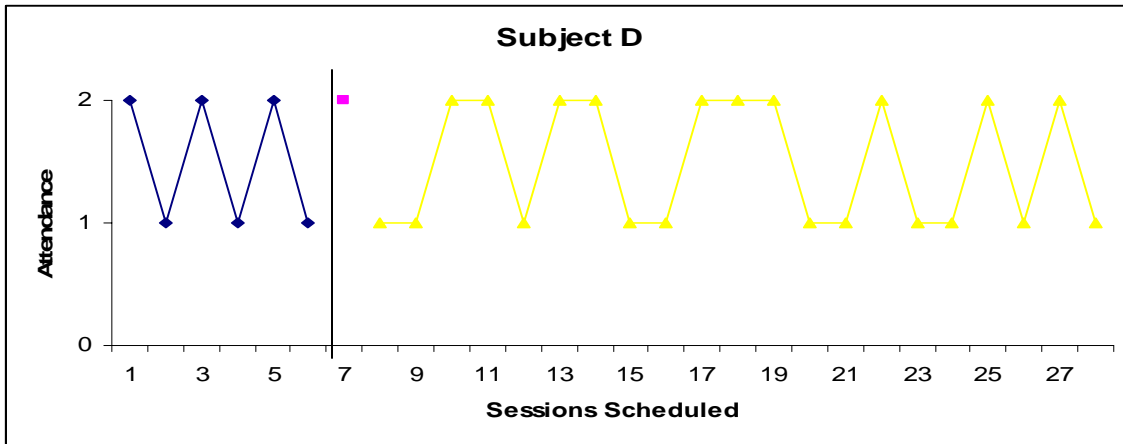
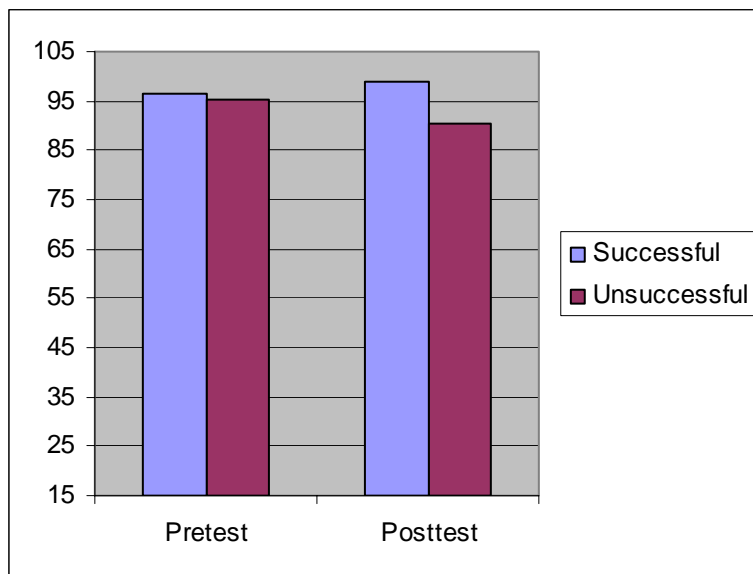


Figure 2. Mean CSQ-8 scores of successful (n=2) and unsuccessful (n=4) subjects in both the pretest and posttest measures.



*Figure 2.* Mean CSQ-8 scores<sup>a</sup> of successful and unsuccessful subjects<sup>b</sup> in both the pretest and posttest measures.

<sup>b</sup>expressed as a percentage of the highest possible score on each measure

<sup>a</sup>In the pretest, n=3 for successful group and n=3 for the unsuccessful group. In the posttest, n=3 for the successful group and n=2 for the unsuccessful group.

Table 1

*Subject Characteristics*


---

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>Age<sup>a</sup></u>	<u>Disorder<sup>b</sup></u>
A	Female	Caucasian	23	Dysthymic Disorder
B	Male	Hispanic	20	Social Phobia
C	Female	African-American	21	Major Depressive Disorder, Generalized Anxiety Disorder, Bulimia Nervosa
D	Female	Caucasian	35	Panic Disorder
E	Female	Caucasian	30	ADHD, Major Depressive Disorder, Social Phobia
F	Female	Indian	22	Adjustment Disorder, Borderline Personality Disorder

---

<sup>a</sup>in years

<sup>b</sup>disorder for which the subject was being seen at the time of entry into the study

Table 2

*Percentage of Appointments Kept<sup>a</sup>*

---

<u>Subject</u>	<u>Baseline</u>	<u>Intervention</u>	<u>Long-term</u>
A	60%	100%	100%
B	40%	67%	67%
C	40%	75%	75%
D	40%	33%	48%
E	60%	80%	93%
F	40%	33%	33%

---

<sup>a</sup>rounded to the nearest whole percent

Table 3

*Treatment Integrity*


---

<u>Subject</u>	<u>Baseline Measure<sup>a</sup></u>	<u>Initial Session</u>	<u>Subsequent Sessions<sup>b</sup></u>	<u>Supplemental<sup>c</sup></u>
A	50%	100%	92%	67%
B	50%	100%	100%	100%
C	100%	100%	100%	67%
D	50%	100%	100%	100%
E	50%	100%	100%	67%
F	63%	100%	100%	100%

---

<sup>a</sup>Therapist report of intervention aspects that had been implemented during baseline

<sup>b</sup>Average of all subsequent sessions for this subject

<sup>c</sup>Percent of all sessions in which the supplemental satisfaction question was asked

Table 4

*Outcome Questionnaire 45.2/Client Satisfaction Questionnaire (CSQ-8)*

<u>Subject</u>	<u>OQ-45.2 Pretest Score</u>	<u>OQ-45.2 Posttest Score</u>	<u>CSQ-8 Pretest Score<sup>c</sup></u>	<u>CSQ-8 Posttest Score<sup>c</sup></u>
A	80	32 <sup>a</sup>	92.9	100
B	42	39	100	100
C	81	97 <sup>a</sup>	100	96.7
D	122	119	89.9	81.3
E	48	25 <sup>a</sup>	96.4	100
F	83	N/A <sup>b</sup>	92.9	N/A <sup>b</sup>

*Note.* The OQ-45.2 has a mean of 78.01 (SD=25.71). A decrease in this score indicates amelioration of symptoms.

<sup>a</sup>denotes significant change

<sup>b</sup>data missing

<sup>c</sup>scores expressed as a percentage of the highest possible score on the measure



Appendix A-  
Protocol

## Commitment Intervention

### Initial Session:

1. Review all out-of-therapy and in-therapy steps taken toward resolution of the presenting problem(s), and reinforce the client for this effort.
2. Take measure of client's satisfaction with therapy progress.
3. Contrast the choice of therapy at the PSC with other options the client could have chosen (e.g. therapy at another site, no therapy). Then validate that seeking therapy at the PSC was the right choice and express enthusiasm regarding treatment impact (or potential impact) on the presenting problem(s).
4. Discuss a change in the therapeutic plan whereby both parties (therapist and client) will increase efforts to solve the presenting problem(s). The importance of progress toward problem resolution should then be emphasized and methods to make therapy more active should be reviewed. From a sample you provide, the client should then choose which active therapeutic procedures will commence. The client must choose a procedure which will result in a permanent product each week (e.g. homework, in-session activities).
5. At this point, the client should decide if continuing therapy at the PSC is the best option for them at that time. Should the client elect to continue therapy, a written contract should be made with the client to complete the therapeutic activities reviewed above.

### Subsequent Sessions:

1. Prior to all sessions, a structured agenda of therapy activities should be prepared in outline form. In each session, engage in either a structured activity (e.g. role-playing), or provide and review a handout.
2. Review monitoring provided by the client and praise all steps taken toward problem resolution. Validate the new course of therapy as a highly effective strategy.
3. Discuss out-of-session activities you engaged in (e.g. thinking, reading, case consultation) to promote problem resolution in the client.
4. Engage in structured activity or review handout.
5. At the end of these sessions, request that the client complete a brief open-ended listing of positive aspects of the therapy program as it relates to the presenting problem(s). Relate to the client that these ratings will be presented at clinical supervision meetings on a weekly basis. In subsequent sessions, emphasize the supervisor's review of, and pleasure with, the therapeutic activities of both the client and the clinician.

Appendix B-  
Treatment Integrity Checklist

Commitment Intervention Integrity  
Initial Session

1. All steps taken in the resolution of presenting problem reviewed \_\_\_\_\_
2. Client is verbally reinforced for efforts \_\_\_\_\_
3. Measure of client satisfaction taken \_\_\_\_\_
4. Contrast choices of therapy \_\_\_\_\_
5. Validate client's choice to come to the PSC \_\_\_\_\_
6. Discuss change in therapeutic plan \_\_\_\_\_
7. Client chooses active therapeutic procedure from list provided by therapist \_\_\_\_\_
8. Client reads and signs therapy contract \_\_\_\_\_

Commitment Intervention Integrity  
Subsequent Sessions

1. Client engages in structured activity/reviews handout \_\_\_\_\_
2. Review of homework/monitoring done by client \_\_\_\_\_
3. Client is reinforced/validated for effort \_\_\_\_\_
4. Therapist discusses out-of-session activities \_\_\_\_\_
5. Client completes brief open-ended listing of positive aspects of therapy \_\_\_\_\_

Appendix C-  
Biographical Information Form-Adult

**Psychological Services Center**

**Biographical Information Form—Adult**

Instructions: To assist us in helping you, please fill out this form as fully and openly as possible. All private information is held in strictest confidence within legal limits. If certain questions do not apply to you, leave them blank.

**Personal History**

- 1) Name: \_\_\_\_\_ 2) Age: \_\_\_\_\_ 3) Gender:  M  F
- 4) Address: \_\_\_\_\_  
Street & Number City State Zip
- 5) Weight: \_\_\_\_\_ 6) Height: \_\_\_\_\_ 7) Race: \_\_\_\_\_
- 8) Today's Date: \_\_\_\_\_ 9) Date of Birth: \_\_\_\_\_
- 10) Years of education: \_\_\_\_\_ 11) Social Security #: \_\_\_\_\_
- 12) Occupation: \_\_\_\_\_ Full-Time or Part-Time (please circle)
- 13) Home Phone: \_\_\_\_\_ 14) Business Phone: \_\_\_\_\_
- 15) Present Marital Status:
- |  |   |
|--|---|
| <input type="checkbox"/> a) never married<br><input type="checkbox"/> b) engaged to be married<br><input type="checkbox"/> c) married now for first time<br><input type="checkbox"/> d) married now after first time | <input type="checkbox"/> e) separated<br><input type="checkbox"/> f) divorced and not remarried<br><input type="checkbox"/> g) widowed and not remarried<br><input type="checkbox"/> h) other (specify) _____ |
|--|---|
- 16) If married, are you living with your spouse at present?: Yes \_\_\_\_\_ No \_\_\_\_\_
- 17) If married, years married to present spouse: \_\_\_\_\_
- 18) Please list all adults and children living with you at present:
- | <u>Name</u> | <u>Relationship</u> | <u>Age</u> | <u>Sex</u> |
|-------------|---------------------|------------|------------|
| _____       | _____               | _____      | _____      |
| _____       | _____               | _____      | _____      |
| _____       | _____               | _____      | _____      |
| _____       | _____               | _____      | _____      |
| _____       | _____               | _____      | _____      |
| _____       | _____               | _____      | _____      |
| _____       | _____               | _____      | _____      |
- 19) Yearly Family Income:
- |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|
| \$0 - \$9,999 _____       | \$10,000 - \$14,999 _____ | \$15,000 - \$19,999 _____ |
| \$20,000 - \$24,999 _____ | \$25,000 - \$29,999 _____ | \$30,000 - \$34,999 _____ |
| \$35,000 - \$39,999 _____ | \$40,000 - \$44,999 _____ | \$45,000 - \$49,999 _____ |
| \$50,000 or above _____   |                           |                           |

**Counseling History**

20) Are you receiving counseling services at present?: Yes\_\_\_\_ No\_\_\_\_  
If Yes, please briefly describe:

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21) Have you received counseling in the past?: Yes\_\_\_\_No\_\_\_\_  
If Yes, please briefly describe:

---

22) What is (are) your main reason(s) for this visit?:

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23) How long has this problem(s) persisted ?:

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**Medical History**

24) Name and address of your primary physician:  
Physician's name:

---

Address:

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25) List any major illnesses and/or operations you have had:

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26) List any physical concerns you are having at present: (e.g., high blood pressure, headaches, dizziness, etc.):

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27) List any other physical concerns you have experienced in the past:

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28) When was your most recent complete physical exam?:

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Results of physical exam:

\_\_\_\_\_

29) On average how many hours of sleep do you get daily?: \_\_\_\_\_

30) Do you have trouble falling asleep at night?: No Yes If Yes, describe

\_\_\_\_\_

31) Have you gained/lost over ten pounds in the past year?: Yes No, gained lost

If Yes, was the gain/loss on purpose?: Yes No

32) Describe your appetite (during the past week):

poor appetite  average appetite  large appetite

33) What medications (and dosages) are you taking at present, and for what purpose?:

<u>Medication</u>	<u>Purpose</u>
_____	_____
_____	_____
_____	_____
_____	_____

**Family History**

34) Mother's age:\_\_\_\_\_ If deceased, how old were you when she died?: \_\_\_\_\_

35) Father's age:\_\_\_\_\_ If deceased, how old were you when he died?: \_\_\_\_\_

36) If your parents are separated or divorced, how old were you then?:

\_\_\_\_\_

37) If your parents divorced, has either one remarried? Yes \_\_\_\_\_  
No \_\_\_\_\_

38) Number of brother(s) \_\_\_\_\_ Their ages \_\_\_\_\_

39) Number of sister(s) \_\_\_\_\_ Their ages \_\_\_\_\_

40) Were you adopted or raised with parents other than your natural parents?: Yes\_\_\_No\_\_\_

41) Briefly describe if any family members have (had) emotional/behavioral problems (e.g., depression, anxiety, alcoholism, violence, etc.):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**Referral Source and History**

42) Who referred you  
here? \_\_\_\_\_

\_\_\_\_\_

43) Have you ever received services here in the past? Yes \_\_\_\_ No \_\_\_\_ If Yes,  
why and when \_\_\_\_\_

\_\_\_\_\_

Appendix D-

References for the Outcome Questionnaire (OQ-45.2) and the Client Satisfaction  
Questionnaire (CSQ-8)

Lambert, M.J., Hansen, N.B., Umpress, V., Lunnen, K., Okiishi, J., & Burlingame, G.M. (1996). Administration and scoring manual for the OQ-45.2. Stevenson, MD: American Professional Credentialing Services LLC.

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