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Relationship among Psychotherapy Measurements: Predictors of ORS and OQ-45 Scores

Evan Lima

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LOMA LINDA UNIVERSITY
School of Behavioral Health
in conjunction with the
Faculty of Graduate Studies

Relationship among Psychotherapy Measurements: Predictors of
ORS and OQ-45 Scores

by

Evan Lima

A Thesis submitted in partial satisfaction of
the requirements for the degree
Doctor of Philosophy in Clinical Psychology

June 2015

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Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Doctor of Philosophy.

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CONTENT

Approval Page.....	iii
Acknowledgements.....	iv
List of Tables	vii
List of Abbreviations	viii
Abstract.....	ix
Chapter	
1. Introduction/Literature Review.....	1
Introduction.....	1
Mental Health Outcomes	3
Recent Trends in Psychotherapy.....	4
Measures of Progress in Therapy.....	5
Current Study	7
2. Materials and Methods.....	9
Participants.....	9
Materials	9
Demographic Variables	9
Psychological Well-Being	9
Effectiveness of Therapy	11
Procedure	12
Statistical Analysis.....	12
3. Results.....	15
4. Discussion.....	19
References.....	23
Appendices	
A. Outcome Questionnaire-45	28
B. Outcome Rating Scale	29

C. Session Rating Scale30

TABLES

Tables	Page
1. Correlation Between the OQ-45 and ORS over three Time Points	16
2. Final Longitudinal HLM Analysis and Goodness-of-Fit Indices	18
3. Regression Analysis of SRS (Independent Variable) Predicting OQ-45 (Dependent Variable).....	19
4. Regression Analysis of SRS (Independent Variable) Predicting ORS (Dependent Variable).....	19

ABBREVIATIONS

PTSD	Post Traumatic Stress Disorder
CBT	Cognitive-Behavioral Therapy
OQ-45	Outcome Questionnaire-45
BYU	Brigham Young University
ORS	Outcome Rating Scale
SRS	Session Rating Scale
HLM	Hierarchical Linear Modeling
SLR	Simple Linear Regression

ABSTRACT OF THE THESIS

Relationship among Psychotherapy Measurements: Predictors of
ORS and OQ-45 Scores

by

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Doctor of Philosophy, Graduate Program in Clinical Psychology
Loma Linda University, June 2015
Dr. David Vermeersch

Psychological services have become increasingly important and accepted. The increase in the utilization of services has led to third party payers (e.g., insurance companies) paying more in reimbursement to providers of psychological services and therefore tightening parameters regarding how many sessions will be reimbursed. With the pressure from third party payers, a standardized means of monitoring client's progress in treatment has become necessary. The goal of the current study was to determine whether (1) the trajectories of Outcome Questionnaire 45 (OQ-45) and Outcome Rating Scale (ORS) scores are the same over time, and if the Session Rating Scale (SRS) predicts subsequent scores for both the (2) OQ-45 and (3) ORS. Data was collected from adults seeking psychological services provided by doctoral students at the Loma Linda University Behavioral Health Institute. We conducted a series of multilevel models for longitudinal data for our first hypothesis and simple regression analyses for our second and third hypotheses. Due to the non-significant relationship between OQ-45 and ORS scores, our first hypothesis, which stated that scores on the OQ-45 and the ORS change at the same rate over time, was not supported, $p > .05$. We conducted a simple linear regression for our second and third hypotheses, which state that the SRS would predict

the score of the subsequent sessions OQ-45 and ORS, respectively. Results indicated that scores on the SRS did not explain a significant amount of the variance in OQ-45 scores, $p > .05$. However, results indicated that scores on the SRS explained a significant amount of the variance of the subsequent sessions ORS scores ($R^2 = .065$). Specifically, as SRS scores increase by one point, ORS scores increase by .403 points, 95% CI [.045, .762], $p < .05$.

CHAPTER ONE

INTRODUCTION/LITERATURE REVIEW

Introduction

Over the course of time psychology and psychological research services have, in general, become increasingly important and accepted. Additionally, healthcare costs are constantly rising. In 2007, Mark and colleagues reported that mental health expenditures accounted for 6% of all healthcare costs in the U.S. Though this was different than the 20% that was predicted in 1996 by Wells and colleagues, it cannot be argued that the end of World War II brought about an extraordinary rise in the mental health field and psychotherapy with the return of soldiers who were experiencing symptoms of Post Traumatic Stress Disorder (PTSD), depression, anxiety, and other combat related mental health disorders (Hill & Corbett, 1992). With the increase in both costs and utilization of services, as of the mid 1990s, there was very little or no empirical means of measuring the quality of psychotherapy being provided (Wells et al., 1996).

The increase in the utilization of psychotherapy services has led to third party payers (e.g., insurance companies) paying more in reimbursement to providers of psychological services (Wells et al., 1996). However, the increase in money spent for reimbursement for services has also led third party payers, in an attempt to save money, to place limits on the individuals covered by their policies (Wells et al., 1996). Managed care is a type of insurance plan that was implemented in 1980 as a means of providing healthcare services to individuals at reduced costs (National Institute of Health, 2013). Sanchez and Turner (2003) report that prior to managed care, clinicians saw their clients on a more long-term basis. However, following the implementation of managed care, methods to offset costs (e.g., limited number of sessions, monitoring practitioner

effectiveness, reduced inpatient stays, etc.) were implemented as well (Sanchez & Tuner, 2003). Even more recently, it has been hypothesized that third party payers will soon reimburse only evidence-based therapies such as cognitive-behavioral therapy (CBT) (Cummings, 2006).

The ultimate goal of psychotherapy for the therapist, the client, and third party payers is for the client to reach his or her therapeutic goals and to arrive at a place where he or she can graduate (successfully complete) therapy. Measuring outcomes of therapy helps to give the treating therapist a view of how effective his or her techniques are for a given client. Additionally, measuring psychotherapy outcome may help to provide psychotherapists with information as to how to more effectively work with a particular client. The more effective the therapy, the fewer sessions necessary and the less money in reimbursement fees will be needed to be paid by third party payers.

As the acceptance of receiving psychotherapy and mental health services has increased among the general population, treatment of mental health diagnoses with psychotropic medication has as well. Therefore, researchers have examined the effectiveness of psychotherapy alone, psychotropic medications alone, and psychotherapy in conjunction with psychotropic medications in order to determine whether psychotherapy is effective and, ultimately, to reimburse for psychotherapy services. There is a body of research which has consistently reported that psychotherapy interventions, in conjunction with psychotropic medication, are effective in ameliorating depression, anxiety, PTSD, and many other disorders, sometimes even more effectively than psychotropic medication alone (Seligman, 1995; Keller et al., 2000; Nemeroff et al., 2003).

Mental Health Outcomes

While the effects of psychotherapy have been studied as far back as the 1930s, there has been no standardized way of measuring its outcome (Lambert et al., 2003). With the pressure from third party payers to reduce the number of psychotherapy sessions provided to clients, a means of monitoring client's progress in treatment became the goal of a number of clinicians, with the common emphasis being on patient-focused research (Lambert et al., 2003). The result was as many as 1,430 different outcome measures being produced and used (Wells et al., 1996).

There have been several variables that have been hypothesized to have an effect on the success, or lack of success, of therapy. Researchers hoped that if specific variables that predict successful therapy outcomes could be identified, psychotherapists could alter their method of providing therapy to incorporate these variables. By incorporating these variables, the rate of positive outcomes in psychotherapy would theoretically increase. Hypothesized variables have included age of the therapist, sex of therapist, amount of experience providing psychotherapy and theoretical orientation (Anderson et al., 2009). Of the previously stated variables, the age of the therapist is the only variable that has been found to account for any difference in therapy outcome (Anderson et al., 2009). More specifically, older, more experienced therapists have higher levels of positive outcomes with their clients (Anderson et al., 2009). The fact that the age of the therapist was found to have a positive impact on therapy success was unexpected, as previous studies suggested that there was no significant difference in therapy success based on age (Beutler et al., 2004). However, Anderson et al. (2009) found that the effects of age disappeared once they accounted for self-reported social skills. Anderson and his team (2009) concluded that the therapist characteristic of facilitative interpersonal skills does

have a substantial impact on therapy outcome and therefore suggested that an emphasis be placed on these skills. However, there remains some uncertainty as to how one can measure therapy outcome in a valid and reliable manner. Knowing what variables have more of an effect on the outcome of psychotherapy may very well be useless without knowing how successful, overall, psychotherapy is for each particular client. Therefore, tracking client progress throughout the therapeutic process would be beneficial in helping determine the extent of the effect that these variables have on the success, or lack thereof, of therapy.

Recent Trends in Psychotherapy

There has been a recent trend in psychotherapy outcome research in which there has been a shift from merely measuring and monitoring outcome to managing outcome (Lambert, 2010). With the notable exception of the behavioral therapies, there have been many decades in which psychotherapy research has relied heavily on research designs that measure patient outcome, and pre and post treatment. Even though these designs have been shown to be valuable in establishing efficacy and effectiveness of treatments under investigation (e.g., CBT therapies), they are limited, due to the data only being collected following the end of treatment, in that the data collected from these studies cannot be used to positively influence the treatment process of the individual patients under investigation, even if patients deteriorated over the course of treatment (Lambert & Vermeersch, 2013).

More recently, a trend in outcome research has emerged to place increased emphasis on regularly monitoring patient progress over the course of treatment, at each session, rather than merely at pre and post treatment (Lambert & Vermeersch, 2013).

Furthermore, the process of monitoring patient progress has given researchers the opportunity to investigate more complex questions related to psychotherapy outcome (e.g., better understanding patterns of change in psychotherapy), and can be seen in the growing body of literature related to the dose response relationship in psychotherapy (Howard et al., 1986; Hansen, Lambert, & Foreman, 2002).

Outcome management has moved beyond the practice of measuring patient progress throughout the course of treatment by using collected data to positively influence the treatment process to more effectively treat, and thus having a more positive outcome for the patient(s). The most prominent advantage of psychotherapy outcome management is that the data can be gathered on a regular basis and used by practitioners to make any needed modifications to their intervention with a patient if the patient in treatment are either unresponsive or deteriorating, which is a major concern for all individuals (e.g., clinician, family, third party payer, etc.) involved in the treatment process (Lambert & Vermeersch, 2013).

Measures of Progress in Therapy

Several psychotherapy outcome measures have been developed and implemented in all types of clinical settings (e.g., agency, private practice, etc.). Although the procedures used in each of the quality management systems vary, there is a common feature of monitoring patient outcome throughout the course of treatment and the use of the data collected to tailor the method of psychotherapy being used to improve patient outcomes (Howard, Kopta, Krause, & Orlinsky, 1986; Howard, Moras, Brill, Martinovich, & Lutz, 1996; Krause & Horan, 1997; Barkham et al., 2001; Kordy, Hannover, & Richard, 2001; Miller, Duncan, Sorrell, & Brown, 2005; Lambert &

Vermeersch, 2013). However, the question surrounding the relative value of each of these systems for enhancing patient outcome are still in question because very little research has evaluated the effects of feedback on patient outcome. The current study aims to evaluate the trajectory of two of the outcome measures, the Outcome Questionnaire-45 (OQ-45) (Lambert, 1983) and the Outcome Rating Scale (ORS) (Miller & Duncan, 2000), which were created to measure the same aspects of psychotherapy (Miller et al., 2003).

Due to the large number of outcome measures, with few, if any, of which have empirical backing (e.g., reliability, validity, etc) (Wells et al., 1996), Lambert and colleagues set out to produce a more standard means of accurately measuring psychotherapy outcome. The Outcome Questionnaire-45 (OQ-45) was conceptualized and developed in 1983 by a team of researchers and clinicians at Brigham Young University (BYU) in the hope of effectively and quickly assessing clients' progress through therapy (www.oqmeasures.com). Though the OQ-45 has been established as both valid and reliable, one of the most common criticisms of it is that it is too long and time consuming (Miller et al., 2003). Additionally, even though the OQ-45 was designed to be completed in about seven minutes (www.oqmeasures.com), clients report that they find it to be burdensome (Miller et al., 2003). In response, Miller and colleagues developed the Outcome Rating Scale (ORS) as a shorter alternative to the OQ-45. Both the OQ-45 and the ORS have acceptable levels of reliability (Lambert et al., 1996; Miller & Duncan, 2003). However, while both measures were produced to measure the same three subscales (Individual, Interpersonal, and Social), no study has been done to

determine whether the trajectory of these two measures over time do indeed measure the psychotherapy outcome at the same rate.

The Session Rating Scale (SRS) was designed by Johnson in the early 1990s as a way to follow the progress of his clients (Duncan et al., 2003). The SRS was developed to help therapists understand what is and is not working, from the clients point of view in a given therapy session, with the hope that the therapist can change his/her approach to better fit the client (Duncan et al., 2003). The SRS was designed to be administered following each psychotherapy session (Duncan et al., 2003). Miller and colleagues adapted and began using the SRS in conjunction with the ORS (Duncan & Miller, 2000).

Current Study

The first aim of the study was to examine the relationship in changes over time in two measures of psychotherapy outcome. A series of multilevel models for longitudinal data was conducted. A hypothesis was formulated, which states that the OQ-45 and ORS change trajectories will be positively associated. Additionally, a second aim was formulated, which was to examine the relationship between client post-session ratings of therapy sessions and their overall well-being prior to the subsequent session, for which we plan to conduct two simple regression analyses (SRS to OQ-45 and SRS to ORS). Two hypotheses were formulated, which state that (1) a low/high score on the SRS will correspond to a comparable score on the subsequent OQ-45 and (2) a low/high score on the SRS will correspond to a comparable score on the subsequent ORS.

A thorough review of the literature was performed, the result of which no study was found that looked at the questions presented in this study. The questions assessed in this study have the potential to add a unique perspective to the literature of quality

management in psychotherapy that has not previously been assessed. Understanding the trajectory of two measures of quality management (OQ-45 and ORS) that were created to assess the same aspects of change and are significantly different in length may help promote successful completion of treatment goals and amelioration of clinical symptoms with clients. Furthermore, understanding how a client's perspective of a session, as assessed by the SRS, affects their perspective of their subsequent week, as assessed by the OQ-45 and ORS, has the potential to help therapists gain a better understanding of the individual client and what techniques are and are not effective.

CHAPTER TWO

MATERIALS AND METHODS

Participants

A total of 180 participants were recruited for this study. The study included more female (66%) than male (34%) participants. All participants were over the age of 18 years, with a mean age of 38.04 (SD = 14.25). Additionally, two participants did not provide their age.

Materials

Demographic Variables

For the current study, participants provided their age, gender, and information concerning their mental health since the previous psychotherapy session and concerning their current session.

Psychological Well-Being

The Outcome Questionnaire-45 (OQ-45) (Lambert, 1983) is a 45-question scale that is used to assess clients' perceived overall level of functioning since their previous therapy session. The OQ has an overall range of possible scores from 0-180, with a score of 63 being the cut off score, indicating symptoms of clinical significance (www.oqmeasures.com). For missing data, scoring instructions report that the average score rounded to the nearest whole number should be inputted, statistically known as mean substitution. However, for the current study it was recommended in a statistics consultation that missing data be coded as missing (H. Morrell, Ph.D., personal communication, December 11, 2013). Additionally, a growing body of literature advises

against the use of mean substitution, as it is not an accurate technique for dealing with missing data (Barry, 2005; Buhi et al., 2008). Therefore, for this study, mean substitution was not utilized, rather missing data was coded as “999”, missing data.

The OQ-45 incorporates three subscales, (1) Symptom Distress (Cronbach’s Alpha = .91), which measures several symptoms of distress, mainly depression, anxiety, somatic problems and stress; (2) Interpersonal Relationships (Cronbach’s Alpha = .74), which measures complaints such as loneliness, conflicts with others, and family and marriage problems; and (3) Social Role (Cronbach’s Alpha = .71), which was designed to measure any difficulties in various social roles, such as work, home, or student.

Researchers in the current study utilized the total score of the OQ-45 (Lambert, Hansen, et al., 1996; www.oqmeasures.com, 2013). Additionally, the OQ-45 has been found to have an overall excellent internal consistency (Cronbach’s Alpha = .93) (Lambert, Hansen, et al., 1996). For the current study, the OQ-45 has been found to yield an overall Cronbach’s Alpha of .91, $\alpha = .81$, and $\alpha = .86$ for time points one, two, and three, respectively.

For the current study, scores of each question were added together to create a total score; the individual subscales were not utilized for the study. Creating and using the total score is commonly used in the literature and is one of the recommended ways of interpreting the measure (www.oqmeasures.com; Wells, Burlinngame, Lambert et al., 1996; Whipple, Lambert, Vermeersch et al., 2003; Anderson, Ogles, Patterson et al., 2009).

The Outcome Rating Scale (Miller & Duncan, 2000) is a four-question, eleven-point (0-10) Likert scale measure that was designed to measure the same domains as the

OQ-45, with the difference that the ORS is much shorter (Miller et al., 2003). The ORS has three subscales, including: (1) Individual, which measures a person's sense of their relationship with himself or herself; (2) Interpersonal, which assesses a person's sense of his or her relationships with others, on a personal level; and (3) Social, which assess an individual's perceptions of his or her social abilities (Miller & Duncan, 2000).

Furthermore, the ORS has been reported to have high levels of internal consistency (Cronbach's Alpha = .93) (Miller & Duncan, 2003). For the current study, the ORS has been found to yield an overall Cronbach's Alpha of .84 for all three time points.

For the study, the scores of the four ORS questions were added together to get a total score (S. D. Miller, Ph.D., personal communication, October 9, 2013). The total score was reverse-coded so that the scale measured in the same direction as the OQ-45, with a high score representing a lower sense of well-being in the measured areas and a low score representing a higher sense of well-being in the measured areas.

Effectiveness of Psychotherapy Session(s)

The Session Rating Scale (SRS) (Duncan, Miller, et al., 2003), much like the ORS, is a four question, 0-10 Likert scale measure that was designed to be administered to client's immediately following a psychotherapy session. Similar to the OQ-45 and the ORS, the SRS has three subscales, which include: (1) Relationship, (2) Goals and Topics, and (3) Approach or Method (Miller et al., 2002). Additionally, the SRS has reported high levels of internal consistency (Cronbach's Alpha = .89) (Duncan et al., 2003). For the current study, the SRS has been found to yield an overall Cronbach's Alpha of .83, $\alpha = .85$, and $\alpha = .84$ for time points one, two, and three, respectively.

For the study, the SRS was used to measure client's perspective of their therapy session. Additionally, we added the scores of the four SRS questions to get a total score (S. D. Miller, Ph.D., personal communication, October 9, 2013). The SRS was completed directly following the session, without the treating therapist being present. We reverse coded the scores on the SRS before regressing the scale onto the OQ-45, with a high score representing a lower sense of well-being in the measured areas and a low score representing a higher sense of well being in the measured areas.

Procedure

Individuals assisting with this study administered the OQ-45, ORS, and SRS to adult individuals who were receiving psychological treatment services at the Loma Linda University Behavioral Health Institute, an outpatient-counseling center in Southern California. More specifically, the participants were involved in psychotherapy with Doctoral level (PhD and PsyD) Clinical Psychology students. The OQ-45 and ORS were handed out by front office staff and completed by clients prior to the start of each psychotherapy session attended. Additionally, the SRS was given to the client following the end of the session, completed in the lobby and turned in to the front desk staff when the next appointment was being scheduled. While the SRS was hoped to be handed out and completed without the treating therapist being present, with the hope of alleviating client inflation of their answers, this was not the case, and the treating therapist did indeed hand out and collect the SRS.

Statistical Analysis

In order to examine the trajectories of the Outcome Questionnaire-45 (OQ-45)

and the Outcome Rating Scale (ORS) as well as the relationship between the two variables, multilevel growth model analyses using hierarchical linear modeling (HLM) were performed using HLM Student Version 7 (Raudenbush et al., 2010). Age and gender (male or female) of the participants were used as predictors in the model. To test the second and third hypotheses, which state that (2) a low/high score on the SRS will correspond to a comparable score on the subsequent OQ-45, and (3) a low/high score on the SRS will correspond to a comparable score on the subsequent ORS, we will perform simple regression analyses. Analyses will be performed in SPSS 20.0 (IBM, 2011).

According to power calculations (using G*Power, Faul, Erdfelder, Bychner, & Lang, 2009), a total sample size of 78 will be necessary to allow for detection of a small effect size ($f^2 = .13$) with a power of .80, for hypotheses two and three, which utilized simple linear regression analyses.

For the first hypothesis, the current study utilized five hierarchical linear models (A-E). Two levels were used, with the first level including time (number of sessions) and OQ total score as Level 1 predictors, and where the ORS was the outcome variable. The second level included sex (female = 0 and male = 1) and age, which were centered, as variables predicting initial status, the relationship between time and ORS scores, and the relationship between OQ and ORS scores.

We first fit the unconditional means model (A) to the data, which assumes that client scores on the two measures of psychotherapy outcome consists only of deviations around the clients' mean rating and the population's mean rating on the measures. Next we fit the unconditional growth model (B) to the data, in which we assessed change in the ORS scores were allowed to vary randomly over time. For Model C, we added OQ-45

score as a time-varying covariate at Level 1. In Model D, we added sex as a Level 2 predictor of change in ORS scores. In our final model (E), we added the age of the client as a Level 2 predictor of change in ORS scores. We evaluated the model for goodness of fit by reviewing the change in the deviance statistic for each successive model. We examined indicators of linearity, normality, and homoscedasticity for each model to confirm that the data met the assumptions of multilevel models prior to testing our models. No outliers or violations of assumptions were found. Analyses were performed using HLM Student Version 7 (Raudenbush et al., 2010).

For our second and third hypotheses, which look at whether scores on the (2) OQ-45 and (3) ORS can be predicted by the previous weeks score on the SRS, we utilized simple linear regression analyses to examine the two hypotheses. Due to not all three measures being completed by all participants at each session, we were only able to use 75 (female = 71%) of the 180 participants. The Outcome Rating Scale and Outcome Questionnaire-45 were the Dependent Variables, and the Session Rating Scale was the Independent Variable (Predictor). Both analyses were performed in SPSS 20.0 (IBM, 2011).

For our study, to accommodate the OQ-45, scores on the ORS and SRS were reverse coded so that a lower score is indicative of higher satisfaction and a higher score is indicative of lower satisfaction. Reverse coded scores were utilized for all statistical analyses.

CHAPTER THREE

RESULTS

Prior to conducting our analyses, we first ran a correlation analysis among the ORS and OQ-45. We found that both measures of psychotherapy utilized were correlated at moderate rates among the three time points (.35-.58). Refer to Table 1 for a complete report of correlation among measures.

Table 1

Correlation Between the OQ-45 and ORS Over Three Time Points

	ORS T1	ORS T2	ORS T3
OQ-45 T1	.548	.455	.428
OQ-45 T2	.474	.469	.576
OQ-45 T3	.352	.471	.534

To determine whether two measures of psychotherapy outcome (OQ-45 and ORS) measure changes in psychological well being at the same rate over time (Hypothesis 1), we conducted a longitudinal hierarchical linear model. The results of the unconditional means model were used to calculate the interclass correlation coefficient, which indicated that 1.00% of the variation in the scores of the Outcome Rating Scale (ORS) were at the individual level. We found the Unconditional Growth Model (B), in which ORS scores were allowed to vary randomly over time, to fit the data better than Model A, as indicated by a statistically significant decrease in the Deviance statistic. In Model C, we assessed the effects of OQ-45 scores on ORS scores over time by including OQ-45 scores as a time-varying covariate at Level 1. We found that Model C fit the data better than Models

A and B, as indicated by a statistically significant decrease in the Deviance statistic compared to the previous two nested models. For Model (D), we added sex as a Level 2 predictor of change in ORS scores. We found Model D to fit the data better than the previous three models, as indicated by a significant decrease in the Deviance statistic. For our final Model (E), we added the age of the client as a Level 2 predictor of change in ORS scores. As indicated by the Deviance statistic, and contrary to our hypothesis, Model E was not a better fit than the previous four nested models. We found model D to best fit our data. On average, ORS scores in model D decreased by 3.20 points per session, $p < .001$. Neither age nor gender were found to be significant predictors of change in ORS or OQ-45 scores over time, $p > .05$. Finally, we found that model D accounted for 3.8% of the variance in changes in ORS scores over time. Due to the non-significant relationship between OQ-45 and ORS scores, our hypothesis that scores on the OQ-45 and the ORS change at the same rate over time, was not supported, $p > .05$. Refer to Table 2 for the final multilevel models of the longitudinal HLM analysis and goodness-of-fit indices.

Table 2

Final Longitudinal HLM Analysis and Goodness-of-Fit Indices

		Parameter	Model A	Model B	Model C	Model D	Model E
Initial Status	Intercept	β_{00}	19.51*	22.78*	23.48*	24.89*	34.11*
	Sex	β_{01}	-	-	-	-4.07	-3.91
	Age	β_{02}	-	-	-	-	-.23**
Rate of Change for Time	Intercept	β_{10}	-	-1.85**	-2.23**	-3.20*	-8.26**
	Sex	β_{11}	-	-	-	2.93	2.80
	Age	β_{12}	-	-	-	-	.13**
Rate of Change for OQ Total	Intercept	β_{20}	-	-	.07	.03	.38
	Sex	β_{21}	-	-	-	.16	.25
	Age	β_{22}	-	-	-	-	-.01
Variance Components			-	-	-	-	-
R^2							
Level 1			-	.034	.040	.038	.036
ROC for Time			-	.020	.021	.021	.020
ROC for OQ			-	-	.010	.010	.010
Deviance			2068.90	2029.94	2025.17	2019.64	2028.33

* $p < .001$, ** $p < .05$

To determine if the client's perception of a given therapy session had an effect on his or her perception of the subsequent time to the next session of psychotherapy; we conducted two simple linear regression analyses in SPSS 20.0 (IBM, 2011). Specifically, for our second hypothesis, we tested to see if the previous sessions SRS score could predict the score on the subsequent session's OQ-45. Similarly, for our third hypothesis, we tested to see if the previous sessions SRS score could predict the score on the subsequent session's ORS.

Concerning our second hypothesis, a simple linear regression analysis was used to test the hypothesis that the score on the SRS would predict the score of the OQ-45 completed at the subsequent session. Results indicated that scores on the SRS did not explain a significant amount of the variance in OQ-45 scores ($R^2 = .003$), $p > .05$. Please refer to Table 3 for a full report of the regression analysis.

Table 3

Regression Analysis of SRS (Independent Variable) Predicting OQ-45 (Dependent Variable)

	β	R^2	p	95% CI
SRS Total	-.218	.003	.657	[-1.188, .753]

Concerning our third hypothesis, a simple linear regression analysis was used to test the hypothesis that the score on the SRS would predict the score on the ORS at the subsequent session. Results indicated that scores on the SRS explained a significant amount of the variance of the subsequent session's ORS scores ($R^2 = .065$). As SRS scores increased by one point, ORS scores increased by .403 points, 95% CI [.045, .762], $p < .05$. Please refer to Table 4 for a full report of the regression analysis.

Table 4

Regression Analysis of SRS (Independent Variable) Predicting ORS (Dependent Variable)

	β	R^2	p	95% CI
SRS Total	.403	.065	.028*	[.045, .762]

* $p < .05$

CHAPTER 4

DISCUSSION

We tested whether or not the trajectory of the Outcome Questionnaire-45 (OQ-45) and Outcome Rating Scale (ORS) were the same over time. It was hypothesized that the trajectory of the OQ-45 and ORS would measure progress in psychotherapy at the same rate. We reviewed the results of our HLM analysis and determined that our hypothesis was not supported, $p > .05$. Additionally, we tested whether OQ-45 and ORS scores could be predicted by the previous session's SRS score. It was hypothesized that both the OQ-45 and ORS would be predicted by the previous sessions Session Rating Scale (SRS) score. We reviewed the results of our simple linear regression (SLR) analysis and found that the OQ-45 was not predicted by the previous session's SRS score, $p > .05$. However, the results of the second SLR, which assessed if the previous session's SRS predicted the following session's ORS, were found to be significant, $p < .05$. After reviewing the results, we found that scores on the SRS explained a significant amount of the variance ($R^2 = .065$) in scores of the subsequent session's ORS score ($r = .254$). Specifically, as SRS scores increased by one point, ORS scores increased by .403 points, 95% CI [.045, .762], $p < .05$.

These findings provide valuable information to the body of literature on quality management in psychotherapy. Accurately monitoring client progress on a session by session basis may help to (1) decrease the number of sessions needed for successful completion of therapy, (2) identify more effective therapeutic techniques with each individual client, and (3) more quickly identify when a client's condition is deteriorating. Furthermore, the finding that the ORS and OQ-45 do not have the same trajectory

overtime is surprising. Both measures were created to assess the same aspects of psychotherapy outcome and changes in psychological well being at the same rate. One possible explanation for the findings may be that our sample size was relatively small. Though 180 participants were included in the study, attrition was such that the third time point contained only 125 participants, thus allowing 125 to be analyzed for our longitudinal HLM analysis (hypothesis one). Similarly, as a result of all three measures not being completed at each therapy session, we were only able to utilize 75 participants for simple linear regression analyses (hypotheses two and three). Having a larger sample size would improve our chances of detecting any truly significant effects that may exist.

Another possible explanation for the inconsistency between OQ-45 and ORS scores is the difference in their respective lengths: the OQ-45 is a longer measure, with 45 questions, whereas the ORS is comprised of four questions. Although both measures were designed to assess and provide valuable information regarding the same aspects of psychotherapy, the OQ-45 is a more detail-oriented measure of psychotherapy than the ORS. This measure may result in a more detailed representation of trends in client outcome. Additionally, the SRS was designed to be coupled with the ORS; therefore, it is expected that the two measures (ORS and SRS) would be significantly correlated. Conversely, the OQ-45 and SRS were not designed to be coupled with one another, which may explain why they were not highly correlated.

There were three limitations identified to this study. The first limitation of this study was that only three time points were included in the longitudinal HLM analysis, as three is the minimal number of time points required to run a longitudinal HLM analysis. Taking more time points into account may help future studies detect long-term trends in

the data. The more sessions clients spend with their therapists, the more comfortable they may be with the therapists, and therefore may be more likely to honestly report honestly with regards to their therapeutic outcomes. Higher levels of rapport may indirectly lead clients to perceive their therapy as more effective. A second limitation of this study was that client demographic information made available to researchers was limited to the age and gender of the client. Having information regarding client diagnosis would allow future research to test more relevant aspects of psychology and mental illness as predictors of outcomes of therapy (e.g., depression, anxiety, personality disorders, etc.). The third and final limitation identified in our study was that there was no standardization concerning the sessions, specifically the length between sessions. There were some clients who sought therapy on a weekly basis, whereas others were sporadic in their treatment (e.g., every other week, once a month, etc.). Having participants come in for sessions regularly and at similar intervals may help increase levels of significance.

This study represented an initial step in understanding the relationship of change scores noted on two widely used measures in psychotherapy for quality management, OQ-45 and ORS. These two measures serve as the foundation for managing and improving patient outcomes throughout the course of therapy via feedback to therapists, patients, and other stakeholders. Given that evidence-based practice dictates that the provision of treatment be informed by the best available research evidence, future research should investigate the comparability and relative value of these psychotherapy quality management systems in positively influencing outcomes. An example of one such investigation would be to conduct a randomized, controlled, comparative outcome study in which key elements of these two systems (e.g., speed and accuracy in identifying

patients who are not responding or deteriorating in treatment, availability and quality of resources provided to therapists working with nonresponding/deteriorating patients), and their respective ability to manage and positively influence patient retention/outcome are assessed.

The results of our study concerning a client's perspective of a given session of psychotherapy being predictive of their perspective of their subsequent week's psychological well-being provide us with valuable insight concerning therapeutic relationships. The client-therapist relationship is a very important one, and the interaction between clients and their therapist has a significant impact on their perspective of their psychological well-being. As third party payers continue to place limits on the length and types of services offered to individuals covered under their plans, it is necessary to conduct more research in this area to determine whether, in the long term, placing such limits on services has any correlation to the number of episodes of care individuals have.

Researchers wishing to run similar studies may consider utilizing more than three time points for the longitudinal HLM analysis, with more participants. Having more time points and participants will increase the power of the study and may provide a more accurate representation of outcomes and trajectories throughout the therapy experience. Additionally, having more information concerning the diagnosis of the participants (e.g., depression, anxiety, personality disorder, etc.) may help to account for other variables that may affect what is being measured.

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APPENDIX A

OQ-45

Outcome Questionnaire (OQ[®]-45.2)

Instructions: Looking back over the last week, including today, help us understand how you have been feeling. Read each item carefully and mark the box under the category which best describes your current situation. For this questionnaire, work is defined as employment, school, housework, volunteer work, and so forth. Please do not make any marks in the shaded areas.

Name: _____ Age: _____ yrs.
 Sex M F
 ID# _____

Session # _____ Date ____ / ____ / ____

	Frequency					SD IR SR		
	Never	Rarely	Sometimes	Frequently	Almost Always	DO NOT MARK BELOW		
1. I get along well with others.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0		<input type="checkbox"/>	
2. I tire quickly.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
3. I feel no interest in things.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
4. I feel stressed at work/school.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
5. I blame myself for things.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
6. I feel irritated.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
7. I feel unhappy in my marriage/significant relationship.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
8. I have thoughts of ending my life.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
9. I feel weak.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
10. I feel fearful.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
11. After heavy drinking, I need a drink the next morning to get going. (If you do not drink, mark "never")	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
12. I find my work/school satisfying.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0			<input type="checkbox"/>
13. I am a happy person.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/>		
14. I work/study too much.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
15. I feel worthless.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
16. I am concerned about family troubles.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
17. I have an unfulfilling sex life.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
18. I feel lonely.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
19. I have frequent arguments.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
20. I feel loved and wanted.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0		<input type="checkbox"/>	
21. I enjoy my spare time.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0			<input type="checkbox"/>
22. I have difficulty concentrating.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
23. I feel hopeless about the future.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
24. I like myself.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/>		
25. Disturbing thoughts come into my mind that I cannot get rid of.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
26. I feel annoyed by people who criticize my drinking (or drug use). (If not applicable, mark "never")	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
27. I have an upset stomach.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
28. I am not working/studying as well as I used to.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
29. My heart pounds too much.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
30. I have trouble getting along with friends and close acquaintances.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4		<input type="checkbox"/>	
31. I am satisfied with my life.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/>		
32. I have trouble at work/school because of drinking or drug use. (If not applicable, mark "never")	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
33. I feel that something bad is going to happen.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
34. I have sore muscles.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
35. I feel afraid of open spaces, of driving, or being on buses, subways, and so forth.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
36. I feel nervous.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
37. I feel my love relationships are full and complete.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0		<input type="checkbox"/>	
38. I feel that I am not doing well at work/school.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
39. I have too many disagreements at work/school.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
40. I feel something is wrong with my mind.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
41. I have trouble falling asleep or staying asleep.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
42. I feel blue.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		
43. I am satisfied with my relationships with others.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0		<input type="checkbox"/>	
44. I feel angry enough at work/school to do something I might regret.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4			<input type="checkbox"/>
45. I have headaches.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/>		

Developed by Michael J. Lambert, Ph.D. and Gary M. Burlingame, Ph.D.
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+ +

Total=

APPENDIX B

ORS

Outcome Rating Scale (ORS)

Name _____ Age (Yrs): _____ Gender _____
Session # _____ Date: _____
Who is filling out this form? Please check one: Self _____ Other _____
If other, what is your relationship to this person? _____

Looking back over the last week, including today, help us understand how you have been feeling by rating how well you have been doing in the following areas of your life, where marks to the left represent low levels and marks to the right indicate high levels. *If you are filling out this form for another person, please fill out according to how you think he or she is doing.*

Individually

(Personal well-being)

I am not doing
well in this area

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

I am doing well in this area

Interpersonally

(Family, close relationships)

I am not doing
well in this area

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

I am doing well in this area

Socially

(Work, school, friendships)

I am not doing
well in this area

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

I am doing well in this area

Overall

(General sense of well-being)

I am not doing
well in this area

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

I am doing well in this area

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APPENDIX C

SRS

Session Rating Scale (SRS)

Name _____ Age (Yrs): _____
ID# _____ Sex: M / F
Session # _____ Date: _____

Please rate today's session by placing a mark on the line nearest to the description that best fits your experience.

Relationship

I did not feel heard,
understood, and
respected.

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

I felt heard,
understood, and
respected.

Goals and Topics

We did *not* work on or
talk about what I
wanted to work on and
talk about.

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

We worked on and
talked about what I
wanted to work on and
talk about.

Approach or Method

The therapist's
approach is not a good
fit for me.

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

The therapist's
approach is a good fit
for me.

Overall

There was something
missing in the session
today.

|-----+-----+-----+-----+-----+-----+-----+-----+-----+-----|

Overall, today's
session was right for
me.

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