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# DOES THE RELATIONSHIP MATTER?: EMPATHY, HOSTILITY, AND DRINKING OUTCOMES IN THE COMBINE STUDY

Anthony J. O'Sickey  
*Univeristy of New Mexico*

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A.J. O'Sickey

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*Candidate*

Psychology

---

*Department*

This thesis is approved, and it is acceptable in quality and form for publication:

*Approved by the Thesis Committee:*

Theresa Moyers PhD , Chairperson

---

Kamilla Venner, Committee Member

---

Jon Houck, Committee Member

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**DOES THE RELATIONSHIP MATTER?: EMPATHY,  
HOSTILITY, AND DRINKING OUTCOMES  
IN THE COMBINE STUDY**

**by**

**A.J. O'SICKEY**

**BACHELORS OF ARTS B.A.  
UNIVERSITY OF NEW MEXICO  
2015**

**THESIS**

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## **DEDICATION**

*Ad bibitor adhuc patiens.*

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**The Relationship Matters: Empathy, Hostility, and Drinking Outcomes in the  
Combine Study**

**by**

**A.J. O'Sickey**

**B.A., Psychology, University of New Mexico 2014**

**M.S., Psychology (In Progress), University of New Mexico 2018**

**ABSTRACT**

Alcohol use disorder (AUD) is a pervasive problem in the United States, costing approximately 250 billion dollars in 2010. Several decades of rigorous scientific approaches to treatment have yielded several effective treatments for AUD, however, the human and economic cost continues to rise. Recently, Moyers and colleagues reported that higher than average therapist empathy within-subjects was significantly associated with reductions in drinking following treatment. The finding of a within-subjects effect indicates that either a client or therapist characteristic may be responsible for the variability in empathy within client therapist dyads. There is evidence to suggest that client levels of hostility may be related to variability in therapist empathy. As such, the purpose of this secondary data analysis of the COMBINE research study was to explore the association between therapist levels of empathy and client levels of hostility in a sample of individuals (N=700) receiving treatment for AUD. Initial findings indicate that client levels of hostility are not related to therapist levels of empathy and that the two do not interact to predict drinking outcomes.

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# CHAPTER 1

## INTRODUCTION

Although methods of ameliorating suffering through human connection have been in use since time immemorial; psychotherapy has been in practice for slightly more than a century. Considerable research exists supporting the use of psychotherapy as a method of lessening psychological suffering (Wampold & Imel, 2015; Andrews & Harvey, 1981; Woody et al., 1983; Kaner et al., 2009), however, arguments abound as to what specific mechanisms of change can be attributed to its success (Wampold & Imel, 2015; Baker, McFall, & Shoham, 2008). Specifically, some proponents argue that it is the technical or theory-based elements that are the catalyst for the change (Baker, McFall, & Shoham, 2008) and others maintain that it is the relationship between the healer and the healed that is of importance (Wampold & Imel, 2015). Results of randomized control trials (RCTs) often offer inconclusive evidence related to the theories that support the use of empirically supported treatments (ESTs) (Magill & Longabaugh, 2013) and, factors common to all therapies (e.g. placebo effects, congruence, empathy), have received increased scientific attention in recent years.

The therapeutic relationship, the working relationship between a client and a therapist, is an amalgamation of factors contributed individually or cooperatively by both parties (Lambert and Barley, 2001). Although these factors often overlap (i.e. are non-orthogonal) and are difficult to differentiate, careful research designs are able to partition out specific variance accounted for by the working alliance, warmth, empathy, and congruence to name only a few (Maisto, Roos, O'Sickey, Kirouac, Connors, Tonigan, and Witkiewitz, 2015; Prince, Connors, Maisto, & Dearing, 2016; Lambert and Barley,

2001). Of the conglomeration of factors that comprise the therapeutic relationship, empathy is perhaps the most well-known.

Empathy has been described as a facet of social intelligence (Marlowe, 1986), a purely cognitive construct (Hojat, 2007), an affective construct (Hoffman, 2008), and a concept so ethereal that it does not fit neatly into any of these categories. The concept of empathy has been first linked to Robert Vischer in 1873, an art historian who used the term *Einfühlung* to discuss an observer's ability to enter into the mind of the artist who created a work of art (Depew, 2005). The term *Einfühlung* in German translates literally into "feeling into" or "in feeling" and as such, fits all of the broad categorizations listed above (i.e. cognitive, affective, social intelligence). Importantly, this early introduction dealt not with what psychologists conceptualize as empathy today, but with an ability to feel into, meaning to understand, an inanimate object, animal, or situation (Lanzoni, 2015). Despite the early recognition of the term, it was not until 1897 that Theodore Lipps introduced the concept to psychological study in describing an observers' perspective of another's feelings (Hojat, 2007). Later Wilhelm Wunt used the concept of *Einfühlung* to describe aspects of dynamic interpersonal relationships (Hojat, 2007). However, Sigmund Freud was the first to fully move the concept toward our understanding, in psychology, in using *Einfühlung* to describe the dynamic of putting one's self into another's position (Pigman, 1995). Bradner Titchner changed *Einfühlung* into English borrowing from the Greek word *Empatheia* *Em* (in) and *Pathos* (feeling) which was given the English translation "an appreciation of another's feelings" (Titchner, 1909).

Just as the term empathy has changed over time so has the conceptual definition accepted by the scientific community. George Herbert Mead (1934) described empathy as the capacity to take the role of another person and adopt alternative perspectives. Charles Aring (1958) later differentiated the perspectives that one was taking into different facets, acknowledging a difference between sympathy and empathy and stating that empathy was the act or capacity of appreciating another's feelings without 'joining those feelings'. This concept of 'not joining' is similar to the founder of humanistic psychotherapy's conceptualization of the term empathy. Carl Rogers (1959) defined empathy as "an ability to perceive the internal frame of reference of another with accuracy as if one were the other person but without ever losing the 'as if' condition." Despite these varying definitions, Aring's and Rogers' delineation of the empathic listener's requirement to maintain a separateness of self while engaging in empathy continues to permeate the literature today.

### **Empathy and Client Outcomes**

Empathy's role in the therapeutic change process was first examined by Elmer Southard in 1918 in his examination of psychoanalytic psychotherapists' ability to empathize with groups of mentally disturbed patients (Southard, 1918). Since then and with the new methods of defining and studying empathy, evidence to support empathy's association with improved treatment outcomes has been reported. Within the medical literature, Rakel (2013) reported that when clients with cold symptoms rated physicians higher on empathy, client's cold symptoms were shortened by 1.1 days. Perhaps more interesting is the finding that within this same study there was an iatrogenic effect of the low empathy condition. When clinicians saw cold patients without employing an

enhanced empathy condition (i.e. care as usual) the clients had a slower recovery than those who received no treatment. Pantaloni, Chawarski, Falcioni, Pakes, and Schottenfeld (2004) measured empathy amongst therapists delivering a community reinforcement approach intervention for cocaine users and found that clients with lower cocaine use at follow-up had had therapists with higher observer rated empathy. Finally, in a study identifying the mechanisms by which empathy functions, Malin and Pos (2014) found that the effects of early empathy directly affected the client's perception of the working alliance and were related to improved client outcome in major depressive disorder.

The mechanisms by which empathy functions within clients and therapist interactions are not well understood (Malin and Pos, 2014). This dearth of literature could be representative of the difficulty in obtaining valid and reliable measures of empathy in early psychotherapy experimentation (Greenberg, L. S., Watson, J. C., Elliot, R., & Bohart, A. C., 2001); however, of note are studies that have examined the contribution of client characteristics on empathic communication.

Melnick (1974) reported that amongst graduate level students of counseling that the client's type of problem, either vocational/academic or social/personal, was associated with changes in counselor expressed empathy. To examine these effects, the researcher created vignettes (video, written transcript, audio recordings) in which paid actors represented a series of problems commonly presented at the university counseling center. The five graduate level counselors were then presented with the vignettes and asked to respond as if the client were present in the room. Although there were modest differences between methods of presentation, Melnick reported that counselors displayed their highest levels of empathy when a client presented with a social/personal problem

versus a vocational/academic problem. This study indicates that empathy is more present from the therapist when a client presents with an interpersonal problem rather than an issue that is related to system incongruence.

In the early 1970's it was commonly held that empathy was consistent within-subjects but could be variable between-subjects. Heck and Davis (1973) challenged this commonly held assertion and designed an analogue study to test the hypothesis that empathy levels varied within counselor client dyads. Their experiment revealed that within-subject empathy was variable and that therapists ranked higher on empathy were more likely to display this within-subject variability. This finding suggests both that empathy is not a constant in therapists rated high on the variable and that an interaction between client variables and therapist variables may mediate and moderate the effect of therapist delivered empathy.

Despite the within-subject variability in empathy found by Heck and Davis (1973) there has been a paucity of literature published on the subject since this finding. Interestingly, a recent study (Moyers, Houck, Rice, Longabaugh, & Miller, 2016) reported empathy was significantly associated with outcome for clients seeking treatment for AUD who received pharmacotherapy and a behavioral intervention. The researchers reported that when observer-rated empathy was examined in relation to drinking outcomes there was no between-subject's effect however, a within-therapist's effect was detected among clients of the same therapist. The lack of a between-subject's effect was expected as the therapists in the study were vetted for levels of empathy prior to study involvement and only therapists scoring high on a scale of empathy were allowed to participate. Therefore, it makes sense that there was little difference between the

therapists in the study on measures of empathy. The within-subject's effect suggests that a third variable, possibly a client or therapist variable, could be accounting for the variance found within the therapists on the measure of empathy.

### **Hostility and Client Outcomes**

Hostility, defined as an enmity towards others, is characterized by an expectation that other's intentions are likely sources of maltreatment (Smith, Glazer, Ruiz, and Gallo, 2004). Here we make a clear distinction between anger and hostility. Anger is defined as an emotion characterized by feelings of dislike and irritation; whereas hostility is a behavior expressed by an individual (Buss & Perry, 1992). While empirical investigations often find that the behavior of hostility and the emotion of anger are associated with one another, contemporary psychological literature distinguishes the two as distinct concepts.

Client hostility is one of the most well researched characteristics in medical outcomes, school success, and psychotherapy outcomes (Smith, Glazer, Ruiz, and Gallo, 2004; Economou and Angelopoulos, 1989; Polcin, Korcha, Gupta, Subbaraman, & Mericle, 2016). Within the field of alcohol use disorder treatment, client hostility has been linked to early termination and poor outcomes on consumption and problems measures (Room, 1998). Despite the literature on how hostility is related to outcome variables, little research has focused on how client hostility affects the therapeutic relationship and how this interaction may affect therapy outcomes.

Early research into client factors that affect therapist behavior within a psychotherapy session reveals that client levels of hostility are predictive of therapist

behavior. Bandura, Lipsher, & Miller (1960) conducted a study in which they examined the relationship of client expressions of hostility and therapists approach-avoidance behaviors. The authors found that when client's presented hostility in the therapeutic interactions, therapists who sought client approval were more likely to display avoidant behavior. Further, these therapists were more likely to avoid hostility when it was directed at themselves rather than when it was directed at others. Additionally, Gamsky & Farwell (1966) examined client levels of hostility and therapists verbal behavior within a sample of school counselors and clients who had been mandated to treatment. The authors reported that client hostility resulted in significantly fewer therapist interpretations, reflections, and elaboration of the client's speech.

These associated changes in therapist behavior are critical to note as several of these verbal and nonverbal behaviors are positively associated with the therapeutic relationship as a whole (Lambert and Barley, 2001). The literature is glutted with research examining the psychosocial interaction of empathy with criminals, individuals seeking treatment for psychological disorders, and the general public (Wood & Riggs, 2008; O'Connor, Berry, Weis, & Gilbert, 2002; Konrath, O'Brien, and Hsing, 2010); however, empathy of therapists and its interaction with client variables is less well understood. One of the characteristics suggested by the general literature is that individuals who are high in hostility invoke low empathy from individuals with whom they are interacting.

Only two studies to date have examined the effects of client level hostile behavior on therapist empathic communication. Hamm (1987) designed an analogue study in which individuals were trained to elicit both pleasant and disruptively hostile behaviors

within therapy sessions. The goal of the study was to examine the association between client level behaviors and therapist empathy. Although Hamm did not find a direct effect of client level hostility on therapist empathy, she did find that therapists interacting with hostile clients displayed lower empathy with the client immediately *following* the hostile client. This finding suggests that hostility does affect therapist empathy and that empathy is a limited resource upon which therapists draw during their interaction with clients.

Taylor (1972) designed an analogue study in which 94 master's degree candidates were exposed to client statements in five different problem areas (social-interpersonal, sexual-marital, child rearing, educational-vocational, and confrontation) which varied across levels of emotional presentation (hostility-anger, depression-distress, elation-excitement). The prerecorded client statements were first vetted by a group of independent raters for genuineness by two experienced counselors. Following this process, the counselor participants listened to the prerecorded client statement and were asked to write a response to the stimulus presentation. The written statements were then rated using the Carkhuff's Gross Ratings of Facilitative Interpersonal Functioning Scale (Carkhuff and Truax, 1967). Analysis of the counselor's responses revealed that rated empathy was lowest when clients presented with anger-hostility emotions and was rated highest when clients expressed elation-excitement emotions.

Salient to our recognition that client levels of hostility are associated with lower levels of therapist empathy is the recognition that increasing numbers of individuals are being mandated to AUD/SUD treatment as an alternative to incarceration (Dill & Wells-Parker, 2016). Combining this with the fact that individuals mandated to treatment often display higher levels of hostility (Substance Abuse and Mental Health Services

Administration, 2005) and clients high in hostility often terminate therapy prematurely (Hiller, Knight, & Simpson, 1999), it is important to identify therapist characteristics interacting with client hostility. With these associations appropriately identified, organizations training therapists in empathic communication can prepare therapists to anticipate this client state and respond appropriately. Taylor's (1972) finding combined with the early literature on client hostility (Gamsky & Farwell, 1966) suggests that client hostile behavior is associated with variations in therapist behavior. However, the association between client level hostility and therapist empathy has never been examined in a sample of individuals seeking treatment for AUD.

### **The COMBINE Study**

The COMBINE study (Anton et al., 2006) was a double-blind randomized placebo-controlled trial to test the efficacy of medications and a combined behavioral intervention (CBI) (Miller, 2004). CBI is a therapeutic intervention combining aspects of motivational interviewing (MI), cognitive behavioral therapy (CBT), and 12-step facilitation (TSF). This study is ideally suited for answering the questions raised above because of its rich assessment measures at multiple time points including: client alcohol consumption measures (Form 90; Miller, 1996), drinking problems measures (DRINC; Miller, Tonigan, & Longabaugh, 1995) as well as measures of client affect measured by the Profile of Mood States (McNair, Lorr, Droppleman, 1971). The aforementioned data is categorized as a controlled access data set and is available following an approved application submitted to the National Institutes of Health (NIH) subdivision National Institute on Alcohol Abuse and Alcoholism (NIAAA). Most meaningful to our study, however, are qualitative session data that are not publicly available and are the result of a

coordinated data collection procedure conducted at the University of New Mexico.

These audio recordings of therapy sessions with clients receiving the aforementioned CBI intervention were evaluated for therapist behaviors (i.e. empathy) using observer ratings, allowing measurement of the interaction between client hostility and therapist empathy. This study is a secondary analysis and extension of the COMBINE data measured in the Moyers et al, 2016 study discussed earlier in this manuscript as well as measures from the open access COMBINE dataset.

Within the context of the relationship between hostility and empathy noted from the literature outlined above, we hypothesize the following: Higher levels of client hostility will be associated with more drinking at follow-up. Higher levels of client hostility will be associated with fewer days in treatment (i.e. treatment dropout) and lower than average therapist empathy. Higher levels of client hostility will be associated with more drinking related relationship and total consequences at follow-up. Therapist empathy will attenuate (i.e. moderate) the relationship between client hostility and treatment outcomes (problems, consumption, and treatment dropout) at follow-up.

## CHAPTER 2

### METHODS

The COMBINE study (N=1383) was a 16-week multisite randomized control trial comparing the efficacy of two medications, Naltrexone and Acamprosate, and placebo combined with either a combined behavioral intervention (CBI) or medication management. Sample derivation and final number of participants included in the analysis are included in figure 1. The CBI treatment consisted of four phases of treatment and included motivational interviewing (MI), cognitive-behavioral skills training, and facilitation of client involvement in 12-step participation. Prior to assignment to one of nine randomized treatment groups, participants first completed a study-required period of abstinence and then completed assessments at baseline, two months post baseline, four months post baseline, and nine and twelve months post treatment.

Phase one of the treatment was usually completed in two sessions and consisted of motivational interviewing to elucidate the client's desire to change their alcohol use and a feedback session utilizing standard MET. Phase two consisted of a brief summary of clients' motivations and utilized a functional analysis in order to identify antecedents to drinking behaviors and clarify long and short-term consequences to alcohol use. Following this clients and therapists worked together to develop a treatment plan. Phase three consisted of client and therapist navigation of treatment modules introduced in phase two. Phase four of the CBI treatment was designed to provide the client with maintenance for their chosen treatment and allowed for termination of the therapeutic relationship.

## **CBI Session Coding**

Process coding for the Combined Behavior Intervention was conducted utilizing a manualized coding procedure based upon the Motivational Interviewing Skills Code (MISC; Miller, Moyers, Ernst &, Amrhein, 2003). Therapist behaviors include: empathy, motivational interviewing style, protocol, direction, and nonspecific factors/interpersonal skills. Empathy, nonspecific factors/interpersonal style (NSF), and direction were coded using a verbal anchor scale (figure 2) which captured the global impression of the coders.

### **Coders**

Typically, when coders are analyzing audio for the MISC, training tapes will be coded and coding performance will be evaluated on a group level. This allows for coders to come to agreement on items that are difficult to code and to develop consistent reliability in their coding. For this project 114 sessions were subjected to this measure of analysis to ensure that coders reached a reliable intraclass correlation (ICC) (Shrout & Fleiss, 1979). This quantitative evaluation of coding allows researchers to be assured that coders are reaching an acceptable level of agreement about the sessions that they are coding. The coders for this study were six graduate students at the University of New Mexico. For this study the majority of the tapes (79%) were coded by two coders and the remaining 21% were split between four other coders resulting in a fully crossed design (Hallgren, 2012). ICC ratings for the two majority coders was (ICC=.661, n= 57 sessions) and the other four was (ICC= .737 n=7; ICC= .641, n=10).

### **Therapists**

All therapists had attained at least a master's degree in psychology or a related field (e.g. social work, counseling), had a license to practice psychology, and had at least two years of experience in counseling following degree attainment. Further, all therapists were required to submit two ten-minute practice audio recordings of in session behavior displaying their ability to practice accurate empathy as measured by the MISC. Finally, study therapists were required to submit audio recordings of all CBI sessions, 10% of which were randomly selected and rated using the measures described above.

### **Measures**

Empathy was coded utilizing a study specific coding procedure (described above) that was based on the Motivational Interviewing Skill Code (MISC; Miller, Moyers, Ernst, & Amrhein, 2003). The MISC was originally designed in 1997 to evaluate audio of individual counseling sessions for quality adherence to MI. The MISC's coding format is broken into two components, behavior categories and global ratings. Behavior categories are not included in the CBI process coding and therefore are not discussed here. Overall impression of counselor behavior however is captured by the global ratings and include Acceptance, Empathy, and Motivational Interviewing Spirit. The general definition of empathy follows from the earlier description, empathy as coded by the MISC falls along a 7-point Likert type scale. High empathy (5-7) is characterized by an accurate understanding of the individual clients' feelings, attributed meanings, perceptions, and situations. Counselor's scoring high on this scale would have utilized skillful reflective listening and utilized meaningful probing questions to gain a deeper meaning of client narratives. A low score on the MISC for empathy (1-3) is characterized by a counselor who showed little interest in the client's perspectives and

did not make attempts to accurately understand clients' perceptions, feelings, and situations.

#### Profile of Mood States

The Profile of Mood States–Brief (POMS; McNair, Lorr, & Droppleman, 1992) was administered at baseline, immediately following the first two weeks of treatment, and monthly during the 16 weeks of treatment. Participants were assessed as to how they were feeling during the past week using 30 adjectives describing feelings and moods with Likert scale ratings for each adjective ranging from 0 (not at all) to 4 (extremely). Ratings on the 30 items were combined into six mood subscales: Hostility, Depression, Fatigue, Tension, Vigor, and Confusion. The hostility subscales were examined using a matched POMS hostility subscale for each session for which empathy was rated. This has two implications for the study, 1) the data (measures of empathy and hostility) are matched a subset of CBI sessions and 2) this reduced the overall sample size from  $N= 700$  to  $N= 374$ . The internal consistency reliability of the 30 items averaged  $\alpha = 0.89$  across all time points. Reliabilities for each of the subscales exceeded  $\alpha = 0.70$  at all time points.

#### Drinker Inventory of Consequences

The Drinker Inventory of Consequences (DRINC; Miller, Tonigan, & Longabaugh, 1995) was designed to provide a list of problems that may occur in conjunction with alcohol consumption. The DRINC was administered to clients at baseline, mid-treatment, end-of-treatment, 10 weeks, 9 & 12 months post treatment. It consists of 45 dichotomous item choices and consists of five consequences subscales: physical, intrapersonal, social responsibility, interpersonal, impulsive control, and a total

consequence scale. Cronbach's alphas for all scales for the normative sample ranged from .70-.94. Our analysis focused on the DRINC scales representing relationship problems and total problems. As the DRINC total problems scale was zero-inflated, with 21.9% of the sample reporting no drinking problems post treatment a Poisson distribution was applied to the analysis to account for this overdispersion. Likewise, relationship problems were also overdispersed with 42% of the sample reporting zero relationship problems at the end of treatment. As a result, a penalized quasilielihood estimation was applied to account for this non-normal distribution. See table 1 for details on total drinking problems and relationship problems sample at baseline and matched time points.

#### Form-90

The Form-90 (Miller, 1996), is a semi structured interview containing assessment questions (e.g. days spent in outpatient care, days spent incarcerated, days stably housed) and includes a calendar recording days of drinking and abstinence. This instrument was administered to clients prior to baseline, baseline, mid-treatment, end-of-treatment, 10 weeks, 9 & 12 months post treatment. Average drinks per week (DW) at end of treatment (week 16) was calculated by multiplying client drinks per drinking day (DDD) by one minus percent days abstinent multiplied by seven ( $DDD * ([1 - PDA] * 7)$ ). In our primary analysis, baseline hostility with empathy by DW at end of treatment, the calculated count variable was overdispersed with 37.6% of the sample reporting zero drinks per week. As a result, a penalized quasilielihood estimation was applied to account for this non-normal distribution. The distribution of DW varied across the POMS matched time sample; however, overdispersal was consistent at all timepoints so a penalized

quasilielihood estimation was maintained for all analyses. See table 1 for details on DW sample at baseline and matched time points.

#### Days in treatment

Days in treatment was calculated from the CBI data set publicly available from NIAAA. A treatment session was defined as comprising a duration of twenty minutes or greater and having a content code for the modules conducted within the therapy sessions (e.g. motivational interviewing, craving, drink refusal skills training, etc.).

## CHAPTER 3

### ANALYSIS

Hierarchical linear modeling (HLM) was used to analyze the within group relationship of client hostility and dyadic empathic communication. All data were prepared in SPSS version 24 and software for the multilevel analysis was conducted in HLM 7 (Raudenbush, Bryk, and Congdon, 2011). The advantage of HLM in this context is that it allowed us to examine the relationship between empathic communication, which is statistically dependent on both client and therapist, and client levels of hostility. Further, an HLM framework provides for an ability to detect proportional variance explained by moderating therapist factors.

Within an HLM framework it is most appropriate to use a two-level regression model, with therapists at level two and clients nested within therapists, to predict within cluster therapist empathy with client hostility scores also clustered at the therapist level. To reduce problems with multicollinearity and increase interpretability of results (Enders and Tofighi, 2007), we z transformed the level two therapist empathy variable and group mean centered the level one POMS hostility subscale. Finally, when examining within therapist associations it is important to designate therapist associations at level one as grand mean centering will produce a confounded estimate of the relationship between empathy and hostility. Grand mean centering both level one and level two variables would result in an estimate that combines the within-therapist and between-therapist effects.

Specific analyses will be tested in such a way that hostility will only be evaluated prior to the sessions in which empathy was coded by the independent raters. Variables representing average drinks per week, relationship consequences, and total drinking consequences were zero-inflated. Specifically, this indicates that many individuals were not drinking at the end of treatment and likewise were not experiencing consequences as associated with drinking. A Poisson distribution allowed analysis of the dependent variables and accounted for the overdispersal of the distribution. All models were estimated first as unconditional models to estimate the intercept of the dependent variables. Then, independent variables were modeled within the conditional models in order to estimate the main effects and interaction terms.

Our first analysis focused on examining the interaction between therapist empathy modeled at level two with client levels of hostility at level one and the association with average drinks per week. As the drinks per week variable was overdispersed, (approximately 37% of the sample was not drinking at the end of treatment), a Poisson distribution allowed for modeling the non-normal distribution of the outcome. Next, we analyzed the interaction of therapist empathy at level two and client hostility at level one to interpret the association of the interaction on total relationship problems. Relationship problems at the end of treatment were overdispersed with 42% of the sample reporting zero relationship consequences at the end of treatment. As such, again, a Poisson distribution was used to model the non-normal distribution of the dependent variable. Next, we analyzed the interaction of therapist empathy at level two and client levels of hostility at level one on total drinking consequences. Here again, total drinking consequences were overdispersed with 21.9% of the sample reporting no consequences

and so a Poisson distribution was used to model the non-normally distributed outcome variable. Finally, a model examining the interaction of therapist empathy at level two and client levels of hostility at level one was evaluated for total number of sessions that the client had attended.

### **Checking Assumptions**

Following variable centering, a file containing residual values for level one and level two units was created in HLM 7. This file was then exported to SPSS to conduct assumption checking as recommended by Raudenbush and Bryk (2002). For descriptive purposes both the verbal explanation of assumptions is included and a figure containing the shorthand description (Fig 3). Examination of descriptive statistics for the level one residuals indicated little deviation from normality upon examination of skewness =  $-.132$  and kurtosis =  $-.836$ ; however, examination of QQ plots indicated slight deviation from normality (Fig 4). Outliers were examined to determine if cases could be dropped. Due to small sample size within clusters, the full sample was retained. Further, the level one residuals were significantly correlated with the group mean centered POMS hostility subscale  $r=0.11$   $p=0.32$ . Due to the small size of the correlation and because the POMS hostility subscale was of primary theoretical interest, this variable was retained. The examination of level two residual skewness =  $0.030$  and kurtosis =  $0.039$  revealed little asymmetry or peakedness in the data and residuals were independent between clusters. Further, level two residuals were independent of grand mean centered empathy  $r = -.231$   $p = .151$ . This same method was used to establish independence of level one and level two residuals ( $r = .077$   $p = .654$ ) and indicated that the two were unrelated. Finally, a correlation matrix including all level one predictors and residuals and all level two

predictors and residuals was calculated to determine relatedness between level one and level two predictors and residuals. Examination of the matrix confirmed that no level two predictors were related to level one residuals and no level two residuals were related to level one predictors.

## CHAPTER 4

### RESULTS

Our hypotheses were tested in such a way that an interaction between client levels of hostility could be understood within each therapist cluster prior to the session the client attended. This means that hostility as measured by the POMS was assessed prior to the beginning of the therapy sessions in which empathy was coded by our independent raters. All variables excepting total sessions attended were zero inflated so a Poisson distribution for constant exposure, accounting for dispersion, was used in the multilevel model. The first model estimated was the unconditional model for average drinks per week at week 16 following treatment. Examination of the Y intercept or  $\gamma_{00}$  revealed that at the end of treatment this sample was drinking an average of 2.86 standard drinks per week. Then a conditional model was specified where grand mean centered empathy was entered into the model at level two, the POMS hostility subscale was group mean centered and entered in at level one, grand mean centered empathy and the group mean centered POMS hostility subscale was entered in as an interaction, and average drinks per week at the beginning of treatment was entered as a covariate. Although all variables were in the expected direction, none approached significance, excepting baseline average drinks per week.

Next, the DrInC total problems unconditional model was estimated. Examination of the Y intercept or  $\gamma_{00}$  revealed that at the end of treatment this sample was experiencing an average of 2.39 problems. Then a conditional model was specified where grand mean centered empathy was entered into the model at level two, the POMS hostility subscale was group mean centered and entered in at level one, grand mean centered empathy and

the group mean centered POMS hostility subscale were entered in as an interaction, and baseline total drinking problems was entered as a covariate. All variables were in the expected direction, however, again, the interaction was not significant. In this model the POMS hostility subscale was a significant predictor of end of treatment problems. Evaluation of the Y-intercept  $\gamma_{10}$  indicates that for every one point increase in the POMS hostility scale there is a concurrent 0.030 increase in total problems experienced following treatment.

Our next model evaluated was examining relationship problems at the end of treatment as measured by the Relationship Problems subscale of the DrInC. Examination of the Y-intercept ( $\gamma_{00}$ ) = 0.747, indicated that most individuals in this sample had few relationship problems following treatment. Next, a conditional model was specified where grand mean centered empathy was entered into the model at level two, the POMS hostility subscale was group mean centered and entered in at level one, grand mean centered empathy and the group mean centered POMS hostility subscale were entered in as an interaction, and baseline total relationship problems was entered as a covariate. As with the previous models, all variables were in the expected direction, but did not meet the threshold for significance. Likewise, the POMS hostility subscale was not a significant predictor of relationship problems post treatment  $\gamma_{10}$ = 0.029 SE=0.014 p=0.053.

Our final model estimated was examining the total number of sessions attended for clients during the study. Examination of the Y-intercept ( $\gamma_{00}$ ) = 9.42, indicated that most individuals in this sample with no other factors taken into consideration had attended about nine and a half sessions of treatment. Next, a conditional model was

specified where grand mean centered empathy was entered into the model at level two, the POMS hostility subscale was group mean centered and entered in at level one, and grand mean centered empathy and the group mean centered POMS hostility subscale were entered in as an interaction. Results indicated that empathy was not significant when examining variability between therapists  $\gamma_{0i} = -0.716$   $SE = 0.36$   $p = 0.054$ . Further, the interaction term for grand mean centered empathy and the POMS hostility subscale was nonsignificant. The POMS hostility subscale was a significant predictor of total number of sessions attended; however, it was in the opposite direction as hypothesized  $\gamma_{10} = 0.142$   $SE = 0.63$   $p = 0.025$ . Examination of the intercept indicates that for each one point increase in the POMS hostility subscale there was a subsequent increase of 0.142 treatment sessions attended.

## CHAPTER 5

### DISCUSSION

This study was a secondary data analysis of the publicly available Combine study data in combination with coded therapist-client process data which is not publicly available. The aims of this study were to 1) establish the within-subjects association of client hostility and average drinks per week at the end of treatment, relationship consequences at the end of treatment, and total number sessions attended 2) establish the within-subjects associations of client hostility and therapist empathy, 3) determine if the within group variability of empathy reported in Moyers et al. 2016 was due to client levels of hostility and further determine if therapist empathy would moderate that result.

We did not find support for our hypothesis that therapist empathy moderated client levels of hostility on drinks per week when the hostility was modeled prior to the session in which empathy was measured. The lack of associations we observed are not surprising given the restricted range of the empathy variable.

The fact that empathy was not coded over the course of the therapy in our study could be one reason for failure to detect an association between empathy and hostility. Several studies have shown that therapists adjust their style to match that of clients and that manualized interventions do not allow for appropriate therapeutic adjustment. This concept, known as appropriate responsiveness, is a broad therapy component in which therapists respond to client styles, clients respond to therapist styles, and therapists respond to client's responses to therapy in service of the desired treatment outcome (Stiles, 2009).

The designers of the COMBINE Research Study accounted for this in two ways, 1) therapists and clients worked together to develop a plan of treatment that would be appropriate for each individual client at the beginning of treatment (i.e. the treatment modules could be delivered in any order appropriate for the client) and 2) clients and therapists could modify delivery of treatment manual content in a way that would adjust for client drinking. By doing so, they allowed for individual differences in client needs when entering treatment and progressing through treatment. However, this treatment adjustment style did not take into account the interpersonal characteristics and responding of clients or therapists within the dyadic relationship. In this study in particular, because therapists were vetted for levels of empathy and a quality assurance monitor evaluated therapist empathy throughout the study, it is possible that therapists, instead of adjusting their style to match that of clients, felt that they should maintain higher levels of empathy despite their therapeutic instincts. When therapists do not feel autonomy to make decisions in the therapy rooms, it can lead to poorer outcomes for clients (Marshall, 2009).

This hypothesis, that empathy need not always be high, has been recently investigated using normal volunteers rather than a clinical population. Paul Bloom's (2016) book "Against Empathy" examines the association of affective empathy with the 1) client's perception and the 2) empathizer's sense of well-being. Bloom makes the argument that when individuals working in the helping profession too deeply internalize the feelings of their patients, it can turn them away from the work because of the emotional toll that it takes. Likewise, patients sometimes report that cognitive empathy is more useful and appropriate when a physician keeps their distance emotionally. Bloom

goes on to say that therapists who can internalize the feelings of their patients while maintaining a compartmentalization of mirrored emotion are sometimes invigorated by their work, rather than depleted by it. Bloom ultimately argues for a philosophical replacement of affective empathy with a sense of greater compassion, to be useful to clients seeking treatment for psychopathology.

Broadly, therapist empathy is an important factor in successful AUD treatment. As the original findings of Moyers et al. (2016) reported, higher within therapist empathy predicted lower average drinks per week at the end of treatment. This means that the converse is also true, in that lower therapist empathy would consequently lead to more average drinks per week at the end of treatment. Although the hypothesized interaction between hostility and empathy was not supported in this study; it does not diminish the importance of empathy within the therapeutic relationship.

### **Limitations**

Moyers et al.'s findings indicate that variability in empathy within client therapist dyads could be either a therapist level characteristic or client level characteristic, or an interaction between them. One of the reasons that client-level hostility may not have contributed to an interaction with therapist empathy in this particular study is due to the level of analysis upon which the hypotheses were based. In this study's primary analysis, the data were aggregated in such a way that the POMS hostility subscales were matched exactly with sessions for which empathy of therapists was rated. Bandura, Lipsher, & Miller (1960) Gamsky & Farwell (1966), Hamm (1987), and Taylor (1972) all examined

client level of hostility at the within session level (i.e. coding and rating of client and therapist interactions) which is similar to this analysis, but differs in important ways. Our analyses examined the effect of mean hostility prior to the session whereas in the studies mentioned above, hostility was verbally coded within the sessions. It could be that these behaviors within a therapy session are indeed indicative of variability in therapist empathy; however, a client's mean rating of hostility at the start of the session may not be indicative of their behavior within session.

Further, within the Hamm (1987) study, there were sequential session effects of hostility on therapist empathy which were indicative of the fact that although client hostility and therapist empathy do interact, the effects were detectable for the client *following* the hostile client. This hypothesis may have been testable with the original coded audio data, however, as per the study protocol the tapes were destroyed disallowing the recoding of client tapes for within session hostility. Finally, although ordinal counts of sessions attended were included within the publicly available CBI data, the order of client sessions were often inaccurately reported by the therapists in the study. We know this because several of the sessions were double coded with the same session number. This mislabeling would present too great a burden of chance probability that an interaction would be detected on this variable.

Hostility, defined as an enmity towards others, is characterized by an expectation that other's intentions are likely sources of maltreatment (Smith, Glazer, Ruiz, and Gallo, 2004). Although our scale of hostility within the POMS does encompass this definition, it misses the mark in that it does not measure whether the therapist's intentions are likely sources of maltreatment. Within mandated AUD/SUD treatment it makes sense that

some of the expectation of maltreatment is directed at the treatment professional; however, within a treatment seeking population, this seems less likely to be the case. Further, as the POMS is a measure of state hostility, it could be that the client's hostility was affected by previous interactions with the therapist. Unfortunately, this particular question is unable to be addressed with these, data as only one client session per therapist was included in the analysis of therapist empathy.

As discussed above, the variability of empathy in the Combine study was limited by the specific study design. As empathy was designated a priori as an important variable in the combine study, the study's principle investigators made a decision to test the potential study therapists for their ability to express empathy with a client. The PI's did this by reviewing tapes that were submitted by the potential study therapists demonstrating both their ability to deliver the study protocol and also for their ability to express empathy as defined by a study specific empathy scale based on the MISC. The MISC, measured on a seven-point scale, is designed to characterize therapist client empathic communication across a broad spectrum. However, the variability in our sample was limited by the empathy prescreen described above, resulting in a restriction of range. Although this increased the internal validity of the study, by providing for greater control, it limits the generalizability of the study findings that are focused on this specific variable.

This project indicates that although hostility does not interact with empathy at the global level, there study-specific weaknesses in the evaluation of empathy and therapy outcomes that disallow firm conclusions. Future studies of the possible interaction between therapist empathy and client hostility would benefit from including process

measures of both variables that account for fluctuations in levels across the entire therapy session.

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## APPENDIX A FIGURES

Figure 1.

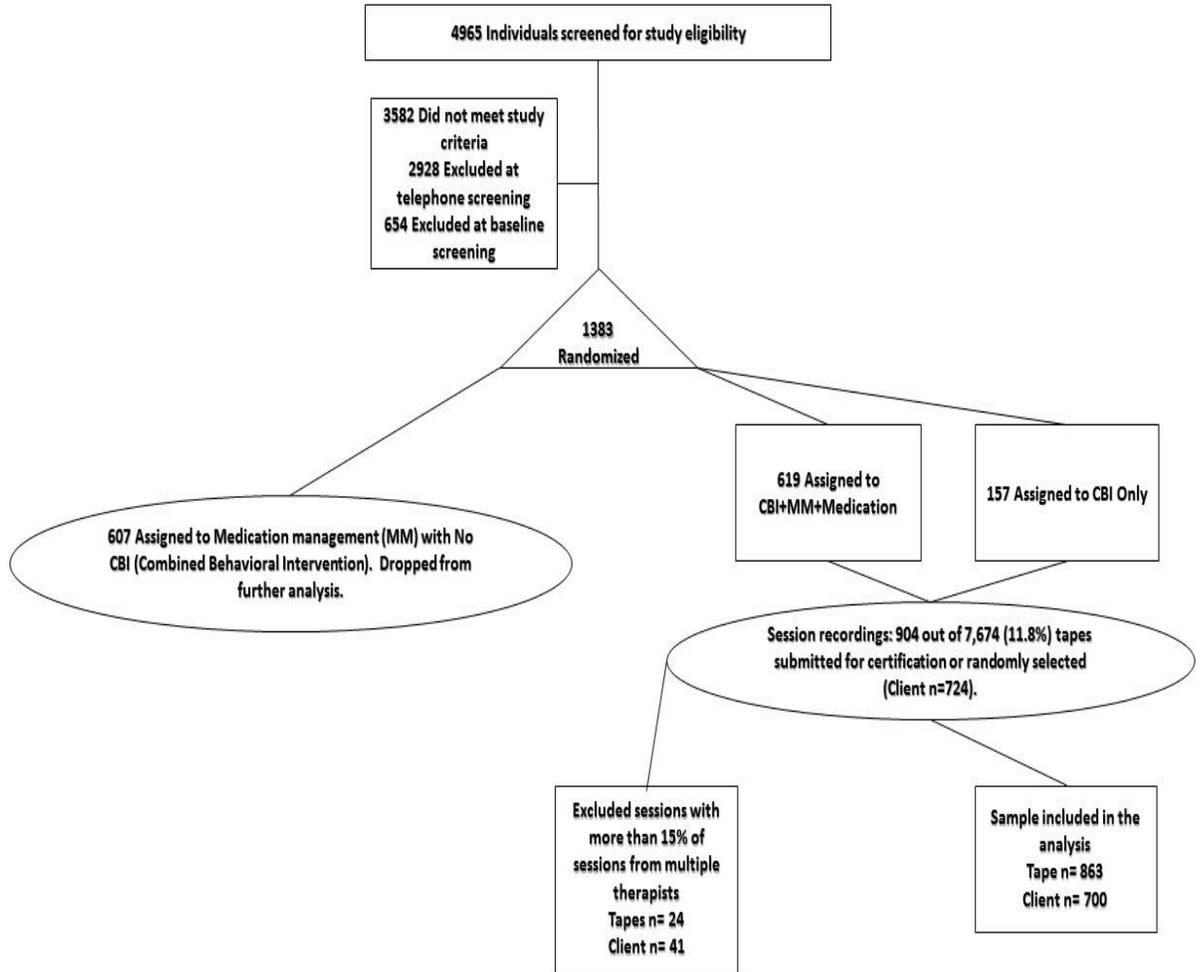


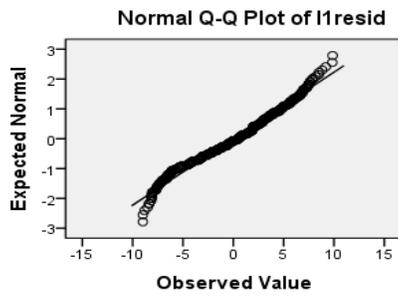
Figure 2.

| 1                              | 2  | 3   | 4  | 5  | 6  | 7  |
|--------------------------------|--|---|--|--|--|--|
| Absence of this Characteristic | Some ability to convey this characteristic | Inconsistent evidence of this characteristic but evidence that the therapist is attempting to achieve | Some need for improvement on this characteristic | Acceptable level of this characteristic; therapists may have one or two scores at this level, indicating differences in personality and emphasis in therapeutic approach | Moderate to high levels of this characteristic | High levels of the characteristic: top 10% of therapists |

Figure 3.

1.  $r_{ij} \sim \text{iid } N(0, \sigma^2)$
2.  $\text{Cov}(X_{ij}, r_{ij}) = 0$
3.  $u_{0j}$  and  $u_{1j} \sim \text{iid } N(0, \mathbf{T})$  where  $\mathbf{T} = \begin{bmatrix} \tau_{00} & \tau_{01} \\ \tau_{10} & \tau_{11} \end{bmatrix}$
4.  $\text{Cov}(W_j, u_{0j}) = 0$  and  $\text{Cov}(W_j, u_{1j}) = 0$
5.  $\text{Cov}(r_{ij}, u_{0j}) = 0$  and  $\text{Cov}(r_{ij}, u_{1j}) = 0$
6.  $\text{Cov}(X_{ij}, u_{0j}) = 0$ ,  $\text{Cov}(X_{ij}, u_{1j}) = 0$ , and  $\text{Cov}(W_j, r_{ij}) = 0$

Figure 4.



## APPENDIX B TABLES

Table 1. *Descriptive Statistics*

|                                    | Mean   | SD     | N   |
|------------------------------------|--------|--------|-----|
| Empathy                            | 5.894  | .516   | 374 |
| Hostility                          | 3.96   | 4.098  | 374 |
| DrInC Baseline                     | 47.73  | 20.00  | 374 |
| DrInC w16                          | 12.72  | 18.548 | 293 |
| Total Sessions                     | 9.58   | 4.468  | 374 |
| DW Baseline                        | 65.613 | 48.435 | 374 |
| DW w16                             | 13.028 | 23.611 | 216 |
| Relationship Consequences Baseline | 9.993  | 5.987  | 373 |
| Relationship Consequences w16      | 2.32   | 5.987  | 293 |
| Total sessions                     | 9.40   | 4.617  | 374 |

DrInC= Drinker Inventory of Consequences, DW Baseline = Drinks per week at baseline,

Table 2. *Unconditional model: Week 16 Average drinks per week*

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|--------------|-------------|----------------|---------|--------------|---------|
| Intercept    | 2.864763    | 0.101416       | 28.248  | 35           | <0.001  |

Table 3. *Conditional Model: Average drinks per week X interaction*

| Fixed Effect        | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|---------------------|-------------|----------------|---------|--------------|---------|
| Intercept           | 2.238046    | 0.186252       | 12.016  | 34           | <0.001  |
| Empathy             | -0.026246   | 0.188272       | -0.139  | 34           | 0.890   |
| Hostility           |             |                |         |              |         |
| Intercept           | -0.085069   | 0.051188       | -1.662  | 34           | 0.106   |
| Hostility X Empathy | 0.063259    | 0.070908       | 0.892   | 34           | 0.379   |
| Drinks per week     | 0.007766    | 0.002766       | 2.807   | 139          | 0.006   |

Table 4. Unconditional Model: Week 16 total drinking problems

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|--------------|-------------|----------------|---------|--------------|---------|
| Intercept    | 2.390405    | 0.160426       | 14.900  | 35           | <0.001  |

Table 5. Conditional model: Week 16 total drinking problems X interaction

| Fixed Effect        | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|---------------------|-------------|----------------|---------|--------------|---------|
| Intercept           | 1.518283    | 0.204521       | 7.424   | 34           | <0.001  |
| Empathy             | 0.056129    | 0.266876       | 0.210   | 34           | 0.835   |
| Hostility           | 0.029583    | 0.014126       | 2.094   | 246          | 0.037   |
| Empathy X Hostility | -0.017726   | 0.012392       | -1.430  | 246          | 0.154   |
| Drinking Problems   | 0.017981    | 0.002953       | 6.090   | 246          | <0.001  |

Table 6. Unconditional model: Week 16 relationship problems X Interaction

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|--------------|-------------|----------------|---------|--------------|---------|
| Intercept    | 0.746599    | 0.184214       | 4.053   | 35           | <0.001  |

Table 7. Conditional model: Relationship problems X Interaction

| Fixed Effect          | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|-----------------------|-------------|----------------|---------|--------------|---------|
| Intercept             | -0.265812   | 0.235840       | -1.127  | 34           | 0.268   |
| Empathy               | 0.242410    | 0.318938       | 0.760   | 34           | 0.452   |
| Hostility             | 0.028619    | 0.014704       | 1.946   | 246          | 0.053   |
| HostilityXEmpathy     | -0.022236   | 0.013198       | -1.685  | 246          | 0.093   |
| Relationship Problems | 0.091207    | 0.011358       | 8.030   | 246          | <0.001  |

Table 8. Unconditional Model: Total sessions attended

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|--------------|-------------|----------------|---------|--------------|---------|
| Intercept    | 9.417286    | 0.284885       | 33.056  | 35           | <0.001  |

Table 9. Conditional Model: Total sessions attended X Interaction

| Fixed Effect        | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|---------------------|-------------|----------------|---------|--------------|---------|
| Intercept           | 9.552744    | 0.261115       | 36.584  | 34           | <0.001  |
| Empathy             | -0.716053   | 0.359365       | -1.993  | 34           | 0.054   |
| Hostility           | 0.141589    | 0.062758       | 2.256   | 328          | 0.025   |
| Empathy X Hostility | -0.025890   | 0.088068       | -0.294  | 328          | 0.769   |