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Assessing Item and Scale Sensitivity to Therapeutic Change on the College Adjustment Scales: Working Toward a Counseling Center Specific Outcome Questionnaire

Christian L. Wimmer
Brigham Young University - Provo

ASSESSING ITEM AND SCALE SENSITIVITY TO THERAPEUTIC CHANGE ON THE COLLEGE ADJUSTMENT SCALES: WORKING TOWARD A COUNSELING CENTER SPECIFIC OUTCOME QUESTIONNAIRE

by

Christian L. Wimmer

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GRADUATE COMMITTEE APPROVAL

of a dissertation submitted by

Christian L. Wimmer

This dissertation has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

Date	John Okiishi, Chair
Date	Rachel Crook-Lyon
Date	Marleen Williams
Date	Richard Sudweeks
Date	Aaron P. Jackson

BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the dissertation of Christian L. Wimmer in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

_____ _____

Date

John Okiishi
Chair, Graduate Committee

Accepted for the Department

_____

Aaron Jackson
Graduate Coordinator

Accepted for the College

_____

K. Richard Young
Dean, David O. McKay School of Education

ABSTRACT

ASSESSING ITEM AND SCALE SENSITIVITY TO THERAPEUTIC CHANGE ON THE COLLEGE ADJUSTMENT SCALES: WORKING TOWARD A COUNSELING CENTER SPECIFIC OUTCOME QUESTIONNAIRE

Christian L. Wimmer

Department of Counseling Psychology and Special Education

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Many college counseling centers use outcome measures to track therapeutic change for their clientele. These questionnaires have traditionally looked primarily at a client's symptom distress (e.g. depression, anxiety, suicidality, etc.) and are used to detect changes in the client's life that are due to therapy. Unfortunately, there is no measure that has been exclusively created and validated for use with college students.

The College Adjustment Scales (CAS) form a multidimensional psychological measure designed specifically for use in college and university settings. Even though the CAS was created as a screening tool, it contains items that provide insight into changes that are possibly taking place for college students in therapy that are not measured by current outcome questionnaires. The purpose of this study was to determine which items and scales on the CAS were sensitive to therapeutic change for college students, thus

assessing the validity of the test as an outcome measure and providing data for the development of future college counseling specific outcome questionnaires. This study used hierarchical linear modeling (HLM) to generate slopes that represent change over time for treatment and control groups. These slopes were compared to each other in order to determine whether each item and scale was sensitive to therapeutic change.

The control sample consisted of 127 student participants that were not in therapy. The treatment sample was archival and consisted of 409 student clients. Seven of the nine scales were found to be sensitive to therapeutic change. However, 45 of the 108 individual items did not meet the set criteria. Because of these findings, the creators of the CAS are encouraged to revise the measure if it is to be used as an outcome questionnaire. In addition, researchers and clinicians should consider these results and take care not to treat this measure as an instrument that is wholly sensitive to therapeutic change for the college population. Items found to be sensitive to therapeutic change can be used to create a new outcome measure specifically for counseling centers.

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Most of all I thank my wife, Erin. She has always believed in me and knew that I could do this. I dedicate this project to her and to my children. I want them to know that anything is possible when they believe and put their hearts into it.

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Introduction

College students who require psychotherapy desire the best treatment possible. Treatment for any demographic is most effective when it caters to the specific needs of the population being helped. When compared to the population at large, college students have differences that are worth taking into consideration when therapy is involved. Arnett (2000) describes a developmental period from ages 18-25 called "emerging adulthood" (p. 469). It includes developmental tasks such as developing autonomy, forming identity, clarifying sexual orientation, establishing meaningful relationships, and choosing a career path. Because of these unique needs, college counselors would be more effective if they considered developmental issues when working with college students.

Many college counseling centers use outcome measures to track therapeutic change for their clientele. These questionnaires have traditionally looked primarily at a client's symptom distress (e.g. depression, anxiety, suicidality, etc.) and are used to detect changes in the client's life that are due to therapy. Unfortunately, there is no measure that has been exclusively created and validated for use with college students. In other words, there are presently no measures that are sensitive to change for both developmental issues and symptom distress.

The aim of this study was to identify items that were sensitive to therapeutic change so that the specific therapeutic needs of students receiving therapy in college counseling centers could be addressed. In 2004, Vermeersch et al. started to address this issue by identifying items on the Outcome Questionnaire-45 (OQ-45) that were sensitive to therapeutic change for college student populations. However, since the OQ-45

measures primarily symptom distress, it lacked vital developmental items necessary to assess therapeutic change for college students. Vermeersch et al. called for a "revised version of the OQ that is specifically designed for use in counseling center settings" (p. 47). He suggested using "change sensitive items that are specifically relevant to the concerns of college/university students (e.g., items related to the tasks of young adulthood)" (p. 47).

The College Adjustment Scales (CAS) form a multidimensional psychological measure designed specifically for use in college and university settings. Unlike the OQ-45, the College Adjustment Scales contain developmental items aimed at measuring the development and adjustment of distressed clients within the college student population. The CAS contains items that may provide insight into the changes that are taking place for college students in therapy that are currently not being measured. Okiishi, Vermeersch, Lambert, and Smart (2003) reported that approximately 40% of the clients seen at a large western university counseling center demonstrated no significant change on the OQ-45. However, the majority of these clients reported feeling highly satisfied with the services they received and experienced meaningful changes as a result of therapy. It may be that some of the unmeasured changes that are taking place are developmental and thus are not being assessed by the OQ-45.

The specific purpose of this study was to determine which items and subscales on the CAS were sensitive to therapeutic change for college students, thus assessing the validity of the test as an outcome measure and providing data for the development of future college-counseling-specific outcome questionnaires. A review of the literature further explores the benefits of performing an item and subscale analysis on the CAS and

provides support for the need to identify developmentally sensitive items for college counseling center populations. Relevant literature is presented in the areas of emerging adulthood, sensitivity to therapeutic change, and the development of the CAS as an outcome measure. The Method section provides the necessary details of the method to be used to appropriately evaluate item and scale sensitivity to therapeutic change. The Results section and Appendix provide all relevant graphs and data. The Discussion section explains the applications and future directions of this research.

Literature Review

In order to proficiently offer treatment to a specific population such as college students, it is important to understand their specific developmental needs, struggles, and tasks. Although having such information is important, it is also vital to understand how to demonstrate and measure change due to therapy in these identified areas. This chapter explores college students' areas of development, how change in these areas is empirically demonstrated, and why the College Adjustments Scales are an exceptional measure to help identify items and scales that are sensitive to these developmental changes.

Therapy with Emerging Adults

It is clear that for most people psychotherapy is beneficial and effective (Grissom, 1996; Lambert & Bergin, 1994; Lambert & Ogles, 2005; Lipsey & Wilson, 1993). College students are no exception. For over two decades studies have shown an increasing demand on university counseling centers for therapeutic services (Bishop, 1990; Dworkin & Lyddon, 1991; Nafziger, Couillard, Smith, & Wiswell, 1998). The number of students served each academic year is increasing, as is the severity of psychological problems (Gallagher, Christofidis, Gill, & Weaver-Graham, 1996). One area that is often overlooked when trying to understand college students' growing therapeutic needs is their adjustment difficulties as they transition to adulthood (Vermeersch et al., 2004).

Most college students in industrialized countries fall within a developmental time that is empirically distinct from adolescence and adulthood, referred to as "emerging adulthood" (Arnett, 2000, p. 470). It is a time of life when 18 to 25-year-olds are faced with challenging tasks such as developing autonomy, forming identity, clarifying sexual

orientation, establishing meaningful relationships, and choosing a career path. It has been described as a period in which students are expected to deal with life-changing events, transitions, and a variety of choices (Arnett, 1998; Martin & Smyer, 1990; Rindfuss, 1991). Some students are better prepared to deal with these changes, and for others it is a difficult time that is often experienced as overwhelming (Scharf, Mayseless, & Kivenson-Baron, 2004). These struggling individuals are the students who may require professional help in the form of counseling or psychotherapy. Given the costs of providing such services, it is important to know what works best for students (e.g. therapy styles, techniques, counselor types) and precisely how effective these services really are (Howard, Moras, Brill, Martinovich, & Lutz, 1996).

Empirical Demonstration of Effective Psychotherapy with College Students

There are several reasons to pursue empirical demonstration of the effectiveness of psychotherapy for university students. The first is to provide specific support for the assertion that therapy is generally effective for college student populations. Doing so would demonstrate to colleges and university administrators the need to create, maintain, and even enlarge university counseling centers, thus giving students the help they need and reassuring the universities that their money is well spent (Bishop & Trembley, 1987; Nafziger, Couillard, & Smith, 1999). Such accountability data would offer a basis for recognition of the counseling center as an important contributor to student life and the educational enterprise (Wiswell, 1996). Botcheva, White, and Huffman (2002) stressed that "in the service arena, practitioners recognize that they need to implement systems of data collection and performance measurement to prove their effectiveness to funding agencies" (p. 422). Lambert, Ogles, and Masters (1992) also noted that monetary

reimbursement (in the case of university counseling center continued funding) will remain a viable option only for those who can demonstrate that their programs and practices are effective.

Another reason for empirical examination of outcomes is to provide information to the directors of counseling centers about the efficacy of therapy provided by their clinicians. While therapists today receive extensive training and supervision, they continue to practice without objective external information about their clients' responsiveness to treatment (Sapyta, Riemer, & Bickman, 2005). Outcome information would allow counseling centers to maintain a standard of quality for the student clientele served, in addition to increasing therapist accountability.

It is also valuable to give feedback to individual therapists regarding their overall performance in order to foster adjustment of therapeutic style or orientation and to reinforce effective practice. Such feedback gives therapists the opportunity to improve their abilities and techniques and would likely raise the bar for counseling center therapists overall (Johnson & Shaha, 1996). In 2004 Sapyta conducted a meta-analysis of 30 clinical trials that evaluated the effectiveness of providing client health status feedback to health professionals (as cited in Sapyta, Riemer, & Bickman, 2005). He found that providing this feedback to clinicians significantly improved outcome, especially for clients who were not doing well in therapy.

Possibly the most important reason to systematically track client outcomes is to assist clinicians in case management. Utilizing these data can help in intervening with failing cases, determining when termination may be appropriate, and gauging the amount of progress a client has made during a course of treatment (Howard et al., 1996; Lambert

et al., 2001). Lambert and Hawkins (2004) explain that "at the very least, evaluating a patient's treatment progress is an ethical and responsible clinical practice" (p. 492). Overall, such information would make everyone involved in the counseling center therapeutic process more informed and ultimately more accountable. However, it is vital that the measure used to determine therapeutic change is indeed sensitive to that change and that it measures areas of importance as determined by the student client's issues, symptoms, and developmental tasks.

Measuring sensitivity to therapeutic change. Throughout history, psychological testing was primarily used to identify and explore differences between examinees. Differentiating between individuals was the purpose of most early psychological testing (Cronbach, 1984). Even though measuring individual differences is still the main focus of testing, the use of measures designed to assess individual change over time is dramatically increasing because of the growing interest in psychotherapy outcome research (Vermeersch, 1998).

Traditionally, estimates of reliability and validity would be sufficient to determine whether or not a measure is useful. In the case of outcome research, this information is important but inadequate. "Information regarding an outcome instrument's sensitivity to change, or responsiveness, is needed before it can be confidently used to assess the effect of treatment on patients" (Vermeersch, Lambert, & Burlingame, 2000, p. 242). In other words, the sensitivity to change of an instrument designed for therapeutic outcome could be seen as a dimension of validity. Once the items of an outcome measure can be empirically demonstrated to be sensitive to therapeutic change, the validity of the test is

more accurately revealed because its sensitivity to change is what the test is intended to measure (Meier, 2004).

Empirical demonstration of the efficacy of psychotherapy with college students depends on researchers' ability to accurately measure psychological phenomena appropriate for the specific population. Clinicians and researchers must be able to accurately measure if, what, and when positive psychological changes resulting from therapy occur (Vermeersch et al., 2000). Lambert and Hawkins (2004) explain that the development of outcome questionnaires that assess the effectiveness of therapeutic interventions throughout the therapy process is of primary importance. It is their position that continuing development and validation of an outcome measure should continue even after it is published and used.

The sensitivity to change of an outcome measure refers to the degree to which it reflects client changes that occur due to therapy (Hill & Lambert, 2004). Because being sensitive to therapeutic change is the primary purpose of an outcome instrument, it can be considered directly related to its construct validity. Given the value of change sensitivity in outcome assessment, it is necessary to gather information about the sensitivity to change of an outcome measure before it can be confidently used to assess the effects of treatment on clients (Vermeersch et al., 2004). Ideally, information about an outcome measure's sensitivity to change would be gathered prior to publication and presented in the test manual. Such information would provide repeated measures data on client and non-client samples that support the sensitivity to therapeutic change for each item and subscale. However, because sensitivity to change is a newer concept, performing these initial analyses has not traditionally been done as a part of test construction. The purpose

of this study was to provide sensitivity to therapeutic change data in order to assess the validity of the CAS as an outcome measure and to provide information (i.e. sensitive items) for the development of future outcome questionnaires that will be used with college student populations.

Determining sensitivity to therapeutic change. Several researchers have developed criteria for determining change sensitivity (e.g., Meier, 1997; Tryon, 1991; Vermeersch et al., 2000). To establish the change sensitivity of a questionnaire, Vermeersch et al. (2000) suggested two criteria that synthesize and build upon the literature in this area. The first says that client change on an item or subscale of the outcome questionnaire should occur in the theoretically proposed direction (i.e. it should demonstrate client improvement over the course of treatment). The second criterion states "the change of an item or subscale of an outcome measure indicates significantly more improvement in treated than in untreated individuals" (p. 243). This study used these two criteria to evaluate the items and subscales of the College Adjustment Scales (CAS) in order to determine their sensitivity to therapeutic change.

Development of the College Adjustment Scales as an Outcome Measure

In an effort to create a measure that examines issues specific to college student populations, the CAS was derived from a survey of intake problems presented by college students (Hicks, Reed, & Anton, 1998). The content areas generated by this survey were then evaluated by 90 counseling center professionals who identified specific areas that would aid in the assessment of college student clients (Anton & Reed, 1991). This initial process resulted in nine assessment areas: (a) Anxiety, (b) Depression, (c) Suicidal Ideation, (d) Substance Abuse, (e) Self-esteem Problems, (f) Interpersonal Problems, (g)

Family Problems, (h) Academic Problems, and (i) Career Problems, although some adjustment was made to get to these main categories. For example, the Anxiety, Depression, Suicidal Ideation and Self-esteem Problems scales were derived rationally from broader categories, entitled personal-emotional distress and psychological distress, in an effort to provide a clearer picture of the client's state. There was also a desire to make the CAS more comprehensive by including Academic Problems and Career Problems as separate scales.

The individual items for the CAS were derived from several sources such as existing measures, the literature on student development, and a review of the behavioral indications of the adjustment issues of college students (Pinkney, 1992). The initial selection process resulted in a pool of 307 items. After the items were reviewed for redundancy and overlap, 181 remained and were then reviewed by seven professionals for gender, ethnic, and religious bias. These items were then given to 224 college students and the responses were used to perform an item analysis that reduced the 181 items to the current 108 items, which included 12 for each scale. Three criteria were used in evaluating the items: (a) an equal number of items for each scale, (b) internally consistent with comprehensive coverage of the construct or domain, and (c) no significant relationship to sex, ethnic group, or social desirability (Anton & Reed, 1991). A more in-depth description of the College Adjustment Scales, including reliability and validity data, is presented in Chapter 3.

The authors of the CAS originally presented their measure as a screening inventory of the most frequently presented issues of college students seeking help from student development professionals. Because of the lack of outcome measures specifically

created for the student-client population, the CAS has been used as an outcome measure by researchers and clinicians wishing to measure client therapeutic progress when developmental issues were involved. In fact, several studies have used the CAS specifically as an outcome measure (e.g. Burleson, 2003; Chandler & Gallagher, 1996; Heppner et al., 1994; Quick, 2002; Tloczynski, 1998; Turner, Valtierra, Talken, Miller, & DeAnda, 1996) and some research has been conducted to validate it as such (e.g. Nafziger, Couillard, & Smith, 1997; Wiswell, 1996). It was the author's assertion that this study was needed to help determine whether or not the CAS should be used as an outcome measure that is sensitive to change. More importantly, this study identified developmental items needed for the improvement of future outcome questionnaires that assess therapeutic change for college students.

In summary, the purpose of this study was to perform item and scale analyses of the CAS to assess their sensitivity to therapeutic change for college students. These analyses helped answer the question, "Can the CAS be used as a valid outcome measure for college counseling center clientele?" It was hypothesized that a majority of the items and scales on the CAS would be sensitive to therapeutic change, meaning the treatment sample slope would be significantly larger than the control sample slope for a majority of the items and scales. There was the potential to see some change in the control sample, although greater change was expected from the treatment sample. Change in the control sample was meant to demonstrate change and development in students not in therapy. The difference between the treatment sample and control sample change (i.e. slopes) represents change due to therapy or therapeutic change. It was also hypothesized that some of the items identified as sensitive to therapeutic change would be developmental in

nature as opposed to related to symptom distress. This study answers the question: "Which items are sensitive to therapeutic change for the college student population?" For an item to be considered sensitive to therapeutic change it must:

1. Demonstrate a negative slope for the treatment sample,

   and

2. The treatment slope must also be significantly more negative than the control slope.

Method

Instrument

The College Adjustment Scales (CAS) is a self-report instrument designed to provide a rapid method of screening college counseling clients for common developmental and psychological problems. The CAS focuses on difficulties commonly encountered within college counseling centers such as "psychological distress, relationship conflict, low self-esteem, and academic and career choice difficulties" (Anton & Reed, 1991, p. 1). These problem areas are assessed with nine scales: (a) Anxiety, (b) Depression, (c) Suicidal Ideation, (d) Substance Abuse, (e) Self-esteem Problems, (f) Interpersonal Problems, (g) Family Problems, (h) Academic Problems, and (i) Career Problems. Each scale consists of twelve items, and scale raw scores are obtained by summing these items. A completed CAS produces a score for each of these nine areas. There is no total score for the measure.

The CAS instructions direct clients to read each statement carefully and decide whether or not it is an accurate statement about them (i.e., I feel tense much of the time). The measure consists of 108 items, all of which are answered based on a 4-point rating scale: 1 (*False, or Not At All True*), 2 (*Slightly True*), 3 (*Mainly True*), 4 (*Very True*). The CAS was constructed so that increasing scores of each item and scale correspond to increasing levels of difficulty that the client reports. Ten of the 108 items are reversed scored: 1 (*Very True*), 2 (*Mainly True*), and so on. These items are intended to measure positive quality of life (e.g., I feel good about myself). Reversing the scores on these ten items allows for each item and scale score to be uniformly interpreted so that increasing scores correspond to increasing levels of difficulty in that area.

Anton and Reed (1991) reported the results of four studies, with participants drawn from 33 counseling centers, in which the internal consistency of CAS scales ranged from .80 to .92, with an overall mean of .86. These same four studies also supported the convergent and discriminant validity of the CAS using multitrait-monomethod research designs. Hypothesized correlations were found between the CAS and multiple measures including: (a) State-Trait Anxiety Inventory, (b) Beck Depression Inventory, (c) Beck Hopelessness Scale, (d) NEO-Personality Inventory, (e) cumulative GPA, (f) Inventory of Interpersonal Problems, (g) Michigan Alcoholism Screening Test, (h) Drug Abuse Screening Test, (i) Multidimensional Self-esteem Inventory, (j) Family Adaptability and Cohesion Evaluation Scales, (k) Career Decision Scale, and (l) the Self-expression Inventory. Wiswell (1996) found evidence supportive of the convergent and criterion-related validity of the CAS in that it distinguished between individuals reporting problems in the nine scale areas and those not seeking treatment. Additional studies have likewise found the CAS to correctly distinguish between clinical and nonclinical samples and have declared that it has clinical utility (Nafziger et al., 1998; Nafziger et al., 1997). In addition, a review of the CAS in the *Mental Measurements Yearbook* reports that the numerous studies performed on the CAS have demonstrated sufficient discriminant and predictive validity (Martin & Starr, 1996).

Participants

The data for this study were obtained and collected at Utah State University in both the counseling center and in an introductory psychology class. Utah State University is a large western university with approximately 20,000 campus students attending during fall and spring semesters. Utah State University's counseling center

sees approximately 400 students a year, and employs seven full-time therapists, three interns, and two graduate students. The center has administered the CAS to its student clients since 1993 and has followed a strict administration protocol for the past four years. In an effort to match the demographics of the treatment sample, a control sample was also recruited from Utah State University. Details about both of these samples are outlined below.

Treatment sample. The treatment sample was obtained from the archives of the Utah State University counseling center. The center agreed to share the last four years of CAS data. According to the protocol, the counseling center staff administered the CAS before the intake session, and after every sixth session for the duration of therapy. The center database also included demographic information such as age, sex, ethnicity, marital status, disability, year in school, and the use of psychotropic medications. All data received from the counseling center was in research form, meaning there were no names or identifying information attached to the data. From this data set it was expected that approximately 300 clients to have taken the CAS at least twice and thus to have been eligible for this study.

A total of 409 clients met criteria for participation in this study. This is 31% of the clients who were seen between 2001 and 2005. Table 1 compares the demographics of the treatment and control samples.

Control sample. The control (no therapy) sample was collected from an introductory psychology course (Psychology 1010). Most students enrolled in this course were fulfilling a general education requirement, thus providing a somewhat diverse sample of students with various majors. In an effort to create the best match between

Table 1

Demographic comparison of the treatment and control samples

	Samples	
Demographic	Treatment	Control
Sex		
Female	64.1%	59.8%
Male	35.9%	40.2%
Age		
Mean	24.7%	19.43%
SD	6.71	2.09
Ethnicity		
Caucasian/European American	92.2%	89.0%
Hispanic/Latino	3.9%	8.7%
Asian American/Pacific Islander	1.2%	1.6%
African American	.5%	0%
Native American/American Indian	.5%	0%
Other	1.0%	.8%
Marital Status		
Single	71.6%	91.3%
Married or Engaged	19.3%	7.9%
Divorced or Widowed	8.3%	.8%
Year in College		
First	14.7%	65.4%
Second	19.1%	23.6%
Third	28.4%	10.2%
Fourth or higher	37.8%	.8%

treatment and control samples, students in the control sample took the CAS every six weeks throughout one semester. Most clients receiving services at the counseling center were seen on a weekly basis, so the time between administrations for the control sample approximated the between-session duration of the client sample.

Students were asked to complete the CAS in addition to answering demographic questions in order to obtain similar information to the data that was obtained from the archived treatment sample. For their participation, students received extra credit from their instructor. The study was presented as optional and alternative activities were presented as options for receiving extra credit.

The introductory class that agreed to participate in this study was made up of 157 students. Of the 157, 1 chose the alternative extra credit activity, 7 were currently in therapy and 22 were only present for one of the administrations, leaving 127 (81%) participants with two or three administrations completed who were therefore eligible for this study.

Procedure

The procedure for administering the CAS was the same for both the treatment and control samples. In the treatment sample (archival data), student clients were given the CAS question booklet and answer sheet and were asked to complete it in a quiet waiting room area. Instructions for taking the CAS were provided on the front of the question booklet so that no additional guidance was needed for students to complete the measure. In an effort to match the administration procedure of the treatment sample to the control sample, students in the Psychology 1010 class were given the CAS during class and were asked not to talk during the administration.

In order to comply with the requirements of the desired statistical analysis, each participant had to complete the CAS a minimum of two times. This was also the criterion for participation in the treatment sample (i.e., all clients within the counseling center archives who took the CAS two times or more during successive therapy were included in the analysis). For the control sample, three administrations during a 14-week semester were given (one at the beginning, middle and end of the semester). Therefore, the control sample was set up to contain the minimum requirement of at least two sessions and to mirror the treatment sample in approximate time between administrations. This was a quasi-experimental, repeated measures, control group design where the time between observations varied for individuals in both the treatment and control groups (Heppner, Kivlighan, & Wampold, 1999).

Statistical Analyses

As mentioned previously, the purpose of this study was to find out which items and scales on the CAS were sensitive to therapeutic change for college students, thus assessing the validity of the test and providing data for the development of future outcome questionnaires. The data gathered in this study were examined using the MIXED procedure in SAS, which is a mixed modeling, or hierarchical linear modeling (HLM) procedure. The MIXED procedure is preferable because it allows for the generation of an individual slope (i.e., a change rate which is based on the dose-effect relationship between increasing sessions of therapy and CAS item or scale scores) for each participant on the items and scale scores (Raudenbush & Bryk, 2002; Diggle, Liang & Zeger, 1994).

There are several advantages for using the HLM procedure over conventional multivariate repeated measures methods (Raudenbush & Bryk, 2002). First, HLM explicitly expresses individual growth or change, whereas in other models, change for an individual is only demonstrated within a group statistic. Second, HLM is more flexible in terms of its data requirements because the repeated observations are nested within the individual. This is beneficial because the number of observations per person and the spacing between the observations may vary within the treatment sample and between the treatment and control samples. Third, HLM permits flexible specification of the covariance structure among the repeated observations (Vermeersch, 1998). According to Speer and Greenbaum (1995) hierarchical linear modeling makes use of all the available information to provide better estimates of significant rates of change.

In order to meet the requirements of the HLM and maximize the validity of our results, this study only used subjects who had a minimum of two administrations, which resulted in data from more than double the recommended minimum number of participants per group (50). Between-subjects data was also tracked, such as number of sessions and/or time between administrations. Once the data were collected and scored, a preliminary analysis provided a mean, standard error, slope estimate, and *t*-value (based on a comparison between the obtained slope and a hypothetical "0" slope) for each of the items and scales of both samples. The calculation of the item mean and standard error provided the context in which to view the slope estimate for a given item or scale score. The estimated slope of an item or scale represents the average rate of client or participant change and is the primary indicator of change sensitivity. Because the goal of this study

was to identify test items that were sensitive to therapeutic change, any items that did not have a negative slope were excluded from the secondary analyses described below.

Following the initial analysis, the slopes obtained for the treatment and control group were tested against each other in order to identify any significant differences in rates of change between the two samples for each of the items and scales. An item or scale was judged as being sensitive to change if the obtained treatment slope for that item was significantly more negative (since lower scores on the CAS correspond to less difficulty in that area) than the obtained item slope for the control sample. To test for significance between slopes, independent sample *t*-tests were used ($p < .05$) in addition to calculating Cohen's *d* effect sizes. Effect sizes (represented by *d* values) for the treatment versus control slope comparisons were calculated from the obtained *t* values using the conversion formula $d = t(1/N_e + 1/N_c)^{1/2}$ (Ray & Shadish, 1996). A small effect size was defined as a value less than .33, a medium was defined as a value between .33 and .55, and a large effect size was defined as a value larger than .55 (Lipsey, 1990).

Results

It was hypothesized that a majority of the items and scales on the CAS would demonstrate sensitivity to therapeutic change. Hierarchical linear modeling was used to analyze the data. To compare the differences between treatment and control slopes, *t* statistics and effect sizes were used. In order to control for possible differences due to the demographics of the two samples, the following variables were covariates in the analysis: age, marital status, and year in college. Differences in sex and ethnicity were not used as covariates because of non-significant differences between the two samples. The question addressing disability was deemed too vague (it did not differentiate between mental and physical disabilities) to be a covariate.

The items and scales on the CAS that met both criteria for change sensitivity (i.e., a negative slope in the treatment sample and the treatment slope was significantly more negative than the control slope) were considered sensitive to therapeutic change for this college population. Each item's slope represented the amount of change on a four-point Likert scale that was filled out between two therapy sessions. The average number of sessions between CAS administrations for the treatment sample was 8.64, and the average number of days between sessions was 13.65. Using this information, a treatment slope of -.10 for an item can be interpreted thusly: this item measured, on average, a decrease in symptom severity of .10 points on a four point Likert scale between sessions.

Items

Results from applying the first criterion to each of the items on the CAS indicated that 103 of the 108 items demonstrated change in the theoretically proposed direction (i.e., items demonstrated a negative slope for the treatment sample). When the second

criterion (i.e., the treatment sample slope must be significantly more negative than the control sample slope) was applied, 63 of the 108 items demonstrated sensitivity. In other words, 53.3% of the items on the CAS met both criteria and can be considered sensitive to therapeutic change for this college population. Because more than half of the items on the CAS demonstrated change sensitivity according to the set criteria, the hypothesis that a majority of the items would be sensitive to change is supported by these data.

Treatment and Control Group Statistics for Scales and Items is the table in the appendix. It provides additional information about the results of the scales and items of the CAS. Means and standard deviations are provided to show how the treatment and control samples compare on each question's four-point Likert scale. This table also includes a slope representing change for each sample and a *t* value and effect size comparing that slope to a hypothetical zero slope. Data specific to answering the questions and hypotheses at hand are presented in this chapter (i.e., *t* values and effect sizes used to show the differences between treatment and control sample slopes). Items for each scale are displayed and ordered by significance, starting with the items that are most sensitive to therapeutic change. Scales are presented in no particular order.

Scales

All nine scales met the first criterion for change sensitivity by demonstrating a negative slope for the treatment sample (i.e., clients improved over time as demonstrated by a negative slope). However, only seven of the nine scales fulfilled the second criterion which states that the treatment sample slope must be significantly more negative than the control sample slope. Table 2 compares the treatment and control group slopes for each scale. The Depression, Anxiety, and Self-esteem Problems scales demonstrated

the highest change sensitivity. These scales had large effect sizes ranging from .58 to .86. Medium effect sizes were demonstrated by the Suicidal Ideation, Interpersonal Problems, and Academic Problems scales with d values ranging from .37 to .55. The Family Problems scale demonstrated statistical significance, but had a small effect size of .31. The Substance Abuse and Career Problems scales did not have significant differences between the control and treatment sample slopes and therefore did not meet the second criteria for change sensitivity. Because seven out of the nine scales did demonstrate change sensitivity according to the set criteria, the hypothesis that a majority of the scales would be sensitive to change is supported by these data.

Table 2

Slope Comparison for CAS Scales

	Slopes			
Scales	Treatment	Control	*t*	d
Depression	-.3681	.1038	-8.50***	.86
Anxiety	-.3348	-.0169	-8.30***	.84
Self-esteem Problems	-.2082	.0419	-5.71***	.58
Suicidal Ideation	-.1402	.0317	-5.42***	.55
Interpersonal Problems	-.1422	.0240	-4.54***	.46
Academic Problems	-.0964	.2229	-3.64***	.37
Family Problems	-.0841	-.0422	-3.00***	.31
Substance Abuse	-.0227	.0173	-1.43	.15
Career Problems	-.0543	-.1057	1.70	.17

* $p < .05$. ** $p < .01$. *** $p < .001$.

Academic Problems. The Academic Problems scale is directed at a construct that has not traditionally been assessed on outcome measures and as a result is of particular importance to this study. The treatment sample slope was significantly more negative than the hypothetical zero slope and the control sample slope. This scale also demonstrated a medium effect size of .37. Of the 12 items in the scale, 8 met criteria to be considered sensitive to therapeutic change (see Table 3 for specific slope comparison by item). Item 10 is the only item that demonstrated a medium effect size while the other seven demonstrated a small effect. The two items (10 and 82) with the greatest effect sizes focused on mental abilities such as concentration and memory as it relates to academics. The items (28, 37, 46, 55, 64, 100) that met the criteria for change sensitivity and had small effect sizes dealt with confidence and time or task management. The items (1, 19, 73, 91) that did not meet the criteria focused on personal attributes and behaviors related to academic performance.

Anxiety. The Anxiety scale was found to be the second most sensitive to therapeutic change when compared to the other scales. The scale itself demonstrated high significance and had a large effect size. As for the items, 11 of the 12 were found to be sensitive to therapeutic change. The item with the largest effect size was 101. It deals with thoughts that the client finds troubling. Other sensitive items (2, 11, 29, 38, 47, 56, 65, 74, 83, 92) with medium and small effect sizes addressed fears, physiological symptoms of anxiety and panic, sleep issues, concentration, and worry. Item 20 did not meet the second criterion because it was statistically significant in the wrong direction (i.e., the control sample improved more than the treatment sample). See Table 4 for an in depth comparison of treatment and control slopes for the Anxiety scale.

Table 3

Slope Comparison for Academic Problems Items

	Slopes			
Items	Treatment	Control	*t*	d
10. I have difficulty concentrating while studying.	-.0194	.0001	-4.00***	.41
82. I seem to forget what I know when I take a test.	-.0128	.0085	-3.16***	.32
28. I seldom feel prepared for my exams.	-.0086	.0253	-2.50**	.25
55. As much as I try, I'm always behind in my schoolwork.	-.0111	.0121	-2.36**	.24
100. No matter how much I study, I can't seem to make good grades.	-.0048	.0290	-2.26**	.23
64. I think about dropping some classes.	-.0113	.0096	-2.12*	.22
46. I'm satisfied with my academic performance.	-.0051	.0264	-1.81*	.18
37. I organize my time poorly.	-.0048	.0224	-1.78*	.18
73. Other students seem to study more than I do.	-.0011	.0264	-1.48	.15
19. I never find the time to study.	-.0023	.0181	-1.25	.13
91. I'm inconsistent in my class work.	-.0011	.0202	-1.16	.12
1. I have poor study skills.	-.0019	.0114	-.93	.10

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Slope Comparison for Anxiety Items

	Slopes			
Items	Treatment	Control	*t*	d
101. I'm bothered by thoughts that I can't seem to get rid of.	-.0437	-.0003	-7.41***	.75
47. Lately, it doesn't take much to get me upset.	-.0296	.0105	-5.73***	.58
38. Lately, I've had trouble concentrating.	-.0302	-.0135	-5.30***	.54
74. I think I'm showing the signs of a lot of stress.	-.0296	.0162	-5.23***	.53
2. I feel tense much of the time.	-.0250	.0075	-4.99***	.51
56. Often I get so nervous I feel my heart pounding.	-.0214	-.0137	-4.84***	.49
83. Lately, my worries have made it hard for me to get to sleep.	-.0277	.0108	-4.83***	.49
65. I worry about things that don't bother most other people.	-.0194	-.0105	-3.87***	.39
29. I have a lot of aches and pains.	-.0162	-.0093	-3.57***	.36
92. I often feel afraid but don't know why.	-.0153	-.0112	-3.44***	.35
11. When I get upset, I have trouble catching my breath.	-.0116	.0100	-2.80***	.28
20. I seem to be worried constantly about something.	-.0203	-.0216	4.20***	.43

* $p < .05$. ** $p < .01$. *** $p < .001$.

Interpersonal Problems. This scale demonstrated change sensitivity with a medium effect size. Seven of the 12 items on this scale were considered sensitive to therapeutic change (See Table 5). The change-sensitive items (21, 30, 39, 48, 57, 66, 102) addressed the client's personal satisfaction with relationships, vulnerability, social skills and abilities, and dependence. Items (3, 12, 75, 84, 93) that did not meet the change sensitivity criteria focused on other people or variables outside the control of the client (e.g., "the people around me care about very different things than I do", "I'm tired of the way people treat me").

Depression. Overall, this scale demonstrated the largest effect size when compared to the other CAS scales. All of its items were considered sensitive to therapeutic change as evidenced in Table 6 where the treatment and control slopes for each item are compared. Items 49, 22, 94, and 67 demonstrated large effect sizes and the first three items on this list were the most sensitive to change on the entire CAS. The items on this scale focused on feelings of sadness; affected activities such as sleep, eating, sex, and everyday tasks; and beliefs about improvement.

Career Problems. This scale was not sensitive to therapeutic change. As demonstrated in Table 7, only 2 of the 12 items met both criteria for change sensitivity. These items (77, 104) demonstrated small effect sizes and focused more on feeling frustrated because of a lack of autonomy or confused about life or career direction. The items that were not sensitive to change focused on whether or not the client was having Career Problems. Most of the items showed more improvement in the control sample than in the treatment sample.

Table 5

Slope Comparison for Interpersonal Problems Items

	Slopes			
Items	Treatment	Control	*t*	d
57. My temper often gets me into arguments.	-.0137	-.0132	-4.00***	.41
48. People around me don't understand what I'm really like.	-.0191	.0035	-3.83***	.39
66. I need others more than they seem to need me.	-.0176	-.0131	-3.47***	.35
102. I don't trust most of the people around me.	-.0142	.0160	-3.08***	.31
39. I always get hurt when I let others get close to me.	-.0124	-.0034	-2.56**	.26
30. I seem to disagree with others more than I agree with them.	-.0070	.0054	-2.02*	.21
21. I have close and satisfying relationships.	-.0085	.0074	-1.88*	.19
84. I'm tired of the way people treat me.	-.0025	.0256	-1.55	.16
75. I don't get along with those in authority.	-.0030	.0147	-1.47	.15
3. A lot of people irritate me.	-.0052	.0098	-1.45	.15
93. I've made mistakes in choosing my friends.	-.0038	.0029	-.96	.10
12. The people around me care about very different things than I do.	-.0035	-.0374	2.34**	.24

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6

Slope Comparison for Depression Items

	Slopes			
Items	Treatment	Control	*t*	d
49. Things have gone from bad to worse.	-.0472	.0171	-7.94***	.81
22. Lately, I feel sad or blue most of the time.	-.0238	.0025	-7.94***	.81
94. I can't seem to get rid of my feelings of sadness.	-.0455	.0146	-7.55***	.77
67. Sad thoughts keep me awake at night.	-.0299	.0027	-5.93***	.60
4. I haven't felt much like eating lately.	-.0238	.0088	-4.91***	.50
76. I don't get the same pleasure that I used to from my activities.	-.0259	.0098	-4.90***	.50
85. I believe that no matter what I do things will not improve.	-.0224	.0183	-4.90***	.50
58. Lately, it's a chore for me just to get through the day.	-.0266	.0145	-4.84***	.49
31. I've lost interest in the things I've always enjoyed.	-.0227	-.0045	-4.75***	.48
103. Recently I've lost some of my interest in sex.	-.0164	.0007	-3.61***	.37
40. Most mornings I wake up calm and rested.	-.0078	.0006	-1.85*	.19
13. The smallest tasks seem to tire me out.	-.0075	.0079	-1.83*	.19

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7

Slope Comparison for Career Problems Items

	Slopes			
Items	Treatment	Control	*t*	d
77. I feel I'm being forced into a career I don't want.	-.0041	.0339	-3.12***	.32
104. I don't know what to do with my life.	-.0119	.0074	-2.24**	.23
41. I'm dissatisfied with my lack of plans for the future.	-.0075	.0041	-1.54	.16
95. My friends have a better idea about their future than I have about mine.	-.0074	-.0011	-1.46	.15
86. I'm anxious because I'm running out of time for choosing a career.	.0021	.0127	-.98	.10
68. Although I know it's time for me to decide, I'm not yet ready to choose a major/career.	-.0003	-.0012	.01	.01
59. I don't know how to go about selecting a career.	-.0045	-.0052	1.14	.12
32. I'm worried because I can't find a career that	.0058	-.0119	1.47	.15
23. I need to know myself better in order to choose a career.	-.0038	-.0191	1.49	.15
50. I'm worried about finding a major.	-.0029	-.0232	1.78*	.18
14. I can't seem to find a major that fits me.	-.0003	-.0283	1.80*	.18
5. I need more information about career options.	-.0046	-.0768	4.41***	.42

* $p < .05$. ** $p < .01$. *** $p < .001$.

Suicidal Ideation. Suicidal Ideation is one area that is usually assessed on outcome questionnaires with only one or two items; the CAS, however, has 12 items addressing this content area. This analysis identified 9 of these items that were sensitive to therapeutic change (see Table 8). The one (item 60) that demonstrated the highest effect size asks how the client is coping with life. Other items (6, 33, 42, 51, 69, 78, 87, 105) demonstrated primarily medium effect sizes and addressed suicidal thoughts, whether or not the client has a plan of how to attempt suicide, and feelings associated with wanting to kill one's self. Items 15, 24 and 96 did not meet criteria to be considered sensitive to change. Question 15 focused on whether or not others would miss the person if the client died. Question 96 was similar in that it asked about the client's history of attempting suicide.

Substance Abuse. Only 1 item out of the 12 on this scale met criteria to be considered sensitive to therapeutic change (see Table 9). The only reason it met sensitivity criteria was because the control sample slope that it was compared to was elevated in the positive direction. In other words, the control sample got significantly worse over time (see Table A1). The other 11 items that were not significant assessed behaviors related to substance use, using substances to avoid or cope with problems, and guilt associated with the use. The mean for each item in this scale for both the treatment and control samples were between 1 and 2 on the four-point Likert scale.

Self-esteem Problems. Overall, the Self-esteem Problems scale was found to be quite sensitive to therapeutic change with the scale demonstrating a large effect size and 9 of the 12 items fulfilling change sensitivity criteria (see Table 10). The items (107, 62, 71, 44, 8, 17) that were the most sensitive to therapeutic change demonstrated large and

Table 8

Slope Comparison for Suicidal Ideation Items

	Slopes			
Items	Treatment	Control	*t*	d
60. I can no longer cope with life.	-.0220	.0117	-5.96***	.60
42. My mind has been filled with thoughts of suicide.	-.0138	.0047	-4.38***	.44
33. I think things would be better if I weren't alive.	-.0128	.0025	-4.07***	.41
87. I'm tired of living.	-.0153	.0078	-3.87***	.39
51. I've planned how to take my life.	-.0127	-.0124	-3.78***	.38
6. I have nothing to live for.	-.0106	.0039	-3.51***	.36
105. I think about death a lot.	-.0138	.0094	-3.37***	.34
69. I think that it would be better to kill myself than to go on living.	-.0085	.0131	-3.27***	.33
78. I know exactly how I would end my life.	-.0063	.0143	-2.23**	.23
15. No one would miss me if I were to die.	-.0038	.0029	-1.27	.13
96. I've attempted suicide in the past.	-.0031	.0022	-.96	.10
24. I've thought about how I would take my life.	-.0197	-.0288	5.33***	.54

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9

Slope Comparison for Substance Abuse Items

	Slopes			
Items	Treatment	Control	*t*	d
61. My use of drugs or alcohol has hurt my grades.	-.0004	.0126	-1.99*	.20
25. I've missed classes or work because I partied the night before.	-.0022	.0135	-1.43	.15
79. People have taken advantage of me while I was drunk or high.	-.0027	.0038	-1.27	.13
16. I spend too much money on drugs or alcohol.	-.0015	.0035	-1.15	.12
43. I've gotten into trouble as a result of my drinking.	-.0012	.0001	-.66	.07
7. I party too much.	-.0016	.0013	-.63	.06
52. I use drugs or alcohol as a way to cope with my	.0001	.0028	-.09	.03
70. Other people believe that I have a problem with drugs or alcohol.	-.0001	.0003	-.10	.01
106. I've been in some pretty dangerous situations because of my drinking or use of drugs.	-.0001	-.0035	.41	.04
97. I've had arguments with my friends about my drinking or use of drugs.	-.0025	-.0094	1.51	.15
88. I've felt guilty over my drinking or use of drugs.	-.0042	-.0060	1.77*	.18
34. I've done things while drinking that I'm ashamed of or embarrassed about.	-.0063	-.0071	2.18**	.22

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 10

Slope Comparison for Self-esteem Problems Items

	Slopes			
Items	Treatment	Control	*t*	d
107. Frequently I feel dissatisfied with the kind of person I am.	-.0330	.0061	-5.64***	.57
62. I don't have any particular strengths or talents.	-.0156	.0041	-4.36***	.44
71. I don't feel as capable as most other people.	-.0210	.0135	-4.24***	.43
44. I'm afraid to ask for what I need.	-.0175	-.0111	-3.72***	.38
8. I feel good about myself.	-.0138	.0103	-3.27***	.33
17. I feel that my life is going about as well as most others my age.	-.0150	.0229	-3.22***	.33
80. I'm too sensitive to criticism from others.	-.0149	.0004	-3.01***	.31
35. I believe that I'm a successful person for my stage in life.	-.0113	.0133	-2.61**	.27
89. I have a very positive opinion of myself.	-.0090	.0002	-2.04*	.21
98. People say that I lack self-confidence.	-.0068	.0005	-1.32	.13
26. I trust my judgment.	-.0064	.0099	-1.72	.17
53. I feel that I'm sexually attractive.	-.0078	-.0354	3.07***	.31

* $p < .05$. ** $p < .01$. *** $p < .001$.

medium effect sizes and addressed perceptions and feelings about the self as they related to strengths, abilities, fears, etc. Items (80, 35, 98) that were not as sensitive or not at all sensitive to therapeutic change focused on comparisons with others or the perceptions and behaviors of others. Item 53, which asks about feeling sexually attractive, showed no change in the treatment sample but had significant change for the control sample.

Family Problems. The Family Problems scale did meet both criteria for change sensitivity and had a small effect size. The results revealed that only 4 of the 12 items were sensitive to change, and all four of these items (99, 18, 108, 36) demonstrated only small effect sizes as demonstrated in Table 11. Question 99 assessed a lack of separation between family issues and other aspects of the client's life. Question 108 assessed a fear of parents. Question 36 looked at how involved the family is in the client's life. Of the other items (27, 72, 90) that did not meet the criteria for change sensitivity, many of them focused on screening for difficulty at home.

Table 11

Slope Comparison for Family Problems Items

	Slopes			
Items	Treatment	Control	*t*	d
99. I think about problems at home even when I'm at work or school.	-.0172	-.0011	-3.17***	.32
18. My family doesn't understand me.	-.0091	.0023	-2.30**	.23
108. I'm afraid of my parents.	-.0076	.0000	-2.29**	.23
36. My family tries to run my life.	-.0087	-.0045	-2.11*	.22
9. I avoid talking to my parents.	-.0067	-.0059	-1.67	.17
63. I feel smothered by my parents.	-.0038	.0006	-1.12	.11
27. My home life is unpredictable.	-.0045	-.0010	-.96	.10
72. My family life is pleasant and satisfying.	-.0035	.0060	-.89	.09
54. My parents won't let me grow up.	.0008	.0089	-.66	.07
90. I don't like to be at home because we always argue.	.0002	-0142	.89	.09
45. It bothers me that my family is not closer.	-.0033	-.0231	1.41	.14
81. I can't seem to let go of my family.	-.0055	-.0172	1.59	.16

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Validity of the CAS

As hypothesized, a majority of the CAS scales and items met both criteria to be considered sensitive to therapeutic change. However, the CAS is not without its flaws as an outcome questionnaire. It is important to remember that this measure was created as a screening tool. In fact, several items exemplified this. Question 15 in the Suicidal Ideation scale focuses on whether or not others would miss the person if the client died. This question doesn't seem to be measuring something that can be reliably changed in therapy. Question 96 is similar in that it asks about the client's history of attempting suicide; a person's history cannot be changed by therapy. The family issues scale also housed a few similarly problematic/limiting items (27, 72, 90). These items assess the state and distress level in the client's home. If the client was in family therapy these questions could be sensitive to therapeutic change, but for college students they are much less likely to be impacted through treatment. Even though many of these problematic items addressed areas important in therapy, they would need to be rewritten to work more like an outcome question and less like a screening question in order to capture any therapeutic change.

It is important to understand that because of this measure's unique focus on college-age clients, it has been adopted by several researchers and counseling centers as an outcome questionnaire when it was never intended to be used in this manner. This unintended use makes it worth exploring whether or not the CAS should be considered a valid outcome questionnaire in its current state. Even though a majority of its items were found to be sensitive to change, that majority was only made up of 53% of the questions.

When the Outcome Questionnaire-45, a measure specifically designed to track session-by-session change, went through a similar analysis, 82% of its items demonstrated change sensitivity with a counseling center population; interestingly, the author of the study still called for a revision of the measure (Vermeersch et al., 2004).

It is this author's opinion that if the CAS is to be used as a valid outcome questionnaire for research or clinical feedback purposes, it needs to be revised. Such a revision could shorten the measure and focus its questions in areas that have been revealed to accurately capture change that takes place for college students in therapy. In its current state the measure is time-consuming and the benefits of many questions (e.g. higher reliability, more comprehensive screening of issues) do not outweigh the burden of administering it before each session.

Some major revisions would need to take place especially within the Family Problems, Career Problems, and Substance Abuse scales. The results for the Substance Abuse scale, as an example, suggest that either the measure did not ask the right questions or therapy at this college counseling center is not focused on substance abuse. When looking at the data, the mean for every item in this scale for both the treatment and control samples was between 1 and 2; this could imply that sensitivity to change is not being detected because of floor effects. The results are similar in the Career Problems scale. Either career issues are not typically addressed in counseling center therapy or the questions used in this scale were meant more for screening than for assessment of change. Based on the two questions that were actually sensitive to change in this scale, the data suggest that if career items are to be included in a therapy outcome questionnaire, they should relate more to how autonomous the client is feeling with these

decisions and how confident they feel in their life and career decisions, and less about where they are in the process of choosing a career.

Throughout the measure, the items that demonstrated the most sensitivity focused more on the client's internal process (concentration, memory, thoughts, personal satisfaction with relationships, level of vulnerability, belief about how they are coping with life) and not on the client's history or situations that cannot be changed. Questions that met the criteria for change sensitivity should remain in the revised scale and similar types of questions should be explored if additional items are desired. An example of this is the Interpersonal Problems scale—a scale that the author believes has been overlooked in past measures when assessing the college population. Most outcome questionnaires have minimal items related to this area, but this study identified seven interpersonal items that are sensitive to therapeutic change for this population.

Self-esteem is another area that seems important to assess in therapy for the college population because confidence and perceptions of the self are vital areas to be developed if the student is to be successful in life. The self-esteem scale identified nine questions that were sensitive to change. Finding items such as these that are different from the typical items found on outcome questionnaires, and that are sensitive to change, demonstrates the benefit of performing this study.

Implications for Future Measures and Research

Even though a revised version of the College Adjustment Scales would be useful, a new measure specifically designed as an outcome questionnaire for the college client population would be ideal. Results from this study combined with results from other similar studies (where other outcome questionnaires are assessed for change sensitivity

with college populations) could be combined to form a measure that more comprehensively covers areas specific to this population. Items that have demonstrated the most sensitivity to therapeutic change in a college counseling population would be used. Measures such as the OQ-45, the K-KAT, and the CAS would be good options for such a project because there is ample data and research that would guide the item and scale selection.

A new measure created from this data could be researched and utilized in counseling centers that are already using established measures. Comparisons could be drawn to help test the validity of the new measure. Ultimately, this counseling-center-specific outcome questionnaire could replace the multiple measures that have been adapted from measures with different populations in mind. A measure created specifically for college student clients is needed. Counseling centers across the nation use measures with inadequate questions and scales. For example, the OQ-45, which is widely used in college counseling centers, shows that almost half of all students receiving psychotherapy have no measurable benefit from their treatment (Vermeesch, et al., 2004). When these students' outcomes (as measured by the OQ-45) are compared with their satisfaction with therapy and impressions that it was helpful, it appears that students report therapy as being much more impactful than what the OQ-45 was able to capture (Okiishi, personal communication, 2007). Again, this strongly suggests the need for a measure that is more specifically designed for use with a college counseling population.

Some research using the OQ-45 and other measures is missing various vital aspects of the college student's development and change in therapy (Vermeersch et al., 2004). The client's level of autonomy is one example that the data show needs to be

assessed for this population. Many counseling centers are trying to assess what change is taking place with student clients; it is time for them to have available a measure that is sensitive to change for their specific population.

Sensitivity to Therapeutic Change Criteria

When analyzing the data for this study using the established criteria to identify items and scales that are sensitive to therapeutic change, a few items that were deemed statistically significant had questionable clinical significance. Three items in particular (46, 61, 77) met both criteria but demonstrated a control sample slope that was significantly more positive than the hypothetical zero slope and a treatment sample slope that was not significantly more negative than the hypothetical zero slope. This combination allows items to be considered sensitive to therapeutic change when the change might be due to a dynamic within the control sample rather than a reflection of change due to therapy. It could also be possible that these items are measuring gains due to therapy and that without treatment, college students could tend to digress. In order to lessen the degree of inference necessary to make these sorts of judgments, a new third criterion for change sensitivity might be helpful. This third rule would state that in order for an item or scale to be considered sensitive to therapeutic change its treatment sample slope must, in addition to being significantly different than a control sample, be significantly more negative than the hypothetical zero slope. Even though implementing such a criterion in this study would have made little difference in the overall results of this study, the author recommends considering it for future research and when identifying items for a new outcome questionnaire. This would allow for the best possible items to be selected in order to accurately capture the greatest amount of therapeutic change.

Effect sizes were calculated for this study even though they were not necessary to meet the sensitivity to therapeutic change criteria. Given that this study was performed on a smaller sample, and that effect sizes are not influenced by sample size, it would make sense to utilize them when determining sensitive items. When choosing items for future measures, or when revising this measure, the author suggests focusing first on the items with large and medium effect sizes and using more caution with items with small effect sizes. In addition, utilizing the data from the table in the appendix will aid in the process of assessing items.

Limitations of the Study

While there is reason to be confident about the results of this study and the directions it provides for future research, there are also a number of limitations that need to be addressed. Ideally group differences would have been controlled for by randomly assigning people into the treatment and control group to minimize pretreatment group differences. Because this is not ethically possible, confounding variables (marital status, age, or year in school) were made covariates. Fortunately, HLM analysis is very flexible in that it allowed the slopes that represent change to be compared instead of comparing the means for each group. This minimized the effects of differing levels of symptom severity in addition to adjusting for variations in time between sessions and administrations of the CAS.

Another area of the study that could be improved in future studies is the size of the control sample. Even though this study more than doubled the HLM analysis requirement of 50 participants per sample, it would have been preferable to sample another class or two to increase the size and possibly diversify the sample. For this study,

gathering additional data was deemed unnecessary because the great cost of time and money would not justify a potentially minimal gain. Instead of going to these lengths, as mentioned above, covariates were used to compensate for known possible differences between the samples.

Another limitation of this study is the number of sessions and time between each CAS administration. Ideally the client would take the measure before each treatment session, thus assessing change that has taken place since the last session. Because archival data was used for the treatment sample of this study, the study was at the mercy of the Utah State University Counseling Center's protocol for collecting outcome data. In this center, they aim to administer the CAS every six sessions so that they can have the client fill out other measures such as the OQ-45 on off weeks and not overburden them with paperwork. The HLM analysis takes into account the time and number of treatment sessions between administrations and still provides a slope that estimates the amount of change between each session. Although this is not a perfect solution to limited data, it is the best that could be done with the data provided.

Generalizability

When generalizing the findings of this study to other populations, it is of benefit to consider the nature of this population as it is portrayed in the data. This sample was primarily European American with other ethnic groups accounting for approximately 11% of the sample. While nothing could be done about this issue given the accessible data, future studies should attempt to gather data among a more ethnically diverse population to see if this impacts item sensitivity.

Another issue to consider is the year in school differences that could be encountered between this study's sample and the general population of college students for whom it will be used. Although differences between the treatment and control groups were controlled for by using the covariates identified, it could be beneficial to replicate these results using a control sample that is more evenly distributed by their year in school. This issue can also be resolved by comparing these data to other similar analyses that may have used a more mature population. Despite these possible limitations to generalize from this sample, every effort was made to make the study sound and generalizable to the average college population.

Conclusions

Overall, a majority of the items and scales on the CAS demonstrated sensitivity to therapeutic change for the college population. However, 45 of the 108 items did not meet the criteria. Because of these findings, the creators of the CAS are encouraged to revise the measure if it is to be used as an outcome questionnaire. Researchers should also be wary of using this measure as an outcome measure. Doing so could under-represent the actual amount of good being done in therapy and give an inaccurate picture of a center's or counselor's effectiveness. In addition, clinicians that are currently relying on the CAS as an outcome questionnaire should consider these results and take care not to treat it as an instrument that is wholly sensitive to therapeutic change for the college population. Items that were found to be sensitive to therapeutic change for the college population can be used to create a new outcome measure specifically for counseling centers.

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Appendix

Table of Treatment and Control Group Statistics for Scales and Items: Comparison Between Group Slopes and a Hypothetical Zero Slope

Group Statistics for Scales and Items

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
Academic Problems		Control	24.21	7.47	.2229	2.98	.0031
		Treatment	27.81	8.01	-.0964	-4.19	<.0001
1.	I have poor study skills.	Control	2.07	.87	.0114	1.11	.2658
		Treatment	2.29	.91	-.0019	.48	.4826
10.	I have difficulty concentrating while studying.	Control	2.28	.88	-.0001	-.01	.9944
		Treatment	2.76	.95	-.0194	-5.66	<.0001
19.	I never find the time to study.	Control	1.79	.76	.0181	1.58	.1143
		Treatment	2.03	.90	-.0023	-.80	.4218
28.	I seldom feel prepared for my exams.	Control	2.12	.86	.0253	2.10	.0359
		Treatment	2.40	.97	-.0086	-2.84	.0047
37.	I organize my time poorly.	Control	2.13	.94	.0224	1.94	.0525
		Treatment	2.51	1.00	-.0048	-1.60	.1092
46.	I'm satisfied with my academic performance.	Control	2.36	.88	.0264	2.09	.0371
		Treatment	2.76	.92	-.0051	-1.48	.1398
55.	As much as I try, I'm always behind in my schoolwork.	Control	1.91	.93	.0121	.92	.3583
		Treatment	2.42	1.03	-.0111	-3.20	.0015

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
64.	I think about dropping some classes.	Control	1.50	.76	.0096	.69	.4993
		Treatment	1.77	1.00	-.0113	-2.91	.0037
73.	Other students seem to study more than I do.	Control	2.43	.95	.0264	2.07	.0388
		Treatment	2.58	1.05	-.0011	-.30	.7615
82.	I seem to forget what I know when I take a test.	Control	2.10	.97	.0085	.78	.4342
		Treatment	2.17	1.02	-.0128	-4.40	<.0001
91.	I'm inconsistent in my class work.	Control	1.81	.87	.0202	1.61	.1082
		Treatment	2.24	1.04	-.0011	-.30	.7650
100.	No matter how much I study, I can't seem to make good grades.	Control	1.70	.90	.0290	2.68	.0076
		Treatment	1.86	.97	-.0048	-1.73	.0837
Anxiety		Control	19.87	6.66	-.0169	-.19	.8467
		Treatment	28.57	7.81	-.3348	-11.73	<.0001
2.	I feel tense much of the time.	Control	1.71	.71	.0075	.63	.5320
		Treatment	2.61	.90	-.0250	-7.02	<.0001
11.	When I get upset, I have trouble catching my breath.	Control	1.23	.52	.0100	.91	.3655
		Treatment	1.76	.93	-.0116	-3.85	.0001

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
20.	I seem to be worried constantly about something.	Control	2.02	.90	-.0216	1.74	.0822
		Treatment	2.92	.93	-.0203	-5.69	<.0001
29.	I have a lot of aches and pains.	Control	1.57	.78	-.0093	-.79	.4279
		Treatment	2.11	.98	-.0162	-4.98	<.0001
38.	Lately, I've had trouble concentrating.	Control	2.05	.90	-.0135	-.99	.3242
		Treatment	2.70	.99	-.0302	-7.44	<.0001
47.	Lately, it doesn't take much to get me upset.	Control	1.58	.83	.0105	.75	.4522
		Treatment	2.23	.99	-.0296	-8.06	<.0001
56.	Often I get so nervous I feel my heart pounding.	Control	1.51	.71	-.0137	-1.12	.2653
		Treatment	2.03	.98	-.0214	-6.75	<.0001
65.	I worry about things that don't bother most other people.	Control	1.81	.81	-.0105	-.86	.3903
		Treatment	2.65	.97	-.0194	-5.41	<.0001
74.	I think I'm showing the signs of a lot of stress.	Control	1.90	.90	.0162	1.16	.2456
		Treatment	2.84	.98	-.0296	-7.30	<.0001
83.	Lately, my worries have made it hard for me to get to sleep.	Control	1.51	.82	.0108	.78	.4348
		Treatment	2.29	1.09	-.0277	-6.79	<.0001

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
92.	I often feel afraid but don't know why.	Control	1.45	.76	-.0112	-.89	.3765
		Treatment	2.07	.97	-.0153	-4.79	<.0001
101.	I'm bothered by thoughts that I can't seem to get rid of.	Control	1.53	.79	-.0003	-.02	.9833
		Treatment	2.36	1.05	-.0437	-10.49	<.0001
Interpersonal Problems		Control	18.99	5.90	.0240	.37	.7138
		Treatment	25.06	6.76	-.1422	-6.40	<.0001
3.	A lot of people irritate me.	Control	1.56	.71	.0098	.91	.3622
		Treatment	2.04	.88	-.0052	-1.84	.0666
12.	The people around me care about very different things than I do.	Control	1.79	.78	-.0374	-3.09	.0021
		Treatment	2.15	.84	-.0035	-1.19	.2334
21.	I have close and satisfying relationships.	Control	1.82	.94	.0074	.60	.5477
		Treatment	2.61	.89	-.0085	-2.59	.0099
30.	I seem to disagree with others more than I agree with them.	Control	1.48	.65	.0054	.54	.5902
		Treatment	1.71	.79	-.0070	-2.81	.0051
39.	I always get hurt when I let others get close to me.	Control	1.64	.85	-.0034	-.28	.7763
		Treatment	2.47	1.01	-.0124	-3.61	.0003

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
48.	People around me don't understand what I'm really like.	Control	1.78	.84	.0035	.28	.7788
		Treatment	2.52	.96	-.0191	-5.41	<.0001
57.	My temper often gets me into arguments.	Control	1.38	.66	-.0132	-1.39	.1647
		Treatment	1.56	.75	-.0137	-5.81	<.0001
66.	I need others more than they seem to need me.	Control	1.80	.92	-.0131	-.99	.3216
		Treatment	2.47	1.07	-.0176	-4.81	<.0001
75.	I don't get along with those in authority.	Control	1.44	.70	.0147	1.69	.0916
		Treatment	1.58	.81	-.0030	-1.20	.2297
84.	I'm tired of the way people treat me.	Control	1.53	.76	.0256	2.10	.0366
		Treatment	2.15	.95	-.0025	-.66	.5094
93.	I've made mistakes in choosing my friends.	Control	1.31	.61	.0029	.29	.7719
		Treatment	1.64	.83	-.0038	-1.33	.1826
102.	I don't trust most of the people around me.	Control	1.46	.77	.0160	1.30	.1925
		Treatment	2.16	1.01	-.0142	-4.16	<.0001
Depression		Control	17.75	5.77	.0138	1.06	.2906
		Treatment	25.95	8.21	-.3681	-11.97	<.0001

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
4.	I haven't felt much like eating lately.	Control	1.47	.73	.0088	.63	.5310
		Treatment	1.89	1.00	-.0238	-6.92	<.0001
13.	The smallest tasks seem to tire me out.	Control	1.37	.62	.0079	.70	.4863
		Treatment	1.95	.92	-.0075	-2.48	.0133
22.	Lately, I feel sad or blue most of the time.	Control	1.61	.82	.0025	.18	.8598
		Treatment	2.41	1.01	-.0455	-11.22	<.0001
31.	I've lost interest in the things I've always enjoyed.	Control	1.36	.61	-.0045	-.35	.7271
		Treatment	2.06	.93	-.0227	-6.72	<.0001
40.	Most mornings I wake up calm and rested.	Control	2.39	.94	.0006	.05	.9583
		Treatment	3.06	.83	-.0078	-2.62	.0091
49.	Things have gone from bad to worse.	Control	1.31	.64	.0171	1.11	.2665
		Treatment	1.95	1.04	-.0472	-11.18	<.0111
58.	Lately, it's a chore for me just to get through the day.	Control	1.43	.75	.0145	1.07	.2858
		Treatment	2.27	1.03	-.0266	-6.76	<.0111
67.	Sad thoughts keep me awake at night.	Control	1.37	.66	.0027	.22	.8272
		Treatment	2.11	1.02	-.0299	-8.39	<.0111

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
76.	I don't get the same pleasure that I used to from my activities.	Control	1.47	.73	.0098	.75	.4507
		Treatment	2.24	.99	-.0259	-6.89	<.0001
85.	I believe that no matter what I do things will not improve.	Control	1.33	.65	.0183	1.47	.1409
		Treatment	1.89	.94	-.0224	-6.77	<.0001
94.	I can't seem to get rid of my feelings of sadness.	Control	1.41	.75	.0146	1.01	.3114
		Treatment	2.44	1.06	-.0455	-10.62	<.0001
103.	Recently I've lost some of my interest in sex.	Control	1.23	.56	.0007	.05	.9576
		Treatment	1.68	1.00	-.0164	-5.11	<.0111
Career Problems		Control	19.77	7.65	-.1057	-1.35	.1777
		Treatment	19.90	8.32	-.0543	-1.99	.0469
5.	I need more information about career options.	Control	2.30	1.06	-.0768	-5.68	<.0001
		Treatment	2.00	1.04	-.0046	-1.38	.1676
14.	I can't seem to find a major that fits me.	Control	1.71	.90	-.0283	-2.55	.0110
		Treatment	1.54	.89	-.0003	-.08	.9373
23.	I need to know myself better in order to choose a career.	Control	1.80	.90	-.0191	-1.73	.0847
		Treatment	1.65	.88	-.0038	-1.21	.2273

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
32.	I'm worried because I can't find a career that interests me.	Control	1.59	.84	-.0119	-1.07	.2861
		Treatment	1.59	.90	.0058	1.77	.0765
41.	I'm dissatisfied with my lack of plans for the future.	Control	1.65	.79	.0041	.35	.7280
		Treatment	1.96	1.01	-.0075	-2.14	.0326
50.	I'm worried about finding a major.	Control	1.70	.91	-.0232	-2.25	.0246
		Treatment	1.39	.79	-.0029	-1.12	.2653
59.	I don't know how to go about selecting a career.	Control	1.62	.88	-.0052	-.50	.6180
		Treatment	1.54	.88	-.0045	-1.53	.1264
68.	Although I know it's time for me to decide, I'm not yet ready to choose a major or career.	Control	1.58	.87	-.0012	-.12	.9022
		Treatment	1.42	.82	-.0003	-.10	.9200
77.	I feel I'm being forced into a career I don't want.	Control	1.22	.53	.0339	4.06	<.0001
		Treatment	1.27	.59	-.0041	-1.74	.0826
86.	I'm anxious because I'm running out of time for choosing a career.	Control	1.42	.73	.0127	1.20	.2293
		Treatment	1.50	.91	.0021	.69	.4925
95.	My friends have a better idea about their future than I have about mine.	Control	1.70	.93	-.0011	-.10	.9242
		Treatment	2.03	1.06	-.0074	-2.05	.0404

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
104.	I don't know what to do with my life.	Control	1.52	.82	.0074	.57	.5692
		Treatment	2.02	1.03	-.0119	-3.12	.0019
Suicidal Ideation		Control	13.73	3.80	.0317	.44	.6568
		Treatment	17.32	7.11	-.1402	-7.65	<.0001
6.	I have nothing to live for.	Control	1.12	.39	.0039	.45	.6590
		Treatment	1.41	.69	-.0106	-4.94	<.0001
15.	No one would miss me if I were to die.	Control	1.16	.48	.0029	.35	.7282
		Treatment	1.32	.64	-.0038	-1.77	.0776
24.	I've thought about how I would take my life.	Control	1.34	.74	-.0288	-2.61	.0093
		Treatment	1.69	.99	-.0197	-7.08	<.0001
33.	I think things would be better if I weren't alive.	Control	1.13	.44	.0025	.28	.7778
		Treatment	1.43	.74	-.0128	-5.75	<.0001
42.	My mind has been filled with thoughts of suicide.	Control	1.08	.28	.0047	.53	.5978
		Treatment	1.36	.70	-.0138	-6.17	<.0001
51.	I've planned how to take my life.	Control	1.18	.58	-.0124	-1.12	.2653
		Treatment	1.38	.77	-.0127	-5.19	<.0001

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
60.	I can no longer cope with life.	Control	1.12	.38	.0117	1.14	.2566
		Treatment	1.48	.76	-.0220	-8.36	<.0001
69.	I think that it would be better to kill myself than to go on living.	Control	1.07	.32	.0131	1.72	.0852
		Treatment	1.26	.60	-.0085	-4.29	<.0001
78.	I know exactly how I would end my life.	Control	1.12	.49	.0143	1.57	.1166
		Treatment	1.36	.80	-.0063	-2.73	.0066
87.	I'm tired of living.	Control	1.12	.38	.0076	.76	.4490
		Treatment	1.60	.91	-.0153	-5.42	<.0001
96.	I've attempted suicide in the past.	Control	1.16	.56	.0022	.35	.7242
		Treatment	1.46	.96	-.0031	-1.31	.1897
105.	I think about death a lot.	Control	1.12	.39	.0094	.89	.3716
		Treatment	1.55	.84	-.0138	-4.68	<.0001
Substance Abuse		Control	14.01	4.66	.0173	.46	.6442
		Treatment	13.82	4.14	-.0227	-1.97	.0494
7.	I party too much.	Control	1.39	.72	.0013	.17	.8675
		Treatment	1.17	.45	-.0016	-.88	.3819

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
16.	I spend too much money on drugs or alcohol.	Control	1.10	.43	.0035	.92	.3578
		Treatment	1.07	.29	-.0015	-1.35	.1788
25.	I've missed classes or work because I partied the night before.	Control	1.28	.67	.0135	1.68	.0930
		Treatment	1.21	.54	-.0022	-1.11	.2683
34.	I've done things while drinking that I'm ashamed of or embarrassed about.	Control	1.26	.71	-.0071	-.94	.3453
		Treatment	1.28	.71	-.0063	-2.95	.0033
43.	I've gotten into trouble as a result of my drinking.	Control	1.13	.52	-.0001	-.03	.9779
		Treatment	1.12	.46	-.0012	-.93	.3535
52.	I use drugs or alcohol as a way to cope with my problems.	Control	1.12	.47	.0028	.41	.6786
		Treatment	1.19	.55	.0001	.06	.9500
61.	My use of drugs or alcohol has hurt my grades.	Control	1.09	.37	.0126	2.79	.0055
		Treatment	1.08	.36	-.0004	-.32	.7509
70.	Other people believe that I have a problem with drugs or alcohol.	Control	1.10	.41	.0003	.05	.9610
		Treatment	1.10	.42	-.0001	-.09	.9250
79.	People have taken advantage of me while I was drunk or high.	Control	1.11	.51	.0038	.61	.5410
		Treatment	1.19	.63	-.0027	-1.69	.0919

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
88.	I've felt guilty over my drinking or use of drugs.	Control	1.14	.51	-.0060	-.84	.4031
		Treatment	1.18	.57	-.0042	-2.36	.0185
97.	I've had arguments with my friends about my drinking or use of drugs.	Control	1.13	.51	-.0094	-1.45	.1472
		Treatment	1.09	.41	-.0025	-1.57	.1174
106.	I've been in some pretty dangerous situations because of my drinking or use of drugs.	Control	1.15	.58	-.0035	-.58	.5631
		Treatment	1.15	.54	-.0001	-.12	.9057
Self-esteem Problems		Control	22.25	7.33	.0419	.54	.5862
		Treatment	30.41	7.26	-.2082	-8.06	<.0001
8.	I feel good about myself.	Control	1.90	.82	.0103	.90	.3711
		Treatment	2.63	.80	-.0138	-4.53	<.0001
17.	I feel that my life is going about as well as most others my age.	Control	2.00	.91	.0229	1.70	.0898
		Treatment	2.85	.90	-.0150	-4.22	<.0001
26.	I trust my judgment.	Control	1.75	.80	.0099	.87	.3860
		Treatment	2.39	.79	-.0064	-2.26	.0241
35.	I believe that I'm a successful person for my stage in life.	Control	2.07	.91	.0133	1.10	.2727
		Treatment	2.82	.92	-.0113	-3.52	.0005

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
44.	I'm afraid to ask for what I need.	Control	1.87	.84	-.0111	-.88	.3782
		Treatment	2.50	.94	-.0175	-5.19	<.0111
53.	I feel that I am sexually attractive.	Control	2.40	.99	-.0354	-3.26	.0012
		Treatment	2.91	.84	-.0078	-2.88	.0042
62.	I don't have any particular strengths or talents.	Control	1.43	.72	.0041	.40	.6876
		Treatment	1.65	.82	-.0156	-6.15	<.0001
71.	I don't feel as capable as most other people.	Control	1.63	.80	.0135	1.12	.2649
		Treatment	2.32	.99	-.0210	-5.89	<.0001
80.	I'm too sensitive to criticism from others.	Control	1.87	.92	.0004	.03	.9722
		Treatment	2.60	.97	-.0149	-4.26	<.0001
89.	I have a very positive opinion of myself.	Control	2.10	.98	.0002	.02	.9849
		Treatment	2.88	.85	-.0090	-2.89	.0041
98.	People say I lack self-confidence.	Control	1.65	.93	.0005	.04	.9687
		Treatment	2.35	1.09	-.0068	-1.86	.0638
107.	Frequently I feel dissatisfied with the kind of person I am.	Control	1.59	.91	.0061	.47	.6363
		Treatment	2.51	1.03	-.0330	-7.96	<.0001

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
Family Problems		Control	17.12	5.36	-.0422	-.67	.5026
		Treatment	22.80	6.89	-.0841	-4.19	<.0001
9.	I avoid talking to my parents.	Control	1.39	.64	-.0059	-.55	.5918
		Treatment	1.99	.99	-.0067	-2.29	.0222
18.	My family doesn't understand me.	Control	1.45	.70	.0023	.21	.8339
		Treatment	2.22	.96	-.0091	-3.24	.0013
27.	My home life is unpredictable.	Control	1.43	.69	-.0010	-.08	.9325
		Treatment	1.94	1.01	-.0045	-1.36	.1746
36.	My family tries to run my life.	Control	1.40	.72	-.0045	-.42	.6755
		Treatment	1.74	.93	-.0087	-2.96	.0032
45.	It bothers me that my family is not closer.	Control	1.57	.80	-.0231	-1.79	.0738
		Treatment	2.24	1.07	-.0033	-.87	.3841
54.	My parents won't let me grow up.	Control	1.35	.71	.0089	.88	.3767
		Treatment	1.54	.86	.0008	.28	.7824
63.	I feel smothered by my parents.	Control	1.25	.57	.0006	.06	.9512
		Treatment	1.41	.74	-.0038	-1.58	.1146

(Table continues)

Group Statistics for Scales and Items (continued)

Scale/Item	Question	Group	*M*	*SD*	Slope	*t*	*p*
72.	My family life is pleasant and satisfying.	Control	1.78	.97	.0060	.50	.6197
		Treatment	2.63	.92	-.0035	-1.16	.2463
81.	I can't seem to let go of my family.	Control	1.50	.79	-.0172	-1.47	.1415
		Treatment	1.78	.96	-.0055	-1.71	.0884
90.	I don't like to be at home because we always argue.	Control	1.37	.76	-.0142	-1.25	.2101
		Treatment	1.59	.90	.0002	.07	.9426
108.	I'm afraid of my parents.	Control	1.17	.50	.0000	.00	.9998
		Treatment	1.44	.77	-.0076	-3.24	.0010