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**EXAMINING HOW THE RATIO OF STUDENTS ON CAMPUS TO
COUNSELING CENTER STAFF RELATES TO DOSAGE AND COUNSELING
CENTER TREATMENT EFFECTIVENESS**

A Dissertation in

Counseling Psychology

by

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Abstract

It has been more than 30 years since the International Association of Counseling Services (IACS) established the student to staff ratio that defines the “standard of care” in university and college counseling centers. Since publication of this ratio in 1982, counseling centers have been advised to maintain minimum staffing ratios of one full-time equivalent (FTE) staff member to every 1,000-1,500 students on campus (Spivack et al., 2010). Yet the large majority of today’s counseling centers have ratios above those cutoffs, and the implications of this ratio for college students’ mental health have never been empirically assessed. This dissertation was the first to examine whether student to staff ratios were predictive of the number and frequency of clients’ sessions (dosage), and counseling center treatment effectiveness in reducing student distress.

This dissertation employed data from the Center for Collegiate Mental Health (CCMH), a collaborative practice-research network that currently comprises more than 250 college counseling centers that use a common data management system (Hayes, Locke, & Castonguay, 2011). The present study focused on data from 2,041 students and 37 counseling centers from the 2010-2011 academic year. For each counseling center that participated in CCMH data collection, student to FTE staff ratios were computed as the total student population relative to number of full-time professional staff and paid trainees per counseling center. Change in student distress from intake to final session, as measured by the CCAPS-32, was used to quantify centers’ treatment effectiveness. Number of sessions that clients received from FTE staff, as well as the average length of time between sessions, were used to quantify center-level mean dosages.

In general, findings indicated no significant associations between ratio, dosage, and effectiveness, though post hoc analyses provided some interesting, preliminary evidence about potential differences between public and private schools. Specifically, while private schools showed no relation between ratio and treatment effectiveness, public schools demonstrated the hypothesized relation: public schools with larger ratios saw a lower percentage of clients receiving effective treatment. Moreover, findings suggested that the majority of schools were able to provide relatively effective treatment despite falling outside of recommended ratio ranges. More broadly, results suggest that the relations between student to staff ratios, dosage, and counseling center treatment effectiveness are multi-faceted, likely influenced by an array of factors requiring further consideration.

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CHAPTER ONE

Introduction

It has been more than 30 years since the establishment of the student to staff ratio that defines the “standard of care” in university and college counseling centers, yet its implications for student mental health have never been empirically assessed. Since 1982, counseling centers have been advised to maintain minimum staffing ratios of one full-time equivalent (FTE) staff member to every 1,000-1,500 students on campus (Spivack et al., 2010). In reality, the large majority of today’s counseling centers have ratios above those cutoffs. Findings from a recent survey revealed an average ratio of 1,879 students on campus to one staff member, with a range from 88:1 to 15,000:1 (Barr, Krylowicz, Reetz, Mistler, & Rando, 2012). Moreover, fewer than 25% of schools reported a ratio below the recommended cutoff (Barr et al., 2012). Given the prevalence of schools that exceed the recommended ratio and the wide range of ratios observed across today’s campuses, empirical examination of how student to staff ratios may matter for student outcomes is critical. This dissertation will examine whether student to staff ratios are predictive of the number and frequency of clients’ sessions (dosage), and counseling center treatment effectiveness in reducing student distress.

Risks of Larger Student to FTE Staff Ratios

To clarify, when the International Association of Counseling Services (IACS) determined the ratio in 1981, it was likely intended to serve as a guideline for *access* to care, not quality of care. In other words, it was assumed that counseling centers were providing good care to the students that they treated, but center staff can only see a

certain number of students. Thus, if universities want their students who need care to have access to it, centers should not go beyond this ratio of students to staff.

Regardless of a specific ratio “cut-off” or threshold or the reasons for that threshold, there are several reasons why centers with a larger student to FTE staff ratio may see less effectiveness than those with smaller ratios. When demand for services exceeds a center’s supply of counselors, the center is faced with two choices: staff members may take on larger caseloads, or the center may add students to a waitlist. Unfortunately, as discussed in greater detail below, there are risks to either solution. First, large caseloads leave counseling center staff vulnerable to burnout and thus may have a negative effect on their therapeutic relationships with their clients (Friesen & Sarros, 1989; Lambert & Barley, 2001; Rogers & Dodson, 1987; Ross, Altmaier, & Russell, 1989). Second, as the International Association of Counseling Services (IACS) contends, placing students on long waiting lists increases the chances that a student might not receive necessary mental health services (IACS, 2007). This can have serious consequences, which may include college dropout (Wilson, Mason, & Ewing, 1997) and an increased risk of attempted or completed suicides when the factors or symptoms that commonly precipitate suicide are left untreated for too long (e.g., Brown, Parker, & Godding, 2002; IACS, 2007). Consequently, counseling centers with larger ratios potentially have greater liability risks than centers with smaller ratios. Clearly, large student to FTE staff ratios may be associated with a number of serious consequences, which makes these ratios worth further consideration.

Counseling Center Treatment Effectiveness

In this study, counseling center treatment effectiveness is defined as how well the full-time professional staff of a center, as a whole, are able to significantly reduce their clients' psychological distress. There have been only a handful of studies that have empirically assessed counseling center treatment effectiveness (e.g., Minami et al., 2009; Snell, Mallinckrodt, Hill, & Lambert, 2001; Vonk & Thyer, 1999; Wilson et al., 1997). Of these studies, none have used an outcome measure specifically designed for college students seeking services at a university counseling center, and none have been conducted at more than one site (with the exception of recent publications from the present dataset; Lockard, Hayes, Graceffo, & Locke, 2013; Lockard, Hayes, McAleavey, & Locke, 2012; Locke, Bieschke, Castonguay, & Hayes, 2012; McAleavey et al., 2012). This study will be among the first to address these limitations.

There are two important factors that are believed to impact treatment effectiveness at counseling centers and that may explain a potential relationship between large student to staff ratios and center effectiveness: an increasing number of students seeking counseling services and preliminary evidence suggesting a small rise in the number of complex clients (Benton, Robertson, Tseng, Newton, & Benton, 2003; Cornish, Riva, Henderson, Kominars, & McIntosh, 2000; Gabriel, 2010; Kettmann et al., 2007; Kitzrow, 2003; Offer & Spiro, 1987). For instance, from 2007 to 2011, the percentage of the student population that sought counseling remained steady at 10% (Barr et al., 2012; Rando, Barr, & Aros, 2008). With an increase in the college student population by 5.7 million during that time period, the result is approximately 570,000 more students nationwide seeking out counseling in 2011 than in 2007. Moreover, a possible increase in the number of complex clients is supported by preliminary evidence

of increases in the number of clients with multiple diagnoses (Kettmen et al., 2007), clients who are suicidal or have experienced an assault (Benton et al., 2003), and highly distressed clients that require a disproportionate amount of services (Cornish et al., 2000).

Both high caseload and the stress of working with complex clients have been found to increase the likelihood of therapist burnout (Friesen & Sarros, 1989; Rogers & Dodson, 1987; Ross, Altmaier, & Russell, 1989). The symptoms of burnout, such as emotional overextension and exhaustion, detached responses towards clients (Vredenburgh, Carlozzi, & Stein, 1999), and negative attitudes towards clients (Jupp & Shaul, 1991), all negatively impact the therapeutic relationship and thus, treatment outcomes (Lambert & Barley, 2001). It is hypothesized that counseling centers with larger ratios may be less able to handle the increased demands faced by today's centers, and may thus see more negative outcomes.

Dosage

The relationship between dosage and effectiveness in psychotherapy is an important area of study with significant implications for policy and practice. In the psychotherapy dosage model, it is assumed that the more psychotherapy sessions a client receives, the higher the “dosage” of psychotherapy’s active ingredients (e.g., working alliance, interpretations, empathy) he or she is exposed to. Typically in psychotherapy research, the “effect” is defined as whether clinically significant change has taken place, as measured by change on one or more outcome measures (Howard, Kopta, Krause, & Orlinsky, 1986). Most often, the “dose” has been defined as the *number* of sessions of therapy a client receives (Howard et al., 1986). Additionally, recent research has started to look at *session frequency* (Herbert, Rheingold, Gaudiano, & Myers, 2004).

In terms of *number* of sessions, a seminal meta-analysis demonstrated that 41% of clients made noticeable gains after 4 sessions, 53% after 8 sessions, and 62% after 13 sessions, and 75% after 26 sessions, based on once weekly sessions (Howard et al., 1986). Howard and colleagues (1986) described the trajectory of client improvement in terms of a negatively accelerating function of treatment length; that is, the more psychotherapy, the greater the probability of improvement, with diminishing returns at higher doses.

As an alternative to the “diminishing returns” model described above, Barkham and colleagues (2006) proposed the Good Enough Level (GEL) model. They argue that the negatively accelerating aggregate curves reported by Howard and colleagues (1986), rather than reflecting “diminishing returns” of more sessions, may instead be reflective of gradual termination of clients who had achieved a good enough level of improvement. In other words, it may be that the negatively accelerating trajectories previously reported actually reflect easier-to-treat clients needing fewer sessions (i.e., “falling off” at the beginning of the curve), leaving the harder-to-treat (and slower-improving) clients toward the end of the curve.

Yet other research has focused on examining dosage in terms of the treatment *schedule* or the *frequency of sessions*. A study by Herbert, Rheingold, Gaudiano, and Myers (2004) evaluated the effects of varying the treatment delivery schedules for clients with Social Anxiety Disorder (SAD) through the use of Cognitive-Behavioral Therapy (CBT). The researchers concluded that extending the course of CBT over a longer period of time (1 session every two weeks versus weekly sessions) shows no benefits, and

instead may considerably increase the risk of premature termination (Herbert et al., 2004).

Although there is some research exploring the relation between session frequency and effectiveness, the conditions of these studies have generally been quite different from the present study. For instance, most such studies have sought to compare the effects of *more-than-once-a-week* treatment to weekly or bi-weekly treatment. In contrast, clients in the present study's dataset rarely received sessions more frequently than once a week. Additionally, most of the previous research on this topic has focused on "massed sessions" (i.e., more than once a week) specifically as a means of treating specific anxiety disorders and phobias, whereas the present study examines the much more general population of clients seeking therapy from college counseling centers.

In the present study, we explore the dose-effect relationship using both definitions of "dosage" seen in past research: *number of sessions* and *session frequency*.

Hypotheses

Based on the literature presented above (and discussed further in Chapter Two), this dissertation is aimed at testing four hypotheses. First, it is expected that there will be an inverse relationship between student to FTE staff ratios and counseling center effectiveness (i.e., percentage of clients seeing improvement in their psychological distress from intake to last measured session, and center-level mean change in distress). In other words, counseling centers with larger ratios are expected to be less effective than centers with smaller ratios. Second, it is expected that there will be a direct relationship between student to FTE staff ratios and dosage. In other words, clients are expected to receive a significantly "better" dosage (more frequent sessions, and greater total number

of sessions) at counseling centers with smaller student to FTE staff ratios (i.e., fewer students per staff member) than are those at schools with larger ratios. Third, a direct relationship is expected between dosage and counseling center treatment effectiveness. In other words, counseling centers that provide clients with a lower dosage of individual treatment (i.e., fewer total sessions per client or a greater average number of weeks between sessions) are expected to be less effective than centers that provide clients with a higher dosage of treatment. Lastly, it is expected that the relationship between student to FTE staff ratio and treatment effectiveness will be mediated by session frequency.

CHAPTER TWO

Review of Literature

Introduction

In the following chapter, the literature relevant to this study and its hypothesis will be reviewed. The chapter begins with a definition and review of the student to FTE staff ratio (hereafter referred to as the “ratio”) in counseling centers, its use in counseling centers, and its importance. Next, I will discuss the history and the development of ratio standards for counseling centers, with a review of how the ratio was initially determined and its development since then, as well as a comparison of the standards-based minimum ratio with data about the current ratios found in counseling centers. I will then describe this study’s two dependent variables: counseling center treatment effectiveness (psychotherapy outcomes) and dosage. I will describe how psychotherapy outcomes will be measured in this study, and will review the literature examining the relationship of counseling center staffing and dosage to psychotherapy outcomes. Finally, I summarize the key points raised in this review, and present my research questions and hypotheses, along with a basic summary of how these hypotheses will be tested.

Ratio

Definition. IACS defines the ratio as the number of FTE paid professional staff at a campus counseling center to the number of students at the college/ university (Garni et al., 1982). The Association for University and College Counseling Center Directors (AUCCCD) concurs with IACS, but also calculates ratios that include interns. In the present study, the ratio will be defined as the number of students at a college/university to FTE paid professionals. This definition was selected for this study because not all

universities have internship programs; thus, using this definition provides better uniformity to the data used for analyses.

Currently, IACS and AUCCCD define the minimum ratio as one FTE staff to 1,000-1,500 students (1:1,000-1:1,500), depending on the size of the university and what other mental health resources exist on campus. This ratio is used as a guideline for IACS accreditation; it is a suggested goal but not a required standard (Kiracofe et al., 1994). When IACS determined the ratio in 1981, it was likely intended to serve as a guideline for *access* to care, not quality of care. In other words, it was assumed that counseling centers were providing good care to the students that they treated, but center staff can only see a certain number of students. Thus, if universities want their students who need care to have access to it, centers should not go beyond this ratio of students to staff. Yet this minimum ratio has since come to represent the field's "standard of care". Regardless of its initial purpose, it is important to understand how the ratio may impact the care students receive at counseling centers (e.g., outcomes for students seeking counseling). No studies to date have empirically examined this relationship.

Importance. In 2007, IACS released a statement about the ratio, stating several potential consequences that counseling centers may face if they have a student to staff student ratio beyond the upper limit of 1,500 students per 1 FTE staff member.

First, it was noted that there will be a longer waitlist for students to receive services when the staff to student ratio rises above the standard limit. Given the established benefits of counseling for college students, a delay in or failure to receive services is problematic. For instance, social-emotional adjustment difficulties commonly treated in college counseling centers are as predictive of college dropout as poor

academic adjustment (Gerdes & Mallinckrodt, 1994). Consistent with this idea, Wilson and colleagues (1997) found that attrition rates were 14% higher among students who were put on a waitlist versus those who did not have to wait for services, suggesting that immediate treatment helped to retain students that might otherwise have dropped out. In addition, 67% of students who completed satisfaction questionnaires as part of the 2011 AUCCCD survey reported that counseling helped their academic performance (Barr et al., 2012). These studies and surveys provide evidence that timely counseling services are an essential factor for students who want to graduate. More broadly, IACS contends that with higher ratios and, in turn, longer waiting lists, fewer students will get to experience the benefits of counseling. Long waitlists are just one example of the ways in which a larger student to staff ratio may affect the timing, frequency, and amount of treatment that students ultimately receive. Yet, no studies thus far have empirically examined the link between student to staff ratios and treatment dosage. This study will be the first to systematically explore this relationship.

A second potential consequence that IACS warns of is that, as the ratio gets larger, counseling centers will be less available to help support the campus community. As the pressure increases on staff to meet growing clinical demand, they will have less time for training, preventative outreach, and consultations. Having time to provide training and consultations is especially important in the aftermath of campus-wide tragedies (Flynn & Heitzmann, 2008).

In part a consequence of the two issues described above, higher risk of lawsuits is a potential further hazard associated with large ratios. Because the minimum ratio range represents the “standards of the profession”, IACS (2007) contends that counseling

centers and universities who are beyond that limit leave themselves more vulnerable to legal actions.

Though not mentioned by IACS, yet another potential consequence of larger ratios is that students with severe mental health issues who do not present as severely on intake may be placed on waitlists. These students' symptoms may potentially get worse, which could lead to an increased risk of suicides, psychosis, and mania. In all, it is apparent that there exists a number of potentially dire consequences that could result from counseling centers whose student to FTE staff ratios are beyond the recommended minimum of 1,000-1,500 per 1 FTE staff member. Since this minimum ratio has the potential to be very important, it is useful to consider how it was initially determined and to examine its appropriateness.

History. The ratio first appeared in the literature in 1982. It was introduced in IACS's accreditation guidelines for university and college counseling services (Garni et al., 1982). IACS cites Magoon's work (1981), which was based on the 1980-1981 university and college counseling center data bank. Magoon (1981) reported a median ratio of one professional staff member for every 1,723 full-time students in large universities (>10,000 students) and also a median ratio of one professional staff member for every 1,113 full-time students in small universities (<10,000 students). Magoon (1981) added that specific ratios for individual counseling centers are typically determined by the individual characteristics of centers, and that the ratio should reflect the mission and philosophy of centers.

When IACS revised their guidelines in 1991, they made the following statement regarding the ratio: "Every effort should be made to maintain minimum staffing ratios in

the range of 1 FTE professional staff member for every 1,000-1,500 students, depending on services offered and other campus mental health agencies” (Kiracofe et al., 1994, p. 42). IACS reports that this ratio range was determined through a combination of empirical analysis and the judgment of experienced counseling center directors (IACS, 2007). The 2001 IACS statement regarding the ratio was nearly identical to the 1991 statement, except that it explicitly stated that trainees should not be included when calculating the ratio (Boyd et al., 2003). In 2010, IACS added only the stipulation that “a minimum of 2 FTE staff is necessary to be eligible for accreditation” (Spivack et al., 2010, p. 14).

In other words, the minimum ratio range (1,000:1-1,500:1¹) that has endured for the past 30 years and is currently considered the “standard of care” in today’s college counseling centers is based on a descriptive observation of the ratios that were typical in the 1980s. Yet, the actual occurrence and feasibility of this ratio in today’s counseling centers have not been considered, nor is there evidence thus far to substantiate the idea that this range is ideal for meeting the present-day mental health needs of students.

Current ratios. The AUCCCD conducts annual surveys of college and university counseling centers, typically yielding data on about 400 counseling centers per year. Using data from the surveys conducted from 2007 to 2011, we can obtain a clear picture of how the actual ratios in today’s counseling centers typically compare to the recommended range (Table 1). Examining the overall average for each year, it is clear

¹ The ratio is properly expressed as two numbers, for example, 1,000:1, but in this study, only the numerator will be provided in the pages that follow.

that the large majority of counseling centers fall above the upper bound of the recommended ratio range: averages per year range from 1,738 to 1,952.

Table 1

2007-2011 Comparison of Student to FTE Staff Ratios

Year	2007	2008	2009	2010	2011
Student to FTE Staff Ratio (Mean)	1,942	1,952	1,738	1,940	1,879
Mean Ratios by School Size:					
Under 1,500	689	797	660	776	684
1,501 - 2,500	1,085	969	990	896	1,047
2,501 - 5,000	1,340	1,512	1,467	1,352	1,669
5,001 - 7,500	1,570	2,193	1,878	1,633	2,241
7,501 - 10,000	2,252	2,704	1,908	1,868	1,946
10,001 - 15,000	2,267	1,996	1,927	2,040	2,135
15,001 - 20,000	2,627	2,452	2,295	2,936	2,613
20,001 - 25,000	2,885	3,102	2,489	2,606	2,634
25,001 - 30,000	2,726	2,950	2,567	2,435	2,651
30,001 - 35,000	2,958	2,095	2,543	2,552	2,788
35,001 and over	3,058	2,709	2,797	3,133	2,395
Mean Ratios by School Status:					
Four-year public university	2,553	2,607	2,324	2,390	2,274
Four-year public college	2,081	1,847	1,787	2,072	2,380
Four-year private university	1,441	1,473	1,301	1,314	1,366
Four-year private college	1,004	911	853	894	971
Both four-year public and private university	1,149	1,432	3,069	1,033	1,533
Other	1,773	1,820	2,496	1,541	1,695

Considered by school size, it seems that schools with fewer than 2,500 students are generally able to stay within the recommended range of 1,000: on average, the ratio in small schools was 860 based on the data from the 2007 to 2011 surveys. At schools with more than 5,000 students, however, centers begin to deviate from this range. Schools with between 5,000 and 15,000 students typically have ratios that range from 1,600 to 2,300, and those with greater than 15,000 students typically have ratios that range

between 2,400 and 3,000. Examining the ratios by school status also reveals some interesting findings. Private universities and colleges are typically able to maintain ratios that fall within the recommended guidelines. Private colleges in particular had average ratios just below 1,000. Ratios among public universities and colleges, on the other hand, typically ranged between 1,800 and 2,500.

The data lead to the following conclusions: (1) on average, counseling centers are significantly above the upper bound of the recommended ratio and (2) the only counseling centers that are within the recommended ratio are private universities or those with a student population of less than 5,000.

Counseling Center Treatment Effectiveness

College students in need of mental health services typically first seek those services from university and college counseling centers. Even though counseling centers have a variety of functions, such as outreach programs, educational workshops, consultation, training, and campus crisis management, the large majority of staff members' time is spent on providing direct therapy services (Minami et al., 2009). A recent survey of 407 counseling center directors found that counselors spend 60.4% of their time providing direct services (Barr et al., 2012). With an estimated 2.1 million undergraduate and graduate students who sought out counseling services at their universities in 2011 (Barr et al., 2012; National Center for Education Statistics [NCES], 2012), it is important to assess how effective college and university counseling center treatment is overall. Although a lot of research takes place at university and college counseling centers, there are surprisingly few studies that have empirically assessed

treatment outcomes for students seeking counseling center services or factors that may affect those outcomes.

The literature on counseling centers can be divided into three categories. First, there are a great number of studies that have been conducted at college counseling centers and broadly focused on counseling processes and psychotherapy, without specifically looking at the effectiveness of counseling centers. For example, there have been studies that have examined such constructs as the efficaciousness of time-limited therapy (e.g., Draper, Jennings, Baron, Erdur, & Shankar, 2002; Ghetie, 2007; Gyorky, Royalty, & Johnson, 1994; Nafziger, Couillard, & Smith, 1999), counselor effects (e.g., Okiishi et al., 2006; Ross et al., 1989; Vredenburg, Carlozzi, Stein, 1999), psychometric evaluation (e.g., Hayes, 1997; Ponterotto & Furlong, 1985), academic performance (e.g., Lee, Olson, Locke, Michelson, & Odes, 2009), and attrition (e.g., Anderson et al., 1987; May, 1991). Second, there are a number of theoretical papers that discuss counseling center treatment effectiveness conceptually, but without empirical data (e.g., Cooper & Archer, 2002; Steenbarger & Smith, 1996; Stone, Vespis, & Kanz, 2000). Third, a relatively small number of studies have empirically examined overall treatment effectiveness at college and university counseling centers (e.g., Minami et al., 2009; Snell et al., 2001; Vonk & Thyer, 1999; Wilson et al., 1997). Here, I will briefly review the few studies falling into this third category, which are the most relevant to the present study.

One approach to evaluating counseling center effectiveness has been to use student retention rates. Wilson and colleagues (1997) examined the academic records of 562 students that requested counseling, and compared students that actually received

counseling to those that did not show up to their first session or were put on a waitlist and declined services once available. The results revealed that students who had ultimately received counseling were 14-17% more likely to stay in school than were students who did not receive any counseling (Wilson et al., 1997).

A second common approach to examining counseling center effectiveness is to examine pre- and post-treatment measures of mental health. Several different measures have been used for this purpose. For instance, Vonk and Thyer (1999) used pre- and post-treatment scores on the Symptom Checklist-90-R (SCL- 90-R; Derogatis, 1992) to measure counseling effectiveness, and, in particular, used the global severity index (GSI) of the SCL-90-R to compare two groups. The first group received short-term counseling immediately after intake, while the second group was placed on a waitlist for an average of 46 days before receiving counseling. Clients in the immediate counseling group showed clinically and statistically significant differences between their pre- and post-treatment SCL-90-R scores. Clients in the waitlist group, on the other hand, did not show any significant improvement between their pre-treatment scores and their before-first-session scores (i.e., during the time that they were on the waitlist). They only showed improvement after they had received counseling. Similarly, Snell and colleagues (2001) measured response to counseling using a follow-up survey that was mailed to clients ten months after they had terminated services. The study used the pre- and post-treatment scores from the Computerized Assessment System for Psychotherapy Evaluation and Research (CASPER; Mallinckrodt, Timberlake, & Klein, 2001) to assess client change. Of the clients who returned the survey and had received one or more counseling sessions,

32% showed reliable change. Of the 106 clients who began in the dysfunctional range, 31% showed clinically significant change.

Another approach, which was established by Minami and colleagues (2009), has been to analyze treatment efficacy benchmarks (i.e., effect sizes), which were developed by Minami et al to compare to effect sizes found in their study. These benchmarks were established by statistically aggregating clinical trials of psychotherapy for clients with major depression. Only clinical trials using the Outcome Questionnaire-45.2 (OQ-45; Lambert et al., 2004) were included in the development of the benchmarks. Minami and colleagues (2009) examined OQ-45 data from 2,672 clients treated by 148 therapists at a large Western public university's counseling center. They found a treatment effect size estimate for clients above the OQ-45's clinical cutoff score that closely matched the level of treatment efficacy seen in clinical trials. In other words, counseling centers were very effective at reducing the symptoms of their clinically significantly distressed clients. When compared to clients randomized into the waitlist control group, approximately 80% of clients who received two or more therapy sessions fared better than the average waitlist control client (Minami et al., 2009).

Taken together, the studies above indicate that the counseling provided to college students by counseling centers is generally effective. Only two of the studies above – Vonk and Thyer (1999) and Minami and colleagues (2009) – administered widely used measures (i.e., SCL-90-R and OQ-45) for pre- and post-treatment analysis. Yet both of these studies had major limitations. For example, these studies were conducted at only one counseling center. In addition, although they administered widely used measures,

these measures were designed with general psychiatric patients as the intended population, rather than for college students seeking counseling.

The present study will address the above limitations by using a measure that was specifically designed for college counseling clients, and which has been administered to students from numerous colleges and universities throughout the United States. In addition, this study allows for a comparison of effects across counseling centers, assessing how the student to FTE staff ratio might affect treatment outcomes at these centers. Theoretically, it is proposed that an increase in client complexity and the increased demand for services in general has led to increased strain on counseling centers that, in turn, has led to less treatment effectiveness than would be seen in schools with smaller ratios. In this study, counseling center treatment effectiveness is defined as how well the full time professional staff of a center, as a whole, are able to significantly reduce their clients' psychological distress from intake to the last measured session. Thus, in the following section, I discuss some factors that may contribute to a strain on counseling centers and the effects of this strain on treatment outcomes.

Challenges & factors involved in counseling center effectiveness. In 1910, Princeton University established the first college-based mental health service in the nation (Kadison & DiGeronimo, 2004). A psychiatrist named Stewart Paton was hired to help students with "personality development" problems. Hiring Dr. Paton was the University's response to the phenomena that many talented students were not completing their studies because of personality and emotional problems (Kraft, 2011). Between 1910 and 1925, a few other colleges and universities followed Princeton's example and established comparable programs (Farnsworth, 1957). The vast majority of college-based

counseling during this time period was provided by professors and clergy (Farnsworth, 1957). During the 1930's and 1940's, while the number of clinical psychologists and psychiatric social workers was slowly increasing, debate emerged regarding the role of the college or university in counseling students (Farnsworth, 1957; Hodges, 2001). Some administrators believed that the counseling of students was best left up to faculty with an interest in counseling, while others argued that faculty should be trained to handle academic concerns and that trained professionals would be best equipped to assist students with psychological concerns (Hodges, 2001). At this time, most of the counseling provided to students was focused around being away from home for the first time, academic skills, and vocational services (Sweeney, 2001).

Following World War II, there was a large influx of students on college and university campuses nationwide, many of whom were veterans taking advantage of the GI bill (Kraft, 2011). The federal government provided funds to colleges and universities to assist veterans with career planning and to aid their adjustment to college. The role of college and university counseling centers grew as a result of the expansion of vocational services, increasingly allowing counselors to address the personal issues of students in a counseling context. In the following decades, the civil rights and women's rights movements led to greater access to higher education for ethnic/racial minorities and women, again bringing a substantial increase in the number of people attending colleges and universities. As a consequence of this expansion, additional staff were hired to help these students with their adjustment to college. It was at this point that the counseling center evolved into specialized services offered only by trained counseling professionals.

The function and role of the college counseling center continued to evolve over the following years in response to social, political, and economic factors, and also in response to advancements in psychotropic medications (Stone et al., 2000). The current demographics of college and university students reflect the changes in these societal factors, one facet of which has been the substantial and continual growth in the number of students attending college per year. In 2011, there were 21.3 million students enrolled in colleges and universities around the country, representing a 44% increase (6.5 million more students) since 1999. Women now make up 57% of the student population, racial minorities make up 34%, and 36% of undergraduates are age 25 or older.

Unlike in earlier years, in which changes in student demographics and rises in enrollment were met with increased services, today's counseling centers are forced to do more with fewer resources, largely due to budgetary concerns (Stone & Archer, 1990). Over the last 30 years, the number of students seeking counseling services has measurably increased (Kitzow, 2003). In addition, there has been a persistent perception that the number of students with severe psychological issues has been increasing (Sharkin & Coulter, 2005; Stone & Archer, 1990; Watkins, Hunt, & Eisenberg, 2011). It is important to examine the perception that client severity is increasing, as an overall increase in severity is a potential factor that may affect counseling center treatment effectiveness.

The most often cited reason for the increase in college counseling center clients with severe psychological issues is the availability of psychotropic medication starting in the 1990s (Gallagher, Gill, & Sysko, 2000; Kettmann et al. 2007, Kitzrow, 2003; Stone & Archer, 1990). These medications allow clients with disorders such as depression, severe

anxiety, bipolar disorder, and schizophrenia to attend college, while they likely could not have done so in the past (Kitzrow, 2003).

Data from surveys of counseling center directors over the last 20 years seem to provide some support for the idea that client severity is increasing. For instance, about 9% of counseling center clients were reported to take psychotropic medication in 1994 (Gallagher et al., 2000), a number that jumped to 25% by 2011 (Barr et al., 2012). In a study by Barr and colleagues (2012), 77% of directors surveyed reported perceiving an increase over the past year in the number of students with severe mental health issues on their campus. These directors reported that approximately 1 in 5 clients seeking services had severe psychological issues (e.g., severe mood disorders, post-traumatic stress, substance dependence, psychotic disorders). Similarly, respondents to the 2011 National Survey of Counseling Center Directors reported, on average, that 37.4% of their clients had severe psychological problems, a sharp increase from 16% in 2000 (Gallagher, 2012; Gallagher et al., 2000). Providing further support for the perception of increased severity, Gallagher (2012) reports that, in 2011, counseling centers had hospitalized an average of 9.4 students per school per year (2,000 students in all) for psychological reasons, which is more than triple the percentage of students hospitalized in 1994. Although the survey results reported by Gallagher and Barr suggest an increasing trend in client severity, these data are based on counseling centers' directors' perceptions and are not empirically based.

In 1997, it was argued that there was no real empirical evidence to support the idea that counseling centers were seeing an increase in clients with severe psychological issues (Sharkin, 1997). Since then, a number of studies have been published that have

empirically studied the issue of increasing severity in mental health concerns among college and university center clients (e.g., Benton, et al., 2003; Cornish et al., 2000; Erdur-Baker et al., 2006; Kettman et al., 2007; Pledge, Lapan, Heppner, Kivlighan, & Roehlke, 1998). As discussed in further detail below, findings from these studies have been mixed and generally provide little to no support for increased severity.

In one study, Benton and colleagues (2003) studied the evolution of counseling center client problems over the course of 13 years at a single, large university in the Midwest. For the 13,257 clients who sought treatment during that time period, a Case Descriptor List (CDL) was used to measure the counselors' perceptions of client issues, including developmental and relational as well as more serious problems. The clinicians in this study were 12 full-time staff members at the counseling center (eleven Ph.D.-level psychologists and one master's level counselor) as well as three to four pre-doctoral psychology interns per year. The results suggest an increased prevalence in 14 of the 19 client problems studied. In other words, students who received counseling services toward the end of the 13-year period frequently had more complex problems that included both traditional college student problems (e.g., relationships issues and academic difficulty) as well as more severe issues, such as anxiety and mood disorders, suicidal ideation, sexual trauma, and axis II disorders. Some of the problems increased exponentially over that time period. For example, the number of students seeking treatment for depression doubled, suicidal ideation tripled, and sexual assault quadrupled.

Although Benton et al.'s 2003 study seems to provide empirical evidence for increasing client severity, several major limitations of the study cast doubt on this conclusion. First, the study was conducted using data from a single counseling center

and therefore cannot be generalized. Second, in a critique by Sharkin (2004), it was noted that the CDL assessed broad categories of client problems but not the level or degree of client severity. In other words, the instrument used in this study was not adequate for measuring the *severity* of client psychopathology.

The other study concluding that there was an increase in client severity was by Erdur-Baker and colleagues (2006). In this study, two clinical samples provided data in 1991 and 1997 across 50 campuses nationwide. Results indicated that the 1997 sample had significantly more problems than did the 1991 sample in terms of academic concerns, relationships and adjustment issues, and depression. The researchers concluded that these findings provide little evidence of increasing severity of concerns among counseling center clients. However, given that depression was the only serious problem found to have increased (while other serious problems such as sexual issues and eating concerns did not increase), this conclusion is questionable.

In contrast, several empirical studies over recent years have found no evidence of increased client severity. Pledge and colleagues (1998) examined intake data from 2,326 students who had requested services from a large Midwestern university counseling center from 1989 through 1995. They used the CASPER (McCullough & Farrell, 1983) to assess client severity based on student self-reports of symptoms. Based on these data, no significant differences in client severity were observed over the six-year period. The authors of this study argue that the data supports the existence of a stable client population that consistently presents significant clinical problems to university counseling center staff at intake. According to these authors, the level of severity of client concerns is higher than in the decades prior to the 1980s, but has stabilized since

then (Pledge et al., 1998). Similarly, Kettmann et al. (2007) examined changes in severity among a sample of 827 university counseling center clients from a large Midwestern university over a seven year period (1999–2005). Client severity was assessed via the OQ-45, number of prior treatments, urgency of concern, Axis I diagnosis, diagnosis severity rating, and Global Assessment of Functioning score. Again, the results showed no significant increases in severity of psychopathology during the seven-year period.

Lastly, Cornish et al. (2000) examined five years of intake data (1986-1992) from 982 students who had requested services from a small, private, metropolitan counseling center. They used the Global Severity Index (GSI) of the Brief Symptom inventory (BSI; Derogatis, 1992) to assess client severity and in terms of general distress, found no consistent trend over time. However, the researchers did note a modest increase in the number of highly distressed clients requiring substantially more resources than other clients. These authors noted the important point that a distinction must be recognized between an overall increase in severity and a small increase in highly distressed students who require many more resources (Cornish et al., 2000).

Taken together, the results from these studies indicate that there is little to no evidence to support the claim that there is an overall increase in severity of psychological issues among clients at college and university counseling centers. However, even though there is a lack of empirical evidence that client severity is increasing, the perception that it is increasing is still strong among counseling center directors today. Over the last five years, 71-82% of counseling center directors surveyed by the AUCCCD reported they believed that the number of students with severe psychological problems had increased in

the past year (Barr et al., 2012; Barr, Rando, Krylowicz, & Reetz, 2011; Barr, Rando Krylowicz, & Winfield, 2010; Rando, & Barr, 2009; Rando et al., 2008).

As noted by Kettmen et al. (2007), it is important to consider why the staff at counseling centers continue to perceive increasing severity of client issues, despite the lack of empirical evidence. They posited three explanations as to why this perception persists. First, they believe that this problem may actually exist on some college campuses, even though it may not be a nationwide trend. For example, campuses experiencing unique stressors (e.g., campus violence, a natural disaster, tuition increases) may have a student body that presents with increasingly severe psychopathology over a number of years (Kettmann et al., 2007).

A second explanation is that center counselors may be experiencing more subjective stress if losses of staff positions coupled with a consistent increased demand for services leaves individual therapists to deal with a higher number of complex clients in their own caseload (Kettmann et al., 2007). This explanation has yet to be empirically tested.

A third explanation for the persistent perception of increasingly severe psychopathology among college students is that staffs at counseling centers may be seeing a modest rise in the number of clients who are more *complex*, such as those who have a number of diagnoses (Kettmann et al., 2007). As argued by Sharkin and Coulter (2005), having a few more complex client cases could lead therapists to perceive that severe client psychopathology has increased. Consistent with this argument, there is indeed evidence that counseling center staff members are seeing more complex clients. Kettmann et al. (2007) found a steady increase in the total number of diagnoses across the

seven years of their study. They argue that counseling center staff are more often diagnosing students with multiple disorders, resulting in more complex caseloads because more problems need to be addressed during treatment (Kettmann et al., 2007). Although there were many issues with Benton and colleagues' (2003) case for an increase in severe psychopathology, they did find a small increase in the number students that were more complex and stressful to manage. Similarly, Cornish and colleagues (2000) found that there was a small increase in the number of highly distressed clients requiring more resources than other clients. These studies all share the limitation that they were conducted at individual universities rather than at multiple sites. A national, multi-site study is still needed to generalize these results. Yet, taken together, these studies provide some evidence that counseling center staff are increasingly dealing with a small subset of the student population that, while not necessarily presenting with more severe symptoms, is more complex and stressful to manage.

In addition to the possible small increase in the number of complex clients at counseling centers, there also seems to be a steady increase for services in general. For example, Columbia University from 1995 to 2003 reported a 40% increase for counseling services; MIT in just a five year period (1995–2000) reported in an increase of 50% for counseling services; the State University of New York, Purchase experienced a an increase of 48% in demand for counseling services between 2000-2003. (Berger, 2002; Goetz, 2002 as cited by Kitzrow, 2003). From 2007 to 2011, the percentage of the student population that sought counseling remained steady at 10% (Barr et al., 2012; Rando et al., 2008). Yet with an increase in the college student population by 5.7 million during that

time period, the result is 570,000 more students nationwide seeking out counseling in 2011 than in 2007.

Based on the studies and surveys cited above, there is evidence to suggest that counseling centers are experiencing an increased demand for services and are potentially seeing more complex or highly distressed clients that require more services than other clients. As a result of the increased demand for services, many counseling centers have had to make changes to accommodate the influx of clients. Counseling centers have thus begun to employ a number of strategies to deal with the increased demand, in order to set limits and manage caseloads more effectively. Such strategies include waiting lists, brief therapy models, session limits, group counseling, more widely spaced sessions (i.e., less than once a week), shortened length of sessions, and referral to off-campus resources (Bishop, 2006; Guinee & Ness, 2000; Stone & Archer, 1990). However, there remains a lot to learn about the effects of those changes. Thus, it is becoming increasingly important to understand how increased demand for services and increasing client complexity - within the context of the ratio - affect treatment outcomes and counseling center treatment effectiveness.

To treat complex clients in an ethically competent manner, counseling centers must either appropriately refer the client out (if possible) or commit scarce resources to the client. Committing to a complex client means more staff time in the form of increased sessions and crisis hours, requires appropriate staff competencies and experience, and requires making sure that clients have whatever additional support services are needed on and off campus (Gilbert, 1992). For counseling centers with larger student to FTE staff ratios, treating complex clients can be extremely taxing on

center resources. Staff dealing with more complex cases and heavier workloads will be spread thin, leaving them vulnerable to stress and burnout (Stone & Archer, 1990).

Counselor stress and burnout have been linked to feelings of emotional overextension and exhaustion, detached responses towards clients (Vredenburgh et al., 1999), and negative attitudes towards clients (Jupp & Shaul, 1991), which may, in turn, have negative consequences for treatment outcomes and overall counseling center treatment effectiveness.

Several studies have examined predictors of counselor burnout. For instance, work related stresses and stressful job settings were found to relate to poor job performance, turnover, and burnout (Rogers & Dodson, 1987). Similarly, Ross and colleagues (1989) studied job stress and social support in a national sample of 169 doctoral-level staff, finding that the number of stressful events a counselor experienced was predictive of burnout and that counselors experience a wide variety of stressful events in their work. In this study, events such as a client committing suicide, a client threatening a counselor physically, and concern for one's family's safety when working with a dangerous client were among those rated most stressful (Ross et al., 1989). This finding provides support for the notion that dealing with a complex client is one of the most stressful events a counselor can encounter, and provides evidence that such events may be contributing to counselor burnout.

Research also provides evidence that an increased demand for services may contribute to counselor burnout. Two studies found a significant positive relationship between caseload and emotional exhaustion and depersonalization (Friesen & Sarros, 1989; Rogers & Dodson, 1987). In addition, Ackerley, Burnell, Holder, and Kurdek

(1988) found that psychologists who work in private practice experienced lower levels of burnout than those in public settings. In another study, those who worked at college counseling centers in particular were found to experience greater levels of burnout than those in private practice (Vredenburgh et al., 1999).

Burnout symptoms have the potential to impair the therapeutic relationship with the client and thus negatively impact treatment outcomes (Lambert & Barley, 2001), which, in turn, will affect counseling center treatment effectiveness. A qualitative study by Watkins and colleagues (2011) lends some support to the relationships described above. The authors stated: "...counseling centers were burdened with a growing demand for their services without receiving increased resources for staffing or physical space. As a result, administrators reported that their staff sometimes felt overwhelmed and ill prepared to handle the complex mental health concerns of their students and the related demand for their services" (Watkins et al., 2011, p. 332). Watkins and colleagues (2011) argue that the pressures put on counseling centers leave them in an unsustainable position if they are not provided with more staffing resources. If staffing increases are not possible, counseling centers may be forced to redefine their roles and become more of a triage center that directs students to other resources, such as those in the surrounding community (Watkins et al., 2011).

In summary, it is theorized that within the context of increased demand for services and managing more complex clients, counseling centers with bigger student to FTE staff ratios will be less able to effectively treat clients seeking services at their center.

Dosage

The relationship between dosage and effectiveness in psychotherapy is an important area of study with significant implications for policy and practice. Dose-effect research in psychotherapy has been modeled after the study of the potency (effect) of stimuli (dose) with living subjects in the biological sciences (Hansen, Lambert, & Forman, 2002). In the psychotherapy dosage model, the session is considered to be the unit of dosage measurement, as it is the most easily quantifiable unit of treatment and most easily comparable across methods of treatment. It is assumed that the more psychotherapy sessions a client receives, the higher the “dosage” of psychotherapy’s active ingredients (e.g., working alliance, interpretations, empathy) he or she is exposed to.

In psychotherapy research, the “effect” is most often defined as whether clinically significant change has taken place, as measured by change on one or more outcome measures (Howard et al., 1986). As discussed throughout this section, the “dose” in psychotherapy research has been defined in two ways. Most often, it has been defined in terms of the *number* of sessions of therapy a client receives (Howard et al., 1986). Additionally, more recent research has started to look at *session frequency*, though the work to date using this definition has been more limited (Herbert et al., 2004).

Dosage as number of sessions. As noted above, the research on dose-effect in psychotherapy has primarily focused on *how many* sessions are needed for client improvement. A seminal meta-analysis of dose-effect research, involving 15 datasets and 2,400 clients, described the trajectory of client/patient improvement as a negatively accelerating function of the time spent in treatment, that is, the more psychotherapy, the greater the probability of improvement, with diminishing returns at higher doses (Howard

et al., 1986). This meta-analysis demonstrated that 41% of clients improved after 4 sessions, 53% after 8 sessions, and 62% after 13 sessions, 75% after 26 sessions, and 85% after 52 sessions based on once weekly sessions (Howard et al., 1986). Howard and colleagues also examined response rates to psychotherapy based on three broad categories of diagnoses: depression, anxiety, and borderline-psychotics. They found that for 50% of the clients to improve, it took 8-13 sessions for the treatment of anxiety and depression and 26-52 sessions for borderline clients, all based on clinical chart ratings at termination. While this study was critical in establishing a relation between psychotherapy dosage and effect, a limitation of this study was the outcome measures used to assess client improvement. The majority of studies used in this meta-analysis reported improvement mainly based on clinician ratings after termination. While a few of the studies used chart reviews by researchers or client ratings, these methods of assessing client outcomes were much more rare.

Two subsequent studies have elaborated these findings. Using session by session data (rather than pre- and post-treatment data), Kadera, Lambert, and Andrews (1996) found a similar pattern of improvement (i.e., more improvement initially followed by “diminished returns”), but found an overall slower rate of improvement than that reported by Howard and colleagues (after 8 sessions, only 22% of clients had improved, in contrast to the 53% of clients reported by Howard and colleagues, 1986). However, a small sample size (fewer than 70 clients) limits the generalizability of these findings. Kopta, Howard, Lowry, and Beutler (1994) also replicated these patterns, but showed that the dose needed to demonstrate effectiveness was different for different symptoms: “acute,” “chronic,” and “characterological.” Using data from 854 outpatients during

intake and treatment using the Symptom Checklist-90—Revised (SCL-90-R; Derogatis, 1992), Kopta and colleagues (1994) found that clients with different symptoms improved at different rates. For 50% of clients to improve, clients with “acute” symptoms required 5 sessions, those with “chronic” symptoms required 14 sessions, and those with “characterological” symptoms required 104 sessions (Kopta et al., 1994). Again consistent with the meta-analysis by Howard and colleagues (1986), Kopta and colleagues (1994) found a negatively accelerated pattern of client symptom improvement to be common across all the problem types.

Finally, a fourth study examining both a controlled trial dataset and a naturalistic dataset concluded that clients often do not receive adequate exposure to psychotherapy (Hansen et al., 2002). In a dataset of 28 controlled clinical trials with 2,109 patients in 89 treatment conditions, using carefully controlled and implemented treatments, between 57% and 67% of patients improved with an average of 12.7 sessions. Yet in the naturalistic dataset, patients were found to have received an average of 5 or fewer sessions of psychotherapy, and only about 20% of clients in this sample improved. Clearly, there is an important link between number of sessions and psychotherapy effectiveness, and there is a risk of treatment being ineffective when a certain minimum number of sessions are not delivered; thus, the relationship between number of sessions and effectiveness is important to study.

“Good Enough Level” model. As an alternative to the “diminishing returns” model described above, Barkham and colleagues (2006) proposed the Good Enough Level (GEL) model. The GEL model suggests that clients, on average, tend to discontinue attending psychotherapy when they have improved to a “good enough” level

(Barkham et al., 2006). Barkham and colleagues argue that client response to therapy varies based on a number of different variables (e.g., nature and severity of client problems, characteristics of the therapists). For instance, a client suffering from acute distress (e.g., a relationship break-up) may show greater distress reduction from just a few sessions than a client with a personality disorder would show from months of therapy. Thus, just measuring exposure to therapy is not an adequate predictor of client benefit (Barkham et al., 2006). They argue that the negatively accelerating aggregate curves reported by Howard and colleagues (1986), rather than reflecting “diminishing returns” of more sessions, may instead be reflective of gradual termination of clients who had achieved a good enough level of improvement. In other words, it may be that the negatively accelerating trajectories previously reported actually reflect easier-to-treat clients needing fewer sessions (i.e., “falling off” at the beginning of the curve), leaving the harder-to-treat (and slower-improving) clients toward the end of the curve.

Dosage as session frequency. Yet other research has focused on examining dosage in terms of the treatment *schedule* or the *frequency of sessions*. For instance, a study by Herbert and colleagues (2004) evaluated the effects of varying the treatment delivery schedules for clients with Social Anxiety Disorder (SAD) through the use of Cognitive-Behavioral Therapy (CBT). The researchers compared two CBT protocols: 1) a 12-session protocol administered weekly, and 2) an extended protocol. The extended protocol also consisted of 12 total sessions, with the first 6 sessions also administered weekly, but with the last 6 sessions administered every-other-week. The extended protocol was an attempt to replicate a common clinical practice in which once-a-week sessions are tapered to once every two weeks during the final phase of treatment (Herbert

et al., 2004). The study had 34 initial participants that were randomly assigned to the two treatment groups, yet only 25 completed the study. Of the nine that dropped out of treatment, eight were from the extended protocol treatment group. The results based on only those who completed treatment showed similar improvement by post-treatment across the two treatment conditions, but the weekly treatment protocol showed initially quicker improvement. Based on these findings, the researchers concluded that extending the course of CBT over a longer period of time shows no benefits, and instead may heighten the risk of premature termination (Herbert et al., 2004).

Although there is some research exploring the relation between session frequency and effectiveness, the conditions of these studies have generally been quite different from the present study. For instance, most such studies have sought to compare the effects of *more-than-once-a-week* treatment to weekly or bi-weekly treatment. In contrast, clients in the present study's dataset rarely received sessions more frequently than once a week. Additionally, most of the previous research on this topic has focused on "massed sessions" (i.e., more than once a week) specifically as a means of treating specific anxiety disorders and phobias, whereas the present study examines the much more general population of clients seeking therapy from college counseling centers.

In the present study, we explore both definitions of "dosage" seen in past research: *number of sessions* and *session frequency*. Though there is no past research to this effect, it is expected that at centers with larger ratios, the demand for counseling services will exceed the supply of counselors; thus, centers with larger ratios are expected to be more likely to have to waitlist clients, or be forced to see clients less frequently or for fewer total sessions. The present study will also make several new contributions to

the existing literature on the dose-effect relation. First, this study is among the first to examine this relation within a college counseling center population. In addition, it is the first study to examine this relation using counseling *centers* as the unit of analysis (rather than individual clients): in other words, the present study tests how a center's *average* number of weeks between sessions relates to that center's effectiveness.

The Present Study

As discussed within this review, counseling centers with large student to FTE staff ratios leave themselves potentially vulnerable to a number of negative consequences. These negative consequences may include less effective counseling and an inability to provide timely or sufficient dosage to clients. The present study will be the first to directly examine the relationship of student to FTE staff ratio to dosage and counseling center effectiveness at a college or university. The study tests four hypotheses. First, it is expected that there will be an inverse relationship between student to FTE staff ratios and counseling center effectiveness (i.e., percentage of clients seeing improvement in their psychological distress from intake to last measured session, and center-level mean change in distress). In other words, counseling centers with larger ratios are expected to be less effective than centers with smaller ratios. Second, it is expected that there will be a direct relationship between student to FTE staff ratios and dosage. In other words, clients are expected to receive a significantly "better" dosage (more frequent sessions, and greater total number of sessions) at counseling centers with smaller student to FTE staff ratios (i.e., fewer students per staff member) than are those at schools with larger ratios. Third, a direct relationship is expected between dosage and counseling center treatment effectiveness. In other words, counseling centers that

provide clients with a lower dosage of individual treatment (i.e., fewer total sessions per client or a greater average number of weeks between sessions) are expected to be less effective than centers that provide clients with a higher dosage of treatment. Lastly, it is expected that the relationship between student to FTE staff ratio and treatment effectiveness will be mediated by session frequency. See conceptual model in Figure 1.

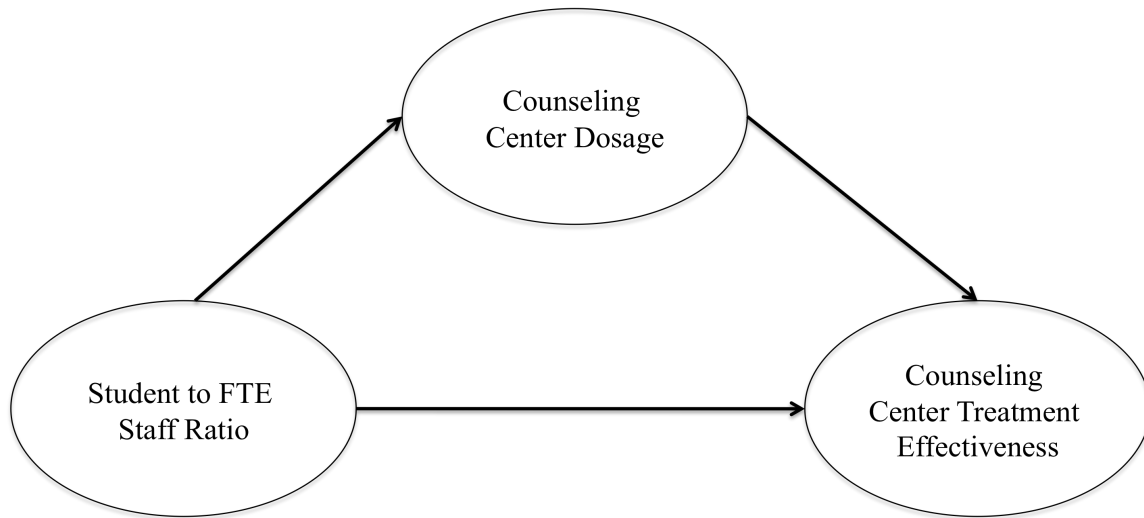


Figure 1. Conceptual model demonstrating the hypothesized relationships between student to staff ratios, dosage, and center effectiveness.

CHAPTER THREE

Methods

Participants

The Center for Collegiate Mental Health (CCMH) is a collaborative practice-research network that currently comprises more than 250 college counseling centers that use a common data management system, providing data for both clinical and scientific purposes (Hayes, Locke, & Castonguay, 2011). During the 2010-2011 academic year, the focus of the present study, CCMH collected data from 96 counseling centers (82,611 students).

For the present study, the sample was limited to participants from schools about which we have data about enrollment and number of FTE staff, in addition to CCAPS data from clients and information about client sessions exported from centers' scheduling program (i.e., date and session type from Titanium). In addition, to be included in analyses, clients needed to have received individual therapy only (i.e., no group treatment), attended at least one individual therapy session with a professional staff member or paid trainee, and completed the CCAPS at least twice, with the final CCAPS being administered no more than two weeks after the final recorded session that a client received from FTE staff. In order to avoid skewing the treatment dosage data, clients were considered to have received multiple, separate courses of treatment if 90 days or more had ever elapsed between one FTE staff session and the next; in these cases, only the first course of treatment was included in analyses. In addition, clients were identified as "outliers" if their treatment dosage (i.e., mean number of weeks between sessions) was more than two standard deviations above the mean, and were removed from the data. As

the client mean dosage was 1.92 (SD=2.29), clients were therefore removed from analyses if the mean number of weeks between FTE staff sessions exceeded 6.87 (see Figure 2 for average dosage frequencies).

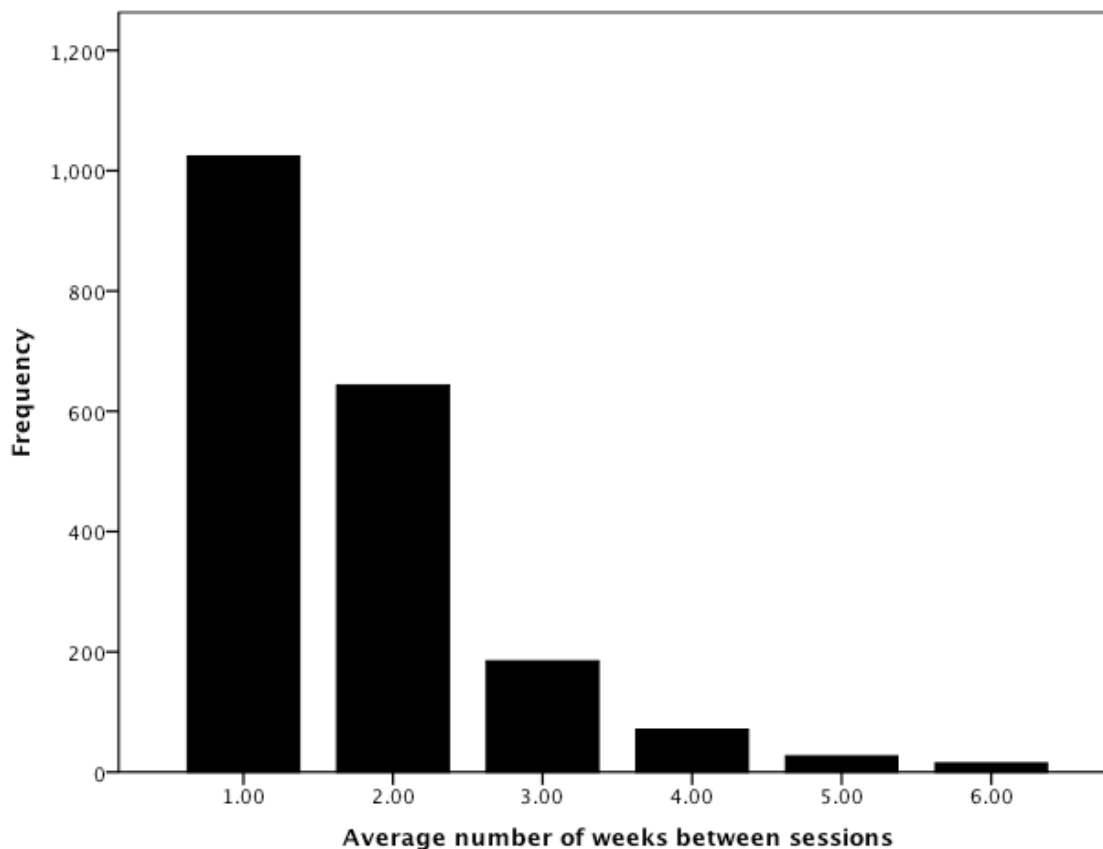


Figure 2. Frequency of clients falling into each of seven dosage “categories” representing the average number of weeks between sessions with professional staff or paid trainees.

Lastly, analyses were limited to counseling centers with at least ten unique clients meeting all of the above criteria. Thus, the final sample was composed of data from 37 counseling centers, representing data from 2,041 clients. The mean number of clients per center was 55.16 (SD = 46.79, ranging from 11 to 207 clients per center). The selection of the final sample from the original sample is represented in Table 2.

Table 2

Data Selection Criteria

	Number of unique clients	Number of unique centers
Original	82,611	96
Available appointment data	4,507	76
Received individual therapy	4,358	73
Received individual therapy from FTE staff (during 1 st "treatment course")	2,640	66
Removing clients who received group treatment	2,602	66
Removing outliers (if mean # wks btwn session > 6.87)	2,560	65
At least 2 CCAPS (2 nd CCAPS no more than 2 weeks after final recorded session)	2,112	58
Centers with at least 10 unique clients	2,041	37

Instruments

The instruments used to collect data on counseling center effectiveness, FTE to student ratio, and dosage, are described below.

CCAPS-62 and CCAPS-34. CCMH used three instruments to collect their data from students seeking or receiving treatment: Counseling Center Assessment of Psychological Symptoms–62 (CCAPS-62), CCAPS–34 (an abbreviated version of CCAPS-62), and the Standardized Data Set (SDS). The CCAPS-62 (Locke et al., 2011) is a 62-item self-report measure that was designed to provide a low-cost and efficient standardized tool for assessing psychological distress specifically within the college student population (as opposed to the general adult clinical population, which has typically been used for development and validation of other mental health instruments). Participants rate their agreement with a series of items using a five-point Likert-type scale, ranging from 0 (not at all) to 4 (extremely well). The CCAPS-62 is comprised of

eight subscales that measure symptoms of depression, generalized anxiety, social anxiety, academic distress, family distress, eating concerns, hostility, and substance use. A recent study provided support for the clinical validity of the CCAPS-62, including its concurrent validity and sensitivity to change among a sample of clients across 16 counseling centers, and its success in differentiating between students who were and were not in counseling on seven of the eight subscales using a large national sample (McAleavey et al., 2012).

The CCAPS-34 (Locke et al., 2012) is a 34-item self-report measure that is a short version of the CCAPS-62. In cases where the CCAPS-62 was administered at intake, the CCAPS-34 score was derived from the CCAPS-62. The CCAPS-34 is comprised of seven subscales: the same subscales as the CCAPS-62, but without “family distress”, and assessing alcohol use rather than broader substance use. The CCAPS-34 takes about two to three minutes to complete, and can be used as a brief assessment tool at intake and/ or as a repeated measurement tool to track progress over the course of treatment. Classical test theory and item response theory were used to determine which items would be retained from the CCAPS-62 to develop the short-form (i.e., the 34-item) version (see Locke et al., 2012). According to the CCAPS 2012 Technical Manual (CCMH, 2012), each of the subscales of the short-form version correlates $r = .92$ or above with the corresponding subscale from the longer version.

Both the convergent validity and reliability (i.e., internal consistency and test-retest stability) of the CCAPS-34 have been established. The Depression subscale comprises six items (e.g., “I feel isolated and alone”), and has been found to correlate well ($r = .70, p < .01$) with the Beck Depression Inventory (BDI; Beck et al., 1961). The Generalized Anxiety subscale (e.g., “I have spells of terror or panic”) comprises six

items, and has been found to correlate well ($r = .68, p < .01$) with the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The Social Anxiety subscale comprises five items (e.g., “I am shy around others”), and has been found to correlate well ($r = .76, p < .01$) with the Social Phobia Diagnostic Questionnaire (SPDQ; Newman, Kachin, Zuellig, Constantino, & Cashman-McGrath, 2003). The Academic Distress subscale measures academic concerns (e.g., “I am unable to keep up with my schoolwork”) and correlated well ($r = -.68, p < .01$) with the Academic Adjustment subscale of the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1986). The Eating Concerns subscale comprises three items (e.g., “I think about food more than I would like to”) and correlated well ($r = .52, p < .01$) with the Eating Attitudes Test (EAT-26; Mintz & O’Halloran, 2000). The Hostility subscale comprises six items (e.g., “I have difficulty controlling my temper”) and correlated well ($r = .69, p < .01$) with the Trait Anger subscale of the State-Trait Anger Expression Inventory–2 (STAXI-2; Spielberger, 1999). Lastly, the Alcohol Use subscale comprises four items (e.g., “I drink more than I should”) and correlated well ($r = .78, p < .01$) with the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993).

The internal consistency coefficients for the subscales of the CCAPS-34 have been reported as “acceptable” to “very good”. Cronbach’s alpha on the Depression subscale was $\alpha = .89$, Generalized Anxiety $\alpha = .82$, Social Anxiety $\alpha = .80$, Academic Distress $\alpha = .76$, Eating Concerns $\alpha = .87$, Hostility $\alpha = .85$, and Alcohol Use $\alpha = .87$ (Locke et al., 2012). Recent research has also begun to establish the cultural validity of

the CCAPS-62, finding that the internal consistency of the subscales was very similar across gender, ethnicity, and international student status (CCMH, 2012).

CCMH has developed a general Distress Index to track a client's overall distress using the CCAPS-34 (and using the same items from the CCAPS-62). Several different factor models were tested and compared in the development of the Distress Index, and ultimately a bi-factor model was selected that identified items that were related to a general factor as well as a subscale-specific factor (CCMH, 2012). Thus, the Distress Index is not computed as a total score on the CCAPS-34, but rather is computed based on weighting of specific items from several different subscales of the CCAPS-34. In the present study, the Distress Index will be used in the operationalization of counseling center effectiveness (as described below). The internal consistency of the Distress Index was reported as $\alpha = .92$ in the CCAPS Manual (CCMH, 2012).

Counseling center treatment effectiveness. Center-level treatment effectiveness was computed in two ways: as the *mean change in distress* and the *percentage of clients receiving "effective" therapy*. First, a change score was computed for each client representing the difference in his or her score on the Distress Index between the first and last eligible assessments (no more than two weeks after the final recorded session that clients received from FTE staff or paid trainees). *Center-level mean change in distress* was then operationalized as an aggregate across all eligible clients' change scores at a given counseling center: specifically, a mean change score on the Distress Index was computed for each counseling center (in which negative scores indicated a decline in distress, or improvement in symptoms). Second, severity cutoff scores defined by the CCAPS were used to place clients into severity categories at intake and last eligible

assessment. *Center-level percentage of clients receiving “effective” therapy* was then computed as the percent of clients at a center who either: a) experienced an improvement in their “severity” category on the Distress Index (i.e., a change from “severe” to “moderate”, “moderate” to “mild”, or “severe” to “mild”) from intake to last eligible assessment, or b) were recorded as mild severity at intake and were still classified as “mild” by the last eligible assessment.

Standardized Data Set. Demographic data about students, counselors, and counseling centers was obtained from the Standardized Data Set (SDS). The SDS is composed of a standardized set of questions routinely asked of students seeking mental health services, including a large number of demographic items (e.g., gender, sexual orientation, race) and mental health history questions (e.g., previous suicide attempts, medication usage, hospitalizations). The SDS also includes responses to demographic questions about the counselors at each center, center directors, the counseling centers, and larger institutions. The set of items included in the SDS is evaluated annually by CCMH Advisory Board and is occasionally revised based on input from participating counseling centers. Individual counseling centers are allowed to “turn off” or omit certain items if the item does not fit with the needs of that center.

The present study used data from two SDS items. The first was from the counselor demographic portion of the survey, in which counselors were asked to indicate: “What is your position type?” This was used to distinguish professional staff members from trainees, interns, or other types of counselors. In response to this item, counselors selected from a list of response options, including “professional staff member”, “master’s level trainee”, “pre-doctoral intern”, and so on. Because the present study is focused on

the student to full-time equivalent staff ratio, this item was used to identify the *professional staff members* and *paid trainees* and match those counselors to the students they counseled. Only students treated by professional staff members and paid trainees were included in analyses. Second, in the portion of the SDS on institutional demographics, the center director was asked to indicate current *enrollment* at their college or university, selecting one of the following response options: “Under 1,500”, “1,501 – 2,500”, “2,501 – 5,000”, “5,001 – 7,500”, “7,501 – 10,000”, “10,001 – 15,000”, “15,001 – 20,000”, “20,001 – 25,000”, “25,001 – 30,000”, “30,001 – 35,000”, “35,001 – 40,000”, “40,001 – 50,000”, or “50,001 and over”.

Ratio. For each counseling center participating in CCMH data collection, student to FTE staff ratios were computed as the total student population relative to number of full-time professional staff and paid trainees (i.e., pre-doctoral interns, post-doctoral interns, and psychiatric residents) per counseling center.

Dosage. For each client session, the following was exported from centers’ scheduling program (i.e., Titanium): date of the session, type of counselor delivering the session (e.g., FTE staff, paid trainee, etc), and session type. Given that each center has its own naming conventions for session types, exported data yielded over 2,000 session types. Graduate assistants on the CCMH team coded each session type into a dichotomous variable: “individual therapy” (any session type that was deemed to be part of a routine course of individual therapy) or not (not individual therapy, unlikely to be part of a regular course of individual treatment, or clearly another form of treatment). Counselor type and session type, as well as dates of CCAPS administrations, were used to identify eligible clients (e.g., those who had received at least one individual therapy

session, no group sessions, and at least two administrations of the CCAPS). A mean “dosage” was then computed for each client in two ways: 1) as the number of sessions by professional staff or paid trainees in between the first and final administration of the CCAPS, and 2) as the number of weeks from their first to their final administration of the CCAPS, divided by the number of times they were seen by professional staff or paid trainees during that period, yielding each client’s average individual session frequency (i.e., the average time elapsed between sessions). Treatment length was defined in this way because this study used the CCAPS to measure “treatment effectiveness”; thus, we were only able to measure the effects of treatment that took place between first and last administration of the CCAPS. In addition, because the CCAPS is typically administered at intake, using the CCAPS to define treatment “start date” treated schools with waitlist models the same as those with absorption models (i.e., time on waitlist was included in calculation of treatment dosage just as longer durations between sessions were included in calculation of treatment dosage for schools using absorption models). Clients with dosages over two standard deviations above the mean were considered outliers and were excluded from center-level dosage calculations. Finally, center-level mean dosages were computed in two ways: as the center-level mean *session frequency* (i.e., mean number of weeks between sessions) and center-level mean *number of sessions per client*.

Procedures

The instruments used by CCMH were administered to all students at the participating centers. In most cases, the CCAPS-62 was administered at intake along with items comprising the SDS. In some cases, the shortened version of the CCAPS-62, the CCAPS-34, was also administered at multiple points during treatment to assess

progress (Hayes et al., 2011).

Data Analysis Plan

A series of hypotheses were tested regarding the relations between student to FTE staff ratio, dosage, and effectiveness. To test these hypotheses, I used the four steps for testing mediation as proposed by Baron and Kenny (1986); however, each step is associated with its own unique hypothesis.

The first step was to test whether the initial variable is correlated with the outcome. Thus, as the first hypothesis, it was expected that there would be an inverse relation between student to staff ratios and center-level treatment effectiveness (i.e., counseling centers with larger student to FTE staff ratios were expected to see smaller mean change scores on the Distress Index, and a lower percentage of students receiving effective treatment, than were schools with smaller ratios). To test this hypothesis, I first computed correlations between student to FTE staff ratios and each of the two indices of counseling center effectiveness.

The second step, according to Baron and Kenny (1986), is to test whether there is a relation between the initial variable and the mediator: thus, another correlation coefficient was computed testing whether student to staff ratio was associated with dosage. Again, it was expected that there would be a statistically significant relation between ratio and each indicator of dosage: clients were expected to receive a significantly “better” dosage (more frequent sessions, and greater total number of sessions) at counseling centers with smaller student to FTE staff ratios (i.e., fewer students per staff member) than were those at schools with larger ratios.

Third, the relation between the mediator and the outcome variable is tested. Thus, a correlation was computed between each indicator of dosage and each indicator of treatment effectiveness, and significant direct relations were expected: counseling centers that provide clients with a lower dosage of individual treatment (i.e., fewer total sessions per client or a greater average number of weeks between sessions) were expected to be less effective than centers that provide clients with a higher dosage of treatment.

Lastly, to statistically test for mediation of the relation between ratio and effectiveness by dosage, Baron and Kenny (1986) posit that we should conduct a linear regression analysis in which center effectiveness is the dependent variable, predicted by student to staff ratio and dosage. According to Baron and Kenny (1986), a significant relation between dosage and effectiveness after controlling for student to staff ratio would tell us that dosage and effectiveness are not simply correlated because they are “caused by” the same initial variable, student to staff ratio. Thus, it was expected that there would be a significant direct relation between dosage and effectiveness, even after controlling for the student to staff ratio.

This final step can be used to establish whether dosage fully mediates (i.e., fully accounts for) the relation between student to staff ratio and center effectiveness. While it would be interesting to know whether dosage completely mediates this relation, it was not necessary for purposes of the present study for the relation between ratio and effectiveness to become non-significant once accounting for dosage. The present study did not aim to establish that dosage is the *only* explanation for a relationship between

ratio and effectiveness, only that lower effectiveness is one potential risk of a large student to staff ratio and low dosage.

CHAPTER FOUR

Results

Preliminary Analyses

In this section, I describe how each of the key variables needed to test study hypotheses was computed.

Dosage. As a first step, a mean “dosage” was computed for each client as the number of weeks from their first to their final administration of the CCAPS, divided by the number of times they were seen by professional staff or paid trainees during that period, yielding each client’s average individual session frequency. Treatment length was defined in this way because this study uses the CCAPS to measure “treatment effectiveness”; thus, we are only able to measure the effects of treatment that took place between first and last administration of the CCAPS. In addition, because the CCAPS is typically administered at intake, using the CCAPS to define treatment “start date” treats schools with waitlist models the same as those with absorption models (e.g., time on waitlist is included in calculation of treatment dosage just as longer durations between sessions are included in calculation of treatment dosage for schools using absorption models). After removing outliers (clients with dosages over two standard deviations above the mean), mean client dosage was 1.66 weeks between sessions (SD = .93). Finally, mean dosages were computed per center (after removing outliers). At the center level, mean session frequency was 1.64 weeks between sessions (SD = .29), with a center mean number of sessions per client of 7.37 sessions (SD = 2.36) and center mean length of treatment of 11.84 weeks (SD = 3.96). Center-level mean *session frequency* (i.e., mean

number of weeks between sessions) and center-level mean *number of sessions per client* are each used as indicators of dosage in analyses below.

Ratios. For each counseling center participating in CCMH data collection, student to FTE staff ratios were computed as the total student population relative to number of full-time professional staff and paid trainees (i.e., pre-doctoral interns, post-doctoral interns, and psychiatric residents) per counseling center. In the final sample used in this study, the mean student to FTE staff ratio was 1,771.84 students to 1 FTE staff (SD = 723.75), ranging from approximately 488:1 at a minimum to 3364:1 at a maximum. See Figure 3 for frequencies of counseling centers falling into each of several categories of ratios.

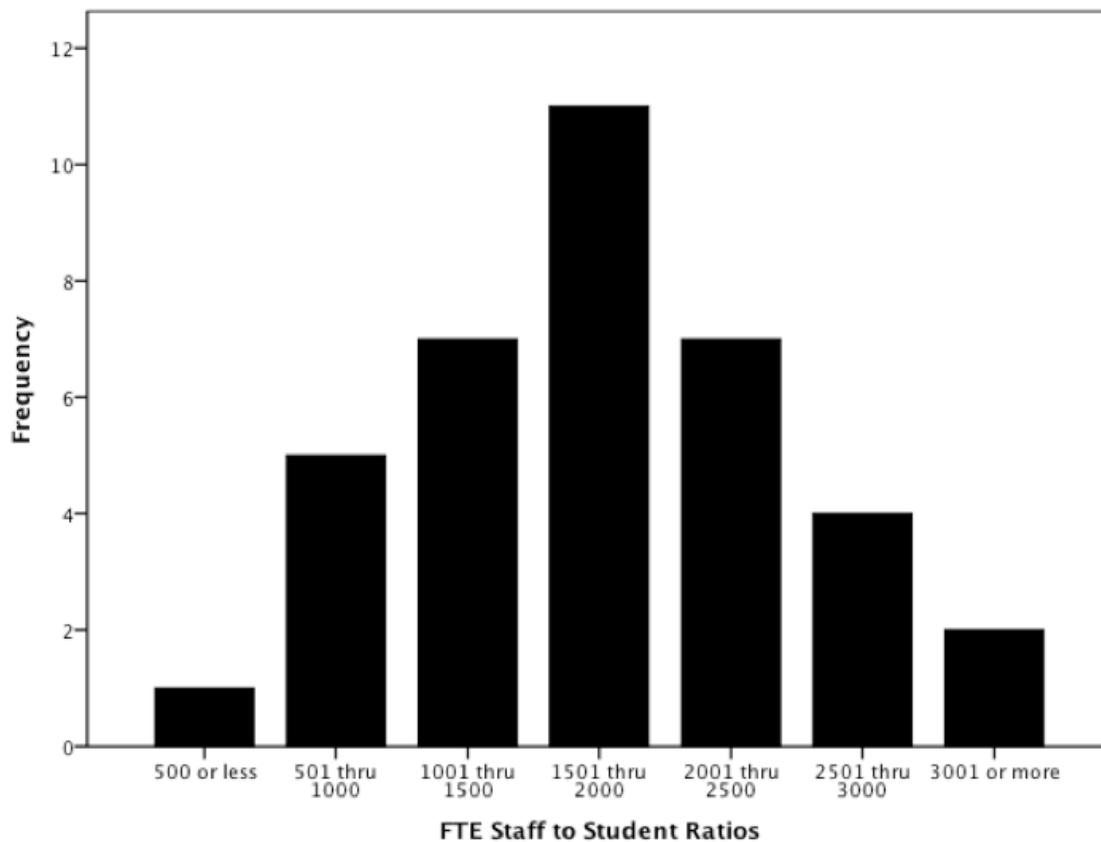


Figure 3. Frequency of counseling centers with each of several categories of student to staff ratios.

Counseling center treatment effectiveness. Counseling center treatment effectiveness was operationalized in two ways. First, clients' scores on the Distress Index (derived from the CCAPS) at intake was subtracted from their Distress Index scores on their last recorded CCAPS. These client-level difference scores were then averaged across centers in order to create a *center-level mean change in distress* for each counseling center (in which negative scores indicate a decline in distress, or improvement in symptoms). In addition, severity cutoff scores defined by the CCAPS were used to place clients into severity categories at intake and last observed session. Center-level

percentage of clients receiving “effective” therapy was then computed as the percent of clients at a center who either: a) experienced an improvement in their “severity” category on the Distress Index (i.e., a change from “severe” to “moderate”, “moderate” to “mild”, or “severe” to “mild”) from intake to last measured session, or b) were recorded as mild severity at intake and were still classified as “mild” by the last measured session. In all, 21.8% of the sample (461 clients) were classified as “mild” at both pre- and post-test, 33.9% (715 clients) improved by one severity category (i.e., either “severe” to “moderate” or “moderate” to “mild”) from intake to last measured occasion, and 7.9% (167 clients) improved by two severity categories (i.e., “severe” to “mild”), for a total of 63.6% of all clients (1,343 clients) in the sample having received “effective treatment”, by the definition described here. Considered at the center-level, the average center-level mean change in distress was $-.49$ ($SD = .14$), and the mean center-level percentage of clients considered to have received effective treatment was 63.79% ($SD = 12.44\%$), ranging from 29% to 85%.

Primary Analyses

Hypothesis 1. *It is expected that there will be an inverse relationship between student to FTE staff ratios and counseling center treatment effectiveness. In other words, counseling centers with larger ratios (more students per FTE staff) are expected to be less effective than centers with smaller ratios.*

To test this hypothesis, I first computed correlations between *student to FTE staff ratios* and *counseling center effectiveness*. Specifically, the ratio of student population to number of counseling center professional staff and paid trainees was examined in relation to a) center-level mean client change on the distress index from intake to last observed

session; and b) center-level percentage of clients considered to have received “effective” therapy (as defined by improvement in their “severity” category on the Distress Index from intake to last session). However, results of both analyses failed to support our hypotheses. The correlation between *center mean change in distress from intake to last recorded session* (in which a negative score reflects reduction in distress) and the *student to FTE staff ratio* (in which a larger ratio reflects more students per staff member) was non-significant ($r(35) = -.21, p = .11$), as was the correlation between *student to FTE staff ratio* and *percentage of students receiving effective treatment* ($r(35) = .03, p = .43$). See Figures 4 and 5 for scatter plots of these correlations.

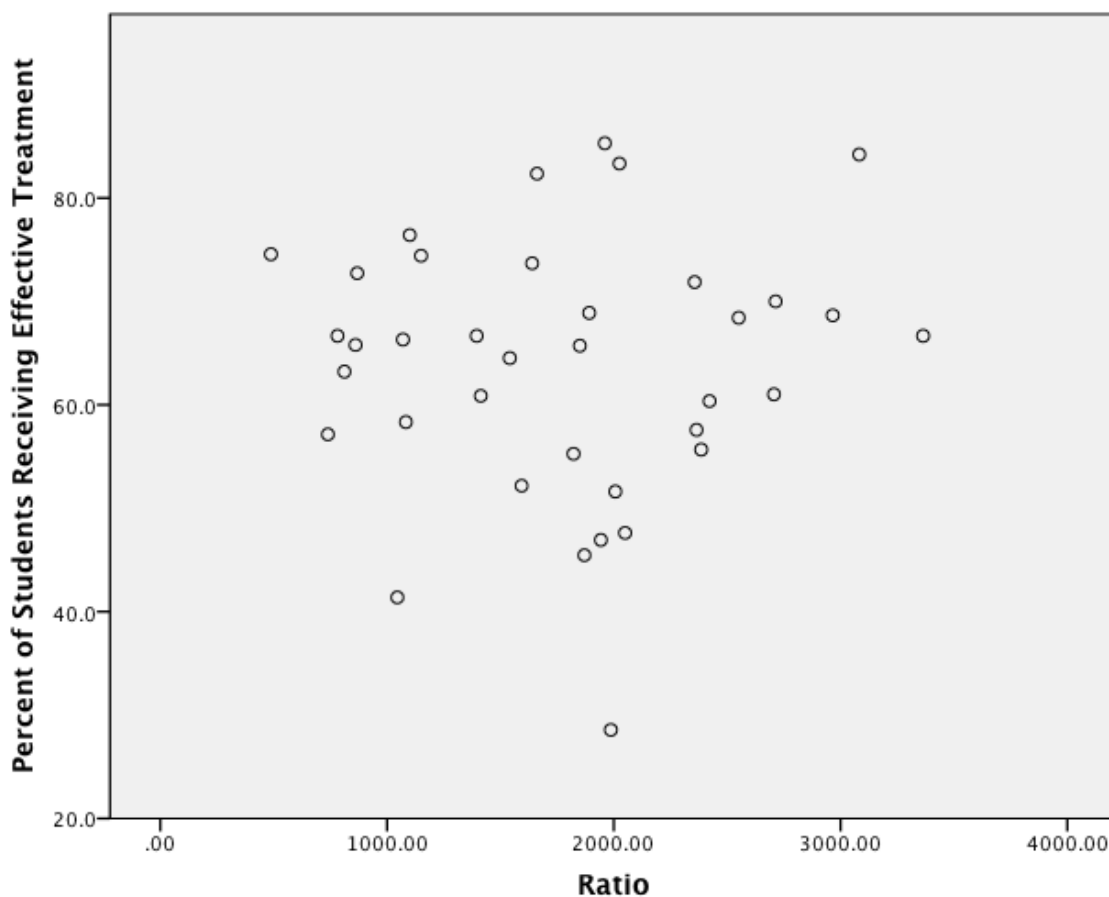


Figure 4. Percent of students receiving “effective treatment” in relation to ratio.

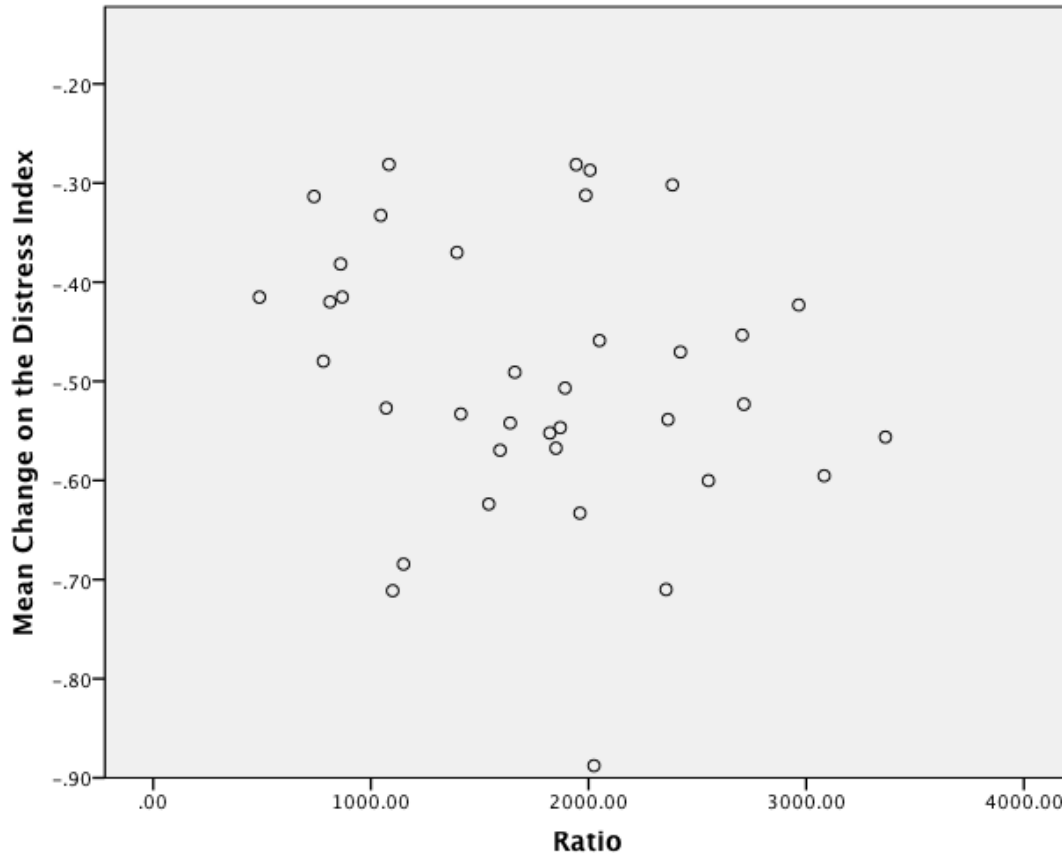


Figure 5. Mean client change on the Distress Index (such that negative scores represent improvement in symptoms) in relation to ratio.

Hypothesis 2. *It is expected that there will be a direct relationship between student to FTE staff ratios and dosage. In other words, clients are expected to receive a significantly “better” dosage (more frequent sessions, and greater total number of sessions) at counseling centers with smaller student to FTE staff ratios (i.e., fewer students per staff member) than are those at schools with larger ratios.*

To test this hypothesis, correlations were computed between student to FTE staff ratios and two different operationalizations of “dosage”. First, a correlation was computed between *ratio* (in which a larger ratio reflects more students per staff member) and *session frequency*, as defined by center-level mean number of weeks between

sessions; results indicated no significant relation between ratio and session frequency ($r(35) = .10, p = .27$). Second, a correlation was computed between *ratio* and center-level mean *number of sessions* clients received; again, no significant relation was observed ($r(35) = -.09, p = .31$).

Hypothesis 3. *A direct relationship is expected between dosage and counseling center treatment effectiveness. In other words, counseling centers that provide clients with a lower dosage of individual treatment (i.e., fewer total sessions per client or a greater average number of weeks between sessions) are expected to be less effective than centers that provide clients with a higher dosage of treatment.*

To test this hypothesis, four correlations were computed reflecting different approaches to operationalizing dosage and counseling center treatment effectiveness. First, correlations were computed between *session frequency* (i.e., center-level mean number of weeks between sessions) and each operationalization of center treatment effectiveness: no significant relations were observed with either *center mean change in distress* (in which reduced distress is reflected by a negative value) ($r(35) = -.12, p = .24$) or *percentage of students receiving effective treatment* ($r(35) = .10, p = .29$). Next, correlations were computed between center mean *number of sessions* clients received and the two quantifications of center treatment effectiveness: again, correlations failed to support our hypothesis. *Mean number of sessions received* did not significantly correlate with *mean change in distress* ($r(35) = -.07, p = .35$) or *percentage of students receiving effective treatment* ($r(35) = .03, p = .45$).

Hypothesis 4. *It is expected that the relationship between FTE staff to student ratio and treatment effectiveness will be mediated by session frequency.*

The fourth hypothesis reflects a mediation model that was only intended to be tested if the conditions from the first three hypotheses were met. Because none of those conditions were met, the mediation model was not tested.

Post Hoc Analyses

With correlations failing to support our hypotheses, we decided to compute a series of follow-up analyses, in an effort to gain some insight into why expected results were not observed. Thus, a series of exploratory regression analyses were computed in which “school type” (i.e., public or private) and school size (i.e., small or large) were tested as possible moderators of the student to FTE staff ratio predicting center-level mean treatment effectiveness and mean dosage. Findings indicated no significant moderation by school size: relations between ratio, dosage, and effectiveness did not significantly differ between schools with fewer than 10,000 students and those with more than 10,000 students. We did, however, find significant moderation by school type, reported below. These regressions were tested using both operationalizations of treatment effectiveness and both operationalizations of dosage as dependent variables; only analyses in which the interactions with school type was significant are reported.

Specifically, results provide some evidence that the hypothesized relations between ratio, dosage, and effectiveness may differ for public versus private schools. In the equation predicting *percentage of students receiving effective treatment*, school type significantly moderated the prediction by student to FTE staff ratio ($B = .03, p < .01$). A plot of this interaction revealed that while private schools ($N = 31$) showed no relation between ratio and treatment effectiveness ($r = .11, p = .29$), public schools ($N = 6$) demonstrated the hypothesized relation between ratio and effectiveness ($r = -.93, p <$

.01): public schools with larger ratios saw a lower percentage of clients receiving effective treatment (see Figure 6).

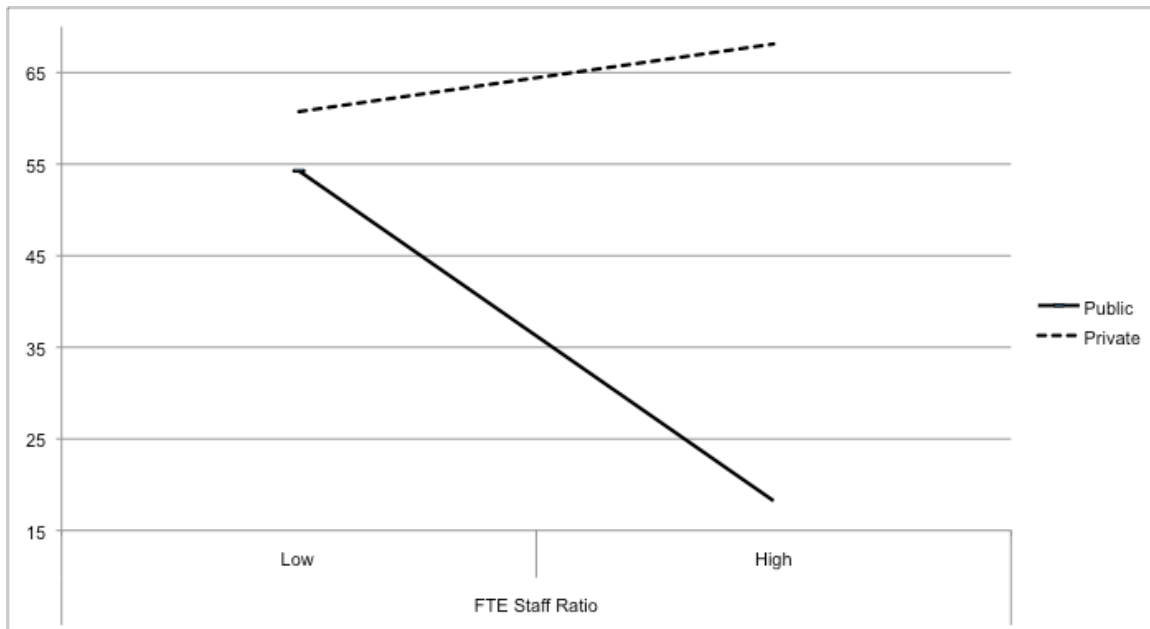


Figure 6. Percentage of clients receiving effective treatment as a function of FTE staff to student ratios and school type.

A final post hoc analysis was performed to test mediation using an alternative approach – bias-corrected accelerated bootstrapping (Hayes, 2009; Preacher & Hayes, 2008) – instead of the Baron and Kenny (1986) approach. This bootstrapping approach has been recommended as an alternative to the Baron and Kenny (1986) method, because: a) unlike the Baron and Kenny (1986) method, the bootstrapping method allows the researcher to directly test the indirect effect, b) the bootstrapping method reduces the likelihood of a type 1 error, c) the bootstrapping method is robust to violations of multivariate normality (Preacher & Hayes, 2008), and d) the bootstrapping method provides greater power to detect effects (e.g., Hayes, 2009; Preacher & Hayes, 2008). In essence, the bootstrapping method uses repeated re-sampling of the original dataset to

generate a series of datasets that are used to estimate the indirect effect (Fritz & MacKinnon, 2007; Preacher & Hayes, 2008). In order to test the hypothesized mediation model via this bootstrapping method, a macro created by Hayes and Preacher (2008) called INDIRECT was used in SPSS v. 20. Consistent with the original study hypothesis, center mean dosage was tested as a mediator of the relationship between student to staff ratio and center-level treatment effectiveness. Each version of dosage and each version of effectiveness was tested separately, as specified below. However, results still did not support mediation in any of the models tested: none of the indirect effects were statistically significant (i.e., in all cases, confidence intervals crossed zero). Specifically, $\beta = .0002$ ($p=.68$), $SE = .0004$, 95% BCa CI = $-.0008$ to $.0038$ for the indirect effect in the model predicting *percentage of students receiving effective treatment*, in which the mediator was *session frequency* (mean number of weeks between sessions); $\beta = 0$ ($p=.88$), $SE = .0003$, 95% BCa CI = $-.0013$ to $.0005$ for the indirect effect in the model predicting *percentage of students receiving effective treatment*, in which the mediator was the mean *number of sessions* attended; $\beta = 0$ ($p=.54$), $SE = 0$, 95% BCa CI $>-.0001$ to $<.0001$ for the indirect effect in the model predicting center-level *mean change in distress*, in which the mediator was *session frequency*; and $\beta = 0$ ($p=.71$), $SE = 0$, 95% BCa CI $>-.0001$ to $<.0001$ for the indirect effect in the model predicting *mean change in distress*, in which the mediator was the mean *number of sessions* attended.

CHAPTER FIVE

Discussion

When the International Association of Counseling Services (IACS) determined the ratio in 1981, it was likely intended to serve as a guideline for *access* to care. Yet there are compelling reasons to expect that this ratio could also have implications for the *quality* of care that students receive. This dissertation is the first study to directly test the relations between student to FTE staff ratio, treatment dosage, and counseling center treatment effectiveness. Specifically, using data from 37 counseling centers and 2,041 clients, this dissertation tested the hypothesis that counseling centers with smaller ratios (fewer students per FTE staff) would be more effective. It also explored the hypothesis that counseling centers with smaller ratios would offer “better” treatment dosages, that a center’s average treatment dosage would be related to counseling center treatment effectiveness, and that the relation between ratio and treatment effectiveness would be mediated by dosage. In general, results failed to support these hypotheses; associations between ratio, dosage, and effectiveness were not significant. However, post hoc analyses provided some interesting, preliminary evidence about potential differences between public and private schools, and suggested that the majority of schools are able to provide relatively effective treatment despite falling outside of recommended ratio ranges. More broadly, results suggest that the relations between student to staff ratios, dosage, and counseling center treatment effectiveness are multi-faceted, likely influenced by an array of factors requiring further consideration.

Hypothesis 1: Ratio and Effectiveness

The first aim was to test the hypothesis that there would be an inverse relationship between student to FTE staff ratios and counseling center treatment effectiveness. This hypothesis was based on the idea that at centers with larger ratios, the demand for counseling services would exceed the supply of counselors. Unless this is dealt with by referring clients out or providing a lower “dosage” of treatment to clients (examined in the next research questions), a demand that exceeds supply forces center staff to take on larger caseloads, leaving them vulnerable to burnout and in turn, negative effects on their therapeutic relationships with clients (Friesen & Sarros, 1989; Lambert & Barley, 2001; Rogers & Dodson, 1987; Ross et al., 1989). This was thought to be a particularly prominent risk given some tentative evidence of increases over recent years in both the number of students seeking counseling services as well as the number of complex clients at college counseling centers (Benton et al., 2003; Cornish et al., 2000; Gabriel, 2010; Kettmann et al., 2007; Kitzrow, 2003; Offer & Spiro, 1987). Treatment outcomes are thought to suffer under these circumstances, as a high caseload and the stress of working with complex clients has been found to lead to therapists’ emotional overextension and exhaustion, detached responses to clients, and negative attitudes towards clients, which together undermine the therapeutic relationship and in turn, treatment outcomes (e.g., Friesen & Sarros, 1989; Lambert & Barley, 2001; Rogers & Dodson, 1987; Ross et al., 1989).

Although IACS warns against large student to staff ratios, the present study was the first to directly examine whether student to FTE staff ratios are statistically related to counseling center treatment effectiveness. Ratio was defined as the size of the student population relative to the number of counseling center professional staff and paid trainees

(e.g., pre-doctoral interns, postdoctoral trainees). Counseling center treatment effectiveness was defined in two ways: a) the center-level mean client change on the Distress Index from first to last administration of the CCAPS, and b) center-level percentage of clients considered to have received “effective” therapy (as defined by improvement in their “severity” category on the Distress Index *or* being classified as “mild” at both the first and last CCAPS administration). Counseling centers with larger ratios were expected to be less effective (by both definitions of effectiveness) than centers with smaller ratios. Although this pattern was not observed in our data *overall*, further examination provided some preliminary evidence that the hypothesized relation may exist among counseling centers at *public schools* (but not private). In the following paragraphs, we discuss possible reasons for the lack of significant relation overall, and further discuss the observed moderation by schools’ public / private status.

Although significant relations were expected between ratio and effectiveness, it is not altogether surprising that no relation was ultimately observed. The lack of relation suggests that, as some have theorized, the relation between ratio and effectiveness is multi-faceted: there is much more at play than just the number of full-time staff and paid trainees and size of the student population in determining a center’s effectiveness. First, in line with the IACS definition, the present study leaves out any practicum students and several other types of counselors that may also be treating clients. While some schools have large training programs with practicum students seeing many center clients, others have much smaller training programs, and still others have none; in other words, schools vary widely in the extent to which the student to FTE staff ratio used in the present study truly reflects the number of counselors at the center that treat students. Relatedly, the

present study excluded group sessions (and clients in groups) from analyses; while this approach provided the “cleanest” examination of how individual therapy outcomes may be influenced by the ratio of students to staff at a center, the provision of groups may be an important tool used by schools to alleviate some of the pressure of a large student to staff ratio.

Second, centers differ in the characteristics of the staff and students that are included in the ratio: for instance, whether the center has psychiatric staff to work collaboratively with the therapists at the center, or the likelihood of the students at a given school seeking services at the center (which may differ by academic caliber and demand at the school, or cultural differences associated with geographic location, to name just a couple of examples).

Third, it is possible that some of the colleges and universities in our sample offer other mental health resources beyond their main counseling center. For instance, some universities offer multiple clinics and centers, with specific centers intended for specific populations (e.g., a women’s center, or a center for LGBTQ students) or for different levels of client severity or complexity. In these cases, the mental health needs of the student population are divided across multiple resources, taking substantial pressure off of the counseling center. Similarly, centers differ in the availability and extent to which they make use of a referral base of private practices and other off-campus mental health resources in the community.

Lastly, and related to the latter two factors, centers also vary widely in their *philosophies* about the number and types of clients that they keep or refer out to the community or other on-campus mental health resources. Some centers make an effort to

keep all of the clients who seek services from their center, while others have a policy of referring out the most severe clients, and still others tend to keep the more severe clients and refer out only those that are less severe (Much, Wagener, & Hellenbrand, 2010; Murphy & Martin, 2004). Once again, these factors (availability of alternate mental health resources, center philosophies about keeping versus referring out clients) make a big difference for the extent to which the size of the student population (entered into the student to staff ratio) is actually reflective of how many students ultimately receive services from (and thus, tax the resources of) the college or university's main counseling center. Center philosophies about keeping or referring out clients also makes a difference for the impact of the ratio on staff. For instance, counselors at centers that have a philosophy of taking on the most severe clients are much more likely to be over-extended and "burn out" more quickly (e.g., Yu, Lee, & Lee, 2007); in contrast, those at centers that take on only the less severe clients are likely to have an "easier" caseload and will end up feeling more efficacious. In sum, the importance of the ratio for center effectiveness may be influenced by a wide array of factors, which will be important to disentangle in future research.

As noted above, a significant interaction between public-private status and ratio in predicting treatment effectiveness suggested that the hypothesized inverse relation may exist among public schools. It is important to note, however, that after applying all of the criteria for inclusion in analyses described earlier (e.g., center has at least 10 unique clients who completed the CCAPS at least twice, etc), only six public schools remained in the sample. Thus, it does not seem prudent to interpret the observed, hypothesized relation between ratio and effectiveness among public schools as necessarily

representative of a true difference in the relation between ratio and effectiveness at public versus private schools. That said, it is worth noting that among the schools in our sample, all but one of the public schools had ratios within the recommended range of 1500 students per 1 FTE staff member, whereas nearly 75% of the private schools in our sample had ratios above that range (many of which were well above that range). Yet despite the tendency for private schools to have substantially larger ratios, the mean percent of student receiving effective treatment was approximately the same across public versus private schools, and in fact, mean change in distress was significantly better among private schools than public. While our findings tentatively suggests that public schools may have a tendency to maintain smaller student to staff ratios, more research will clearly be needed to understand why their smaller ratios did not translate to greater effectiveness, and the factors that allow private schools (and schools in general) to maintain relatively effective counseling centers despite their ratio size.

Coupled with the observation that the large majority of schools exceed the recommended student to staff ratio, the fact that no relation was ultimately observed between ratio and effectiveness has another possible implication that is important to consider. That is, these findings may suggest that counseling centers have found effective strategies to adapt to the increased demand on services without compromising the quality of services that students receive. For instance, triage services can be an important tool for this purpose. Using a 15-20 minute triage phone call as a brief initial assessment of students' needs, students who would be better served by a different on- or off-campus resource can be diverted away from the counseling center without taking up a 60-minute intake slot. Triage services are also a means of quickly assessing who is an

“emergency” (i.e., needs to be seen right away), who is “urgent” (i.e., should be seen in the next 3-4 days), and who would be classified as “standard” (i.e., would be assigned to next available standard appointment slot), and centers often leave some slots open at the top of the waitlist for these emergency and urgent clients. In this way, creative use of triage services and waitlist management can work at times as a “preventive” measure, so that the center can catch and start treating more urgent cases before they get even worse. Another important strategy some centers may be using to deal with the increased demand on services is to hire case managers, who help connect students with resources they may need outside of the counseling center, such as academic skills resources or psychiatrists in the community. Having case managers in charge of this type of resource management takes stress and time off of center therapists. These are just a few examples of ways in which centers may be adapting, so that center effectiveness is not as heavily influenced by large student to staff ratios.

Hypothesis 2: Ratio and Dosage

The second aim was to test the hypothesis that there would be a direct relationship between student to staff ratios and dosage: clients were expected to receive more frequent sessions (fewer weeks between sessions, on average) and a greater total number of sessions at counseling centers with smaller student to staff ratios (fewer students per staff member) than at those with larger ratios. As noted above, it was thought that at centers with larger ratios, the demand for counseling services would exceed the supply of counselors. Although no research has yet examined relations between ratio and dosage, it was hypothesized that centers with larger ratios would be more likely to have to waitlist clients (IACS, 2007), or would be forced to see clients less frequently or for fewer total

sessions. However, findings from the present study failed to support this hypothesis: no significant association was observed between ratio and dosage.

One possible explanation for the lack of observed relation between ratio and dosage may be centers' session limits. Some counseling centers have a maximum number of sessions that students are allowed to receive from the center before needing to be terminated or referred out. If centers of various sizes and ratios in our sample had session limits, then the dosage a client receives may be determined more by the center's pre-determined session limits, than by the center's ratio. Moreover, if many of the centers in our sample had similar session limits, it may have somewhat limited our sample's variability in center mean dosages, which would limit our ability to find a relation between dosage and other variables, such as ratio (as well as effectiveness). Thus, it is possible that centers' session limits (i.e., a dichotomous indicator of whether they have session limits or not, or the actual number of sessions they allow) would moderate the relation between ratio and dosage, such that centers *without* session limits may be more likely to show the hypothesized relation; these would be useful questions for future research. On the other hand, it is reasonable to expect that centers with larger ratios should be more likely to implement session limits (and to have lower session limits) than those with smaller ratios (Stone & Archer, 1990), which should have contributed to a stronger – not weaker – overall relation between ratio and dosage. Additionally, the fact that the mean dosage in our sample was approximately seven sessions (whereas center session limits are frequently ten sessions or more) suggests that many students terminated before they would have hit a session limit; thus, session limits are unlikely to have limited our variability or influenced our findings.

Similar to what was described above, the observed lack of relation between ratio and dosage more likely suggests that the relation between ratio and dosage is multifaceted, and that centers with large ratios may employ other strategies to ensure clients receive adequate care. For instance, as noted earlier, some schools have multiple mental health resources, and centers differ in when and how often they refer out clients to these or other off-campus resources. Centers at which demand for services exceeds the supply of counselors may be especially likely to make use of triage services to refer out a portion of clients to other resources on or off campus before they come in for an intake appointment. Moreover, centers can make use of groups, practicum students, and part-time staff to ensure that a portion of the students seeking services from the center will not end up in the caseloads of professional staff and paid trainees. In addition to reducing the likelihood of counselor burnout, these strategies reduce the possibility that centers will end up with long waitlists, or will have to “spread out” or shorten the treatment course of the students they do treat. In sum, the lack of relation between ratios and dosage may indicate that centers with large ratios are just as likely as those with small ratios to make sure that clients are only seen for intake by professional staff and paid trainees if those counselors are prepared and available to provide sufficient dosage to those clients.

Hypothesis 3: Dosage and Effectiveness

The third aim of the study was to test the hypothesis that there would be a direct relationship between dosage and counseling center treatment effectiveness. Counseling centers that provide clients with fewer total sessions, or that allow more weeks to elapse between sessions, were expected to be less effective than centers that provide clients with a higher dosage of treatment. Once again, effectiveness was examined in terms of mean

client change on the Distress Index from first to last CCAPS administration, and in terms of percentage of clients considered to have received effective treatment. Once again, however, hypotheses were not supported: no significant association was observed between dosage and effectiveness.

As noted in Chapter 2, it is generally assumed that the session is the unit of dosage in psychotherapy, and thus, that the more psychotherapy sessions a client receives, the higher the “dosage” of psychotherapy’s active ingredients he or she is exposed to. In general, the research on psychotherapy dosage to date suggests a positive relationship between dosage and effectiveness. For instance, several studies have found larger percentages of clients showing improvement after a larger *number of sessions*, with diminishing returns at higher doses (e.g., Howard et al., 1986; Kadera et al., 1996) and some differences in improvement rates across types of client symptoms (e.g., Kopta et al., 1994). Another smaller body of research has examined dosage in terms of treatment schedule or *frequency of sessions*. Though findings have been mixed, the majority of this research has either shown no difference by frequency or suggests that more widely spaced sessions (i.e., those with a longer time lapse between sessions) may slow the rate of improvement and may also increase the risk of premature termination (e.g., Heinicke, 1969; Herbert et al., 2004).

The present study explored the dose-effect relationship using both of these definitions of “dosage” (*number of sessions* and *session frequency*). However, the present study has several features that set it apart from past research. First, this study was among the first to examine the dose-effect relation within a college counseling center population. In addition, it is the first study to examine this relation using counseling

centers as the unit of analysis (rather than individual clients). Moreover, the present examination of the relation between *session frequency* and effectiveness is quite different from past research, as past studies have generally focused on comparing effects of “massed sessions” (i.e., *more-than-once-a-week* treatment) to weekly or bi-weekly treatment, and have primarily been examined as a means of treating specific anxiety disorders and phobias. In contrast, the present study is the first to examine this relation within the much more general population of clients seeking therapy from college counseling centers, with sessions that are more often than once per week being relatively rare in the present sample.

Given that the present study failed to support our hypothesis, we again explore several possible reasons for the observed lack of relationship. One reason we may not see a relation between dosage and effectiveness is that, based on the research to date, it seems that there is a certain minimum number of sessions needed for clients to improve (with this minimum number varying across studies and disorders; e.g., Hansen et al., 2002; Howard et al., 1986; Kadera et al., 1996; Kofta et al., 1994). Many clients unfortunately do not receive enough sessions to experience improvement. For instance, in their examination of a large naturalistic dataset, Hanson and colleagues observed that clients in their sample received an average of five or fewer sessions, and only 20% of clients were found to have improved (Hansen et al., 2002). With clients in the present study receiving an average of about seven sessions (and about 70% of the sample receiving 7 or fewer sessions), it is possible that for some portion of the sample, the number of sessions received fell below their “threshold” needed for improvement, which may partially mask a relation between center average dosage and center effectiveness.

A second possible explanation for the lack of hypothesized relation between dosage and effectiveness may be that dosage of individual therapy by professional staff and paid trainees is not reflective of the real “dosage” that clients received. For instance, as noted elsewhere, group sessions and sessions with practicum students as well as other non-FTE staff are not counted in the calculation of centers’ average dosage, but likely all play a big role in a center’s effectiveness. In other words, when FTE staff and paid trainee time is limited, it is likely that more is going on to “cover the slack” than we are capturing in our dosage calculation, in order to ensure clients are still receiving adequate treatment.

Finally, a third possibility is that the lack of relation may be explained, at least in part, by Barkham and colleagues’ (2006) “good enough level” model. This model suggests that clients generally tend to discontinue attending psychotherapy when, subjectively, they feel that they have improved sufficiently. Furthermore, the number of sessions required to reach this “good enough level” varies widely based on a range of different factors (e.g., nature and severity of client problems, therapist characteristics). Thus, as Barkham and colleagues suggest, number of sessions may not be a reliable predictor of client improvement. This may be further complicated in the present study where data is collected across centers with different characteristics and philosophies. For instance, centers adhering to a philosophy of referring out the most difficult clients may tend to see clients for fewer sessions – but see greater client improvement – than do centers that tend to take on the most difficult clients.

Strengths and Limitations

This study has several notable strengths. First, the dataset from which the data for the present study were drawn represent an important strength: this dataset represents the largest existing sample of college counseling centers and students receiving services from those centers, and used a standardized system (i.e., the CCAPS) to assess treatment outcomes, allowing for comparison across schools. Second, this study is one of only a handful of studies that have empirically assessed effectiveness of treatment received at college counseling centers (e.g., Minami et al., 2009; Snell et al., 2001; Vonk & Thyer, 1999; Wilson et al., 1997), and is among the first to assess counseling center treatment effectiveness across schools rather than at a single university (Lockard, et al., 2013; Locke et al., 2012). It is also one of the first studies to employ an outcome measure that was specifically designed for college students seeking services at a university or college counseling center (e.g., exceptions include Lockard et al., 2012; McAleavey et al., 2012). Finally, although the minimum student to FTE staff ratio range as put forth by IACS and AUCCCD represents the field's "standard of care", this is the first study to empirically examine how this ratio actually relates to center effectiveness.

However, this study also has several limitations that are important to mention. First, non-FTE staff were not included in computation of the student to staff ratio; accordingly, non-FTE staff sessions were not included in computation of treatment dosage. While exclusion of non-FTE staff and their sessions was important for purposes of consistency with the ratio defined by IACS, it is possible that this approach to defining dosage provided a skewed picture of center mean dosages (e.g., if clients had any sessions with non-FTE staff in between their FTE staff sessions, which would not have been counted in their dosage).

Second, before analyses could be computed, a number of decisions had to be made about which sessions, clients, and centers to include in the final sample. For instance, the research team needed to make a set of determinations about what types of sessions would and would not be counted as individual therapy sessions. As an example, based on two studies showing that some clients benefit from a single session (Archer, 1984; May, 1990), it was determined that intake sessions and emergency walk-ins with FTE staff would be counted as individual therapy sessions, and that clients need only have received a minimum of one individual therapy session to be included in the sample. While sound reasoning went into each decision, several of the decisions ultimately remained a “judgment call”, in which arguments could be made for or against the decision reached. Consequently, it is possible that different decisions (i.e., different ways of defining the final sample) may have led to different conclusions.

Conclusions

This dissertation took an important first step toward exploring the relations between student to staff ratios, dosage, and treatment effectiveness at college counseling centers. While results from the present sample failed to support hypotheses, these findings likely reflect the fact that these relations are multi-faceted, likely influenced by a range of complicating factors. Future research should seek to disentangle how various other factors, such as the size of a center’s training program, the availability of other on- and off-campus mental health resources, and schools’ use of waiting lists and triage services, may play critical roles in the extent to which ratio, dosage, and effectiveness are inter-related. A greater understanding of these relations and influencing factors will have critical implications for policy and practice.

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Education

The Pennsylvania State University
Doctor of Philosophy, August 2014
Counseling Psychology

New York University
Master of Arts, September 2001
Psychology

New York University
Bachelor of Arts, May 1998
Psychology

Clinical Experience – Predoctoral Training

- 8/13-Current Predoctoral Intern-University of Virginia-Counseling and Psychological services
Provide brief and long-term individual psychotherapy to undergraduate and graduate students. Weekly duties include two intake assessments, three walk-in crisis hours, three phone brief screenings, and co-leading an interpersonal-mindfulness group. Additional duties include providing diagnosis, generating treatment plans, case notes, case management and implementing outreach presentations on campus. In the fall provided consultation on a weekly basis to the residence life staff. Currently serve as a clinical supervisor to an advanced doctoral clinical psychology student. Also, currently in an assessment rotation at the Student with Disabilities Access Center (SDAC). Responsibilities at SDAC include intakes, ADHD/LD assessments, and writing integrated reports
- 4/10-8/12 Graduate Staff Therapist-Pennsylvania State University-Penn State Psychological Clinic
Duties included providing comprehensive clinical diagnostic assessments, and brief and long-term therapy to college and high school students, adults, inmates, and individuals with intellectual disabilities. Other responsibilities include writing integrated reports, and consultations with case managers, school officials, family members, and university judicial affairs administrators.
- 8/08-5/10 Graduate Assistant-Pennsylvania State University-Counseling and Psychological Services
Provided short-term individual, couples, and group psychotherapy for undergraduate and graduate students. Other responsibilities included brief assessments, crisis intervention, campus community outreach, psychoeducation programs, and consultation with university administration.

Advanced Practicum Experience

- 5/10-8/10 Psychological Intern- The Meadows Psychiatric Hospital-Centre Hall, Pennsylvania
Responsibilities included providing brief individual, group, and family psychotherapy at an inpatient facility. Worked with both adolescent and adult clients.
- 1/09-5/09 Psychological Intern- Centre Volunteers in Medicine-State College, Pennsylvania
Provided psychotherapy to adults in the community who did not have health insurance. Worked with a wide range of psychopathology.