RELATIONSHIPS BETWEEN THE CCAPS-62 AND COLLEGE ACADEMIC OUTCOMES

by

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DISSERTATION ABSTRACT

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College students experiencing psychological distress are at unique risk for negative academic outcomes. The Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62; Locke et al., 2011) is a multidimensional symptom inventory designed for use in college counseling centers. However, the relationships between the CCAPS-62 and functional outcomes salient to the college environment have not been examined. This study examined the validity for the use of the CCAPS-62 in predicting grade point average (GPA) and dropout. Data from 296 freshmen attending initial appointments at a counseling center at a university in the Pacific Northwest and extant academic records was used in the analyses. Multiple linear and logistic regression was used to determine the associations between the CCAPS-62 subscales, GPA, and dropout from the university at the subsequent three academic years. Results show that Academic Distress subscale scores were predictive of all academic outcomes in the expected directions, Hostility subscale scores were associated with lower term GPA and dropout within two years, and Social Anxiety subscale scores were associated with higher term GPA and retention to the following academic year. Results demonstrated support for the instrument's predictive validity in the identification of students at risk for academic difficulty.

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CHAPTER I

INTRODUCTION

Psychological and emotional well-being are among the many non-intellectual factors that contribute to students' educational success in college (Credé & Niehorster, 2012; Eisenberg, Golberstein, & Hunt, 2009). College students who receive mental health care at college counseling centers have higher levels of academic impairment than their peers, making this population an important target for psychosocial interventions (Krumrei, Newton, & Kim, 2010; Lockard, Hayes, McAleavy, & Locke, 2012). Forty-four percent of undergraduate students report that their mental health affected their academic performance in the past month (Eisenberg, Gollust, Golberstein, & Hefner, 2007). However, surprisingly little is known about the relationships between psychological symptomology and key academic outcomes such as grade point average (GPA), graduation, persistence, or retention among students seeking mental health treatment. Brief, routine assessments of symptoms used at counseling centers provide a possible avenue to further understand these relationships and aid in identifying and intervening with students at-risk of undesirable academic outcomes.

Colleges typically provide counseling center services with the assumption that students are being helped academically as well as emotionally (Choi, Buskey, & Johnson, 2010; Sharkin, 2004). However, increased demand for counseling services combined with higher levels of symptomology among students than seen in the past has resulted in counseling centers being unable to keep up with students' expressed needs for services (Benton, Robertson, Tseng, Newton, & Benton, 2003; Watkins, Hunt, & Eisenberg, 2012). In response, counseling centers have implemented strategies including waitlists,

triage systems, referrals to external providers, imposing session limits, and seeing some students less frequently, in order to prioritize and ration care for students (Hardy, Weatherford, Locke, DePalma, & D'Iuso, 2011; Reetz, Bershad, LeViness, & Whitlock, 2016; Rockland-Miller & Eells, 2006). Unfortunately, these approaches result in limited services and more opportunities for an individual to fall out of the mental health care system altogether, as with students who do not return after being placed on a waitlist (DiMino & Blau, 2012). These methods often utilize clinical judgement, such as consideration of students' subjective distress, rather than statistical prediction of risk for unwanted outcomes including violence perpetration, suicide, or academic failure. However, meta-analytic results demonstrate the superiority of statistical prediction over clinical judgment, particularly in the area of academic performance (Ægisdóttir et al., 2006). Therefore, the development of models that can predict outcomes of importance to the college treatment setting will allow for improved decision making regarding the extent and nature of services provided.

The Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62) is a brief symptom inventory developed for use in college counseling centers (Locke et al., 2011). It contains subscales measuring eight problem areas relevant to the college setting: Depression, Generalized Anxiety, Social Anxiety, Academic Distress, Eating Concerns, Hostility, Alcohol Use, Family Distress, as well as an overall Distress Index. The measure is free to use, integrated into popular electronic health record systems, and used in over 400 college counseling centers, making it an important instrument for continued study and validation efforts (Center for Collegiate Mental Health, 2017).

While implementation of the CCAPS-62 as a routine assessment and screening instrument is now widespread, little is known about the relationships between its constructs and domains of adaptive functioning. The CCAPS-62 has an Academic Distress (AD) subscale, but it is strongly related to only a few similar types of academic functioning measures and strongly correlated with at least one unrelated construct, a measure of family problems, raising questions about its validity (MacFarlane, Henry, Nash, Kissel, & Bush, 2015; McAleavey et al., 2012). In the college or university setting, a student's ability to remain enrolled and work towards a degree, as well as achieve high grades in their coursework, are salient "real-world" outcomes for students and other stakeholders. Validation and assessment of the clinical utility of the CCAPS-62 and the Academic Distress for the prediction of GPA and retention are merited at this stage of the measure's history.

Previous efforts to predict academic outcomes using psychological symptom and personality measures among college students largely have used non-clinical samples (Arria et al., 2013a; King, 2000; King & Bailly, 2002). Therefore, existing research provides limited generalizability to the population of students seeking mental health care, particularly in the interpretation of these constructs as measured by the CCAPS-62. Those whose symptoms are severe enough to seek mental health treatment experience higher levels of functional impairment compared with the general population reporting similar symptoms (Kessler et al., 2003; Tucker, Vuchinich, & Rippens, 2004). Therefore, the relationships between symptomology and academic impairment may differ for students whose distress has brought them to a treatment setting. Differential effects between clinical and non-clinical populations may also help explain mixed or weak

findings between symptoms such as depression and academic outcomes (Richardson, Abraham, & Bond, 2012).

Establishing the validity of the CCAPS-62, as well as the AD subscale, for predicting academic outcomes can inform clinicians' interpretation of the measure and clinical decision-making. Understanding which students are at highest risk for negative academic outcomes can help with efforts to prioritize access to treatment and making appropriate referrals to sources of academic support. Expanding knowledge of the relationships between mental health symptoms and academic outcomes can be used to inform treatment targeting areas of distress that are most likely to impede a student's academic functioning. This study examined the extent to which the AD subscale and the set of CCAPS-62 scales are associated with short-and long- term academic outcomes among students seeking therapy services at a college counseling center.

Background and Rationale for Study

Mental health problems are common among college students. Analyses from a national epidemiological study found that nearly half of college-attending young adults screened positive for a psychiatric disorder in the past year based on criteria set forth in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 1994), a similar rate to their non-attending peers (Blanco et al., 2008). A study of 2,843 college students at one university found that 15.6% of undergraduates had a likely depressive or anxiety disorder (Eisenberg et al., 2007). Students commonly report that mental health issues such as stress, anxiety, sleep difficulties, and depression negatively impact their academic functioning by receiving lower assignment, exam, or course grades (American College Health Association, 2016).

College students with depression similarly report missing more classes, assignments, exams, and dropping more classes than their non-depressed peers (Hysenbegasi, Hass, & Rowland, 2005). While many students make causal attributions of their academic difficulties to mental health factors, longitudinal studies that measure these variables paint a more complex picture between mental health symptoms and objective measures of academic functioning and achievement.

Several symptoms of mental health problems are thought to be associated with academic outcomes by interfering with both the cognitive and non-cognitive processes required for academic success (Eisenberg et al., 2009). Psychiatric symptoms affect a host of functional domains that are necessary for academic performance and achievement, including attention and concentration, energy levels, self-control, emotional regulation, motivation, self-efficacy, and interpersonal behavior (Cohen, Weingartner, Smallberg, Pickar, & Murphy, 1982; Lazarus, Cheavens, Festa, & Zachary Rosenthal, 2014; Martínez-Arán et al., 2004). Conversely, it is also likely that poor performance in college contributes in some way to the development of mental health symptomology. For example, a study of elementary school children found that poor performance on a math test was predictive of subsequent negative affectivity, depression, and lower self-esteem (Sideridis, 2005).

College Success and Psychopathology

Multiple, national psychiatric epidemiology studies using structured, retrospective diagnostic interviews have found negative associations between meeting diagnostic criteria for a disorder, psychiatric comorbidity, and college completion. Results from the National Comorbidity Survey (NCS) demonstrated that anxiety and mood disorders,

along with the total number of disorders a student had, were associated with higher probabilities of college dropout (Kessler, Foster, Saunders, & Stang, 1995). The follow-up NCS replication study examined specific diagnoses, and found that 2.6% of early college terminations were attributable to impulse control, substance use disorders, panic disorder, and bipolar disorders (Breslau, Lane, Sampson, & Kessler, 2008). Analysis of data from the National Epidemiologic Survey on Alcohol and Related Conditions found that DSM-IV diagnoses of antisocial personality disorder, bipolar disorder, amphetamine, cocaine, and cannabis use disorders were independently associated with a 26-70% increase in the odds of dropping out of college (Hunt, Eisenberg, & Kilbourne, 2010). This study and the NCS replication did not find anxiety and depressive disorders to be predictive of educational attainment once demographic variables were accounted for (Breslau et al., 2008). An examination of adults in nine high-income countries found that any psychiatric comorbidity, impulse control disorders, substance use disorders, and panic disorder/agoraphobia were associated with tertiary education non-completion (Lee et al., 2009). These studies show that a wide range of diagnoses and psychiatric comorbidity are associated with college non-completion.

Other studies have used various symptom inventories to examine educational outcomes associated with student mental health. In a landmark longitudinal study by Eisenberg and colleagues (2009), the Patient Health Questionnaire-9 (PHQ-9) measure of depression, PHQ panic and generalized anxiety screeners, and the SCOFF measure of disordered eating were administered to 2,798 college students. They found that depression was negatively associated with GPA, with co-occurring depression and anxiety being associated with additional drops in GPA. Depression was the only variable

associated with drop out from the university, such that 15 points on the PHQ-9 was associated with a 4.7% increase in the likelihood of dropping out. Arria and colleagues (2013a) examined the effects of scores on the Beck Depression Inventory (BDI), Beck Anxiety Inventory, history of psychiatric diagnosis, childhood conduct problems, and substance use on any gap in college enrollment. They found that BDI scores predicted enrollment interruptions only early in college, while cannabis and alcohol use predicted discontinuity only in later college. They found no effect for anxiety and failed to replicate the depression-anxiety interaction effect found by Eisenberg and colleagues (2009). In one clinical study, BDI scores in the moderate to severe range were associated with self-reported academic impairment, such as absenteeism or diminished productivity (Heiligenstein, Guenther, Hsu, & Herman, 1996). In another clinical study, students diagnosed with depression by their college health center who did not fill anti-depressant medication prescriptions experienced a half-point drop in GPA which was not experienced by their treatment-compliant peers (Hysenbegasi et al., 2005). In the United Kingdom, a longitudinal study of 351 freshmen taking the Hospital Anxiety and Depression Scale showed that depression, but not anxiety, was predictive of lower exam scores (Andrews & Wilding, 2004). These studies show a pronounced association between depression and college outcomes, while pointing towards a more complex relationship as it pertains to anxiety.

However, other studies do not demonstrate a clear link between mental health and GPA. A 2012 meta-analysis of 42 psychological correlates of GPA found no statistically significant association between depression symptoms and GPA, though stress, academic stress, and social support had small associations (Richardson et al., 2012). A study of

students with a diagnosed mental illness who received services at their school's office for students with disabilities found them to have similar GPAs to their peers (Brockelman, 2009). This finding likely underscores the extent to which receiving appropriate accommodations, counseling, and other academic support services improve the academic outcomes of students with mental health problems (Lee, Olson, Locke, Michelson, & Odes, 2009; Pitre & Pitre, 2009).

The relationships between mental health and academic achievement are most commonly viewed as bidirectional in nature. A review of this trajectory among adolescents illustrates a reciprocal relationship between psychological symptoms and academic dropout, described as a "downward spiral" of symptoms that lead to negative school experiences that in turn contribute to more severe symptomology (Esch et al., 2014). Other studies of adolescents find that the same set of childhood adversities and contextual factors (e.g., maternal education, IQ, deviant peer group) are primary contributors to both depression and later educational non-attainment, and revealed that mental health problems did not play a causal role in academic success (Fergusson & Woodward, 2002). There is also evidence indicating that academic difficulty predates the development of schizophrenia, which may point to directionality of effects varying across diagnostic categories (Chong et al., 2009).

Given the non-malleability of many established contextual risk factors for dropout, pinpointing precise causal mechanisms may not inform clinical practice in educational settings. Understanding the associations between student mental health factors and academic well-being can still provide pertinent indicators of risk and impairment even if circumstances beyond the clinician's reach partly account for such

relationships. As a result, others have emphasized measurement approaches for the purposes of practice-oriented risk detection and informing intervention in college. In the following section, I review measures evaluated or developed for use in identifying students at academic risk.

Measures Used to Predict College Outcomes

SACQ. The Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989), is a 67-item measure with subscales measuring institutional attachment and academic, social, and personal-emotional adjustment to college. Although it measures only a few symptoms of mental health problems, research on the SACQ provides evidence for the importance of social and emotional adjustment factors both in predicting academic outcomes (Gerdes & Mallinckrodt, 1994) and establishing a psychosocial self-report inventory's ability to predict these outcomes above and beyond traditional measures such as SAT score (Credé & Niehorster, 2012). A meta-analysis of 275 studies using the SACQ found that all four subscales were related to retention, freshman GPA, and college GPA, with the academic adjustment subscale being most strongly related to the GPA outcomes (Credé & Niehorster, 2012). The SACQ is further relevant to the current study as its Academic Adjustment subscale was used to assess convergent validity for the CCAPS-62 AD scale, yielding a -.69 correlation (McAleavey et al., 2012). This suggests that AD measures a similar underlying construct as its SACQ counterpart, and therefore should also be predictive of GPA and retention. In addition to its use as a research tool, the SACQ was developed to be used in routine screening by a range of college professionals to identify students at risk of dropout and inform intervention. However, no information is available regarding the extent to which it is used for these

purposes (Taylor & Pastor, 2007), and there is little indication that the proprietary paper and pencil measure is implemented by counseling centers.

Personality Inventories. Research on personality inventories illustrate processes of assessing external academic correlates to existing clinical measures. The Minnesota Multiphasic Personality Inventory (MMPI) is one of the most heavily researched psychological measures, specifically as it pertains to its ability to predict a range of real-world outcomes. The earliest study on MMPI scales and college outcomes found that among students who had taken the MMPI as freshman, non-graduates had higher mean scores on 8 out of 9 clinical scales, with particular elevations on the Pd (Psychopathic Deviate) and Ma (Hypomania) scales (Drasgow & McKenzie, 1958). They also found that 75% of those who did not graduate had at least one elevated MMPI scale ($T \geq 70$) as a freshman, compared to only 25% of graduates. King and Bailly (2002) examined the relationships between MMPI-2 clinical scales and academic outcomes in 435 undergraduate students taking psychology courses. They found significant negative correlations ranging from -.15 to -.23 between the F (Infrequency), Pd (Psychopathic Deviate) Sc (Schizophrenia), and Ma (Hypomania) scales and college GPA. The total number of scale elevations was inversely associated with GPA, providing additional evidence of the negative effects of comorbidity on academic functioning. A study examining a clinically-relevant combination of elevated scores ($T \geq 60$) on both scale 2 (Depression) and 7 (Psychasthenia) found that students meeting this criterion were less likely than a random group of their peers to graduate, or to graduate on time, with no difference between groups in GPA (Strupp & Bloxom, 1975).

Research with other personality inventories also finds particular associations between antisocial traits and GPA. Research on undergraduates taking the Millon Clinical Multiaxial Inventory-II (MCMI-II) found that elevations on the Passive-Aggressive or Antisocial scales were associated with three times the risk of having a GPA of 2.5 or below (King, 1998). A cross-sectional study of 720 psychology undergraduates taking the Coolidge Axis II Inventory (CATI) personality disorder scales found small negative correlations between the Paranoid, Schizotypal, Passive Aggressive, Sadistic, and Antisocial scales and college GPA (King, 2000). Having a college GPA below 2.5 was three times as common among those with an elevation on the Antisocial scale. Counterintuitively, dependent, compulsive, and avoidant traits had small positive associations with GPA, indicating the possibility of some symptomology being helpful academically, even if it may lead to distress in that area or impairment in other domains of functioning, a concept discussed by others in relation to anxiety and eating disorders (Eisenberg et al., 2009). While the CATI-II personality scales and MCMI-II do not assess the same constructs as the CCAPS-62, these findings illustrate the importance of assessing relationships with external factors of theoretical and practical relevance, even when outside of the primary intended purpose of the measure. For college students, academic functioning and academic achievement are non-clinical outcomes of importance.

The Importance of GPA and Retention

It can be assumed that degree-seeking students enroll with the intention of completing their degrees, and therefore, dropout can be viewed as a failure to meet one's own personal goals of attaining a college degree at an institution. Retention is

economically advantageous for students, as dropping out is associated with a $721,000 reduction in lifetime earnings (Carnevale, Rose, & Cheah, 2011). Student attrition is also costly for institutions, which require consistency in enrollment to order to ensure financial stability (Fike & Fike, 2008). Retention is a metric that universities are required to report, and is usually associated with the overall quality of a college or university. GPA is an important criterion variable, as it is used in occupational and graduate school selection, for financial aid purposes, has greater validity than other measures of academic performance, and is the most frequently used measure of academic performance in research and by students themselves (Plant, Ericsson, Hill, & Asberg, 2005).

Counseling centers experience pressure from college administrators to demonstrate the contributions of their services to the academic goals of the university, serving as an impetus behind studies demonstrating positive effects of counseling on academic performance and retention (Lee et al., 2009; Sharkin, 2004). Understanding the extent to which AD on the CCAPS-62 is associated with these outcomes of interest can help counseling centers demonstrate this at a local level, particularly given that AD improves over the course of counseling (Lockard et al., 2012). Similarly, efforts have been made to quantify the economic benefits of mental health treatment to college stakeholders, including those who pay tuition and taxes, as a result of providing treatment to students at risk of non-completion (Ashwood et al., 2015; Eisenberg et al., 2009). The strength of any return on investment for counseling stands to be improved with increases in the accuracy of identifying which students are at highest academic risk. In all, both GPA and dropout are outcomes with established importance to students, counseling centers, and other campus stakeholders. Therefore, validation efforts that examine

relationships between a routine clinical measure and the outcomes of GPA and dropout from the university are relevant to the breadth of stakeholders.

CCAPS

The CCAPS is a multidimensional symptom inventory intended for use in college settings. The measure was developed and refined over the course of 10 years prior to its wider publication as the CCAPS-62 by Locke and colleagues in 2011. Its development and ongoing validation is facilitated by the Center for Collegiate Mental Health (CCMH), a practice-research network that now includes 474 colleges using the CCAPS (CCMH, 2017a). This multi-site network allowed for testing and norm-development with a vastly greater number of campuses and participants than previously was feasible in this area of clinical research, which is key to its generalizability. This is possible in part due to integration with electronic record systems that allows instruments to be easily administered, scored, and reported to local clinicians and in aggregate form back to CCMH for research purposes (Castonguay, Locke, & Hayes, 2011). CCMH has also developed a standardized intake form for counseling centers to use. The CCAPS-62 measures multiple symptom domains, including those relevant to the college setting not assessed by other general adult symptom inventories, such as AD and Eating Concerns. These factors contribute to the widespread implementation of the measure, with 39% of university or college counseling center directors reporting involvement with CCMH and another 35% of directors reporting that they either plan to or may become involved in the future (Reetz et al., 2016). Therefore, validation research on the CCAPS-62 is likely to be particularly impactful and relevant among participating colleges.

The CCAPS-62 is most commonly used to aid in treatment planning and diagnostic clarification purposes at intake and therapy termination, while the shorter CCAPS-34 is often used to measure symptoms throughout the course of therapy (Youn et al., 2015). Of pertinence to the present study, the Academic Distress scale consists of five questions concerning enjoyment of classes, self-confidence in academic success, concentration, motivation, and ability to keep up with schoolwork. In addition to its ostensible relationships with important academic outcomes, it is also correlated with the more heavily-researched academic adjustment scale of the SACQ (McAleavey et al., 2012). While the developers of the CCAPS have shown that AD improves over the course of counseling, they also acknowledge that AD may not directly translate to performance measures such as GPA (Lockard et al., 2012). For example, someone may not enjoy their classes, but still earn high marks in them. Therefore, examination of the validity of AD for predicting relevant academic functioning and achievement variables is necessary if the scale is to be meaningfully interpreted.

Additional uncertainty regarding the validity of AD was raised by MacFarlane and colleagues' (2015) study comparing three symptom inventories at a college counseling center. They found that the AD scale had only a small correlation with the Academic Problems scale on the College Adjustment Scales (CAS), and a much stronger correlation of .71 with the Family Problems scale of the CAS, highlighting the need for validation of AD against a set of objective external criteria. Educational outcomes have been associated with many forms of symptomology and comorbidity in non-clinical samples, though not in a consistent fashion, depending on the specific measure used

(Arria et al., 2013a; Breslau et al., 2008). The CCAPS-62 has reached a point at which further validation and expansion of its utility would be beneficial.

Validity and Prediction

The concept of validity in measurement refers to the quality of interpretations made from a score on an instrument (Cizek, 2012). The modern unified view of validity eschews arbitrary and overlapping delineations of validity such as construct, content, and criterion validity. Instead, the appropriateness, meaningfulness, and usefulness of inferences from a measure are emphasized and seen as interrelated (Messick, 1993). Within this framework, validity is dependent on the context, implications, and consequences of inferences. For example, establishing what is a clinically useful degree of prediction of academic outcomes depends in part on whether such predictions are an improvement over the default counseling center method of classifying risk (Steyerberg, 2009). Other factors such as the downstream outcomes resulting from these predictions (e.g., referrals, targeted intervention, counseling), or the amount of over-classification or under-classification deemed acceptable, are dependent on contextual variables that would have to be determined by subsequent research or informed campus practitioners. Results of the study are discussed within a unified validity framework with the aim of describing implications for the clinical usefulness of the CCAPS-62 in predicting GPA and college dropout.

A comprehensive review of psychological assessment echoes the notion that there are no blanket cut offs for the strength of association between a measure and the criterion variable. (Meyer et al., 2001). The authors highlight that even widely-studied relationships and interventions in psychology and medicine such as as anti-hypertensive

medication, positive parenting, psychotherapy, or the relationship between Graduate Record Examination and psychology graduate GPA have seemingly low correlations with their outcomes of interest (in the .15-.30 range), yet they are still useful and important.. One advantage to the assessment approach with the CCAPS-62 is its integration with computerized scoring, which can be used to facilitate statistical prediction. Prediction of human behaviors, including academic outcomes, are achieved with greater accuracy when predicted statistically rather than by the judgment of a clinician, even when the clinician has more information (Grove, Zald, Lebow, Snitz, & Nelson, 2000). Surprisingly, the accuracy of clinical judgment decreases when the clinician is able to conduct an interview, as is the case in a college counseling center. Humans have difficulty assigning weights to variables, may over focus on clinical factors which appear severe but are unrelated to the outcome, have fluctuating reliability, and are subject to other cognitive biases (Dawes, 1979; Hilton, Harris, & Rice, 2006). A greater emphasis on automated prediction of risk outcomes within the counseling center should demonstrate improved accuracy over existing strategies, and yield a fair, informed, and more helpful intervention process.

Current Study

The current study examined the associations between the CCAPS-62, a widely used clinical measure at college counseling centers, and key academic outcomes of term GPA, cumulative GPA, and dropout from the college. No study to date has examined the validity of the CCAPS-62 in relation to any non-clinical or functional outcome. Similarly, the AD subscale lacks needed evidence of validity to indicate relationships with external, objective criteria of academic performance, rendering it difficult to meaningfully

interpret. For example, the extent to which AD and GPA are correlated has not yet been examined. This study contributes to the validation of the CCAPS-62, and establishes a method of identifying college students at risk of academic difficulties using their CCAPS-62 profile. As counseling centers struggle to meet the demand for services (Reetz et al., 2016), using data on a student's objective risk factors may aid in prioritization of services, treatment planning, and referral to appropriate academic support services.

This study answers one primary research question. Are the eight CCAPS-62 subscales associated with college GPA and dropout? It was hypothesized that AD, Depression, Hostility, and the interaction between Depression and Anxiety, would have significant negative associations with term GPA and cumulative GPA, and these same subscales and interaction term would have significant positive associations with dropout from the university at 1, 2, and 3 years following CCAPS-62 administration.

CHAPTER II

METHODS

Participants

Participants were 296 degree-seeking undergraduate students who attended an initial assessment session at a student counseling center at a university in the Pacific Northwest during the 2014-2015 academic year. Most (99.0%) of participants were 18-19 years old, 66.6% were female, 68.8% identified their racial ethnic identity as White, 10.2% were Hispanic/Latino/a, 9.2% were Asian American/Asian, 6.1% multi-racial, 1.4% American Indian/Alaskan Native, 1.4% Native Hawaiian or Pacific Islander, 1.0% African American/Black, and 2.0% identified with some other racial-ethnic identity through an open text response. International students made up 3.7% of the sample, and 20.6% reported that they were the first generation in their family to attend college. This compares with an average university student age of 21.5, 52.2% of undergraduates at the university who were female, 62.5% who identified as White, 13.2% international, and 24.1% first generation college students.

Procedure

Most students presenting to the counseling center had undergone a 15-minute telephone triage with a therapist prior to scheduling their intake session, while some attended "urgent" walk-in sessions as their initial session. As a part of routine clinical services, students were administered the CCAPS-62, informed consent (Appendix B), and a demographic and background questionnaire on computers using the Titanium electronic health records system prior to this initial assessment session. Students were also provided with an informed consent to treatment and to have their aggregate de-

identified data used for research purposes prior to the initial assessment. Only students who were 18 years or older at the time of taking the CCAPS-62 were included in the analyses. Access to archival student academic data variables was provided by the Office of the Registrar. An assessment specialist at the counseling center (Hillel Samlan) matched student academic records with clinical records on the basis of student identification numbers to create the study data set. Identification numbers and any other uniquely-identifying information was deleted from the data set prior to its use for this study. Approval to utilize pre-existing data and protected health information for this study was obtained from the Institutional Review Board at the University of Oregon.

Measures

CCAPS-62. The CCAPS-62 is a 62-item measure of common symptoms of psychological distress (Locke et al., 2011; see Appendix A). It contains eight subscales measuring Depression (13 items), Generalized Anxiety (9 items), Social Anxiety (7 items), Academic Distress (5 items), Eating Concerns (9 items), Family Distress (6 items), Hostility (7 items), and Substance Use (6 items). Students are provided with 62 short statements and instructed to "indicate how well each statement describes you, during the past two weeks" with partially labeled numeric response options ranging from 0 (*not at all like me)* to 4 (*extremely like me*). Eight items are reverse scored and subscale scores are derived by computing means across subscale items. Higher scores indicate higher levels of psychological distress.

The CCAPS-62 was developed and validated in a series of studies (Locke et al., 2011). One-hundred sixty-seven 167 items were initially generated by counseling center professionals and then pared down to 101 items by examining reliability coefficients and

the clinical relevance of items. Exploratory factor analysis (EFA) was then used with this pool of items to derive a 70 item instrument containing 9 subscales, using data from 2,155 students at one university. Next, these 70 items underwent an additional EFA and confirmatory factor analyses utilizing data from 22,205 clients at 135 counseling centers to derive the 62 item scale.

The 8 subscales have established convergent validity with well-established referent measures. For example, a correlation of .72 between the Depression subscale and the BDI, .81 between Substance use and the Alcohol Use Disorders Identification Test, to a low of .57 between Hostility and the Trait Anger subscale of the STAXI-2 (Locke et al., 2011). Initial evidence for the CCAPS-62's cultural validity is supported by strong internal consistency reliability for the all subscales, and that internal consistencies do not differ by gender, racial-ethnic group, or international student status (Locke et al., 2011). Some areas of concern for the concurrent validity of some subscales are discussed earlier as reported by MacFarlane and colleagues (2015). Specifically, correlations between AD and Academic Problems on the CAS were weak despite similar constructs. AD was strongly correlated with Family Problems on the CAS, while Family Distress on the CCAPS-62 had a very weak relationship with Family Problems on the CAS. This is in contrast to the -.69 correlation between AD and the more established measure, Academic Adjustment subscale of the SACQ, reported by the developers of the CCAPS (McAleavey et al., 2012).

The validity of the CCAPS for clinical screening has been explored to determine its ability to predict treatment utilization and DSM diagnoses through the development of cut scores for each of the subscales (McAleavey et al., 2012). The low cut-point indicates

the score at which an individual is more likely to be in counseling than not, while the high cut point is the score at which an individual in treatment has an increased likelihood to have a DSM-IV diagnosis in that area of concern and should be assessed further in that area. Sensitivity for the subscales was .74-.82 and specificity ranged from .59-.77, with relatively weak support for scores on the Generalized Anxiety subscale in predicting the presence of generalized anxiety disorder. For AD, Family Distress, and Hostility, which do not have diagnostic equivalents, the high cut-point marks the 70th percentile of symptomology.

Internal consistency for the CCAPS-62 subscales was established by Locke and colleagues (2011). Updated Cronbach's alpha coefficients presented here are based on the 2012-2014 Center for Collegiate Mental Health (CCMH) sample from participating counseling centers (N = 142,560; CCMH, 2015). The Depression subscale has an internal consistency reliability of α = .92. Sample items include "I feel sad all the time" and "I feel worthless." The Generalized Anxiety subscale (α = .85) contains items such as "My thoughts are racing" and "I have spells of terror or panic." The Social Anxiety subscale (α = 0.84) contains items such as "I feel self-conscious around others" and "I become anxious when I have to speak in front of audiences." The Academic Distress subscale (α = 0.82) contains items such as "It's hard to stay motivated for my classes," and "I am not able to concentrate as well as usual." The Eating Concerns subscale (α = 0.89) contains items including "I feel out of control when I eat" and "I am dissatisfied with my weight." The Family Distress subscale (α = 0.83) contains items including "My family is basically a happy one" and "There is a history of abuse in my family." The Hostility subscale (α = 0.86) includes items such as "I have difficulty controlling my temper" and "I have

thoughts of hurting others." Of the six items on the Substance Use subscale ($\alpha = 0.85$), five pertain specifically to alcohol use. Sample items include "I have done something I have regretted because of drinking" and "I drink more than I should." Internal consistency reliability for the CCAPS-62 subscales for the study sample were comparable to these published values and can be found in Table 1. One-week test-retest reliability ranges from .78 (Generalized Anxiety) to .93 (Depression) and two-week test-retest reliability ranges from .76 (Academic Distress) to .92 (Depression).

Demographics. Students' age, gender, racial ethnic identity, and first generation college student status were reported by the student on the counseling center paperwork. International student status was obtained from university enrollment records.

GPA. Term GPA was calculated for the term in which the student took the CCAPS-62. Courses are graded on a scale of 0-4.3, with 0 indicating an F and 4.3 corresponding to an A+. GPA is calculated as the total number of grade points (course grade multiplied by course credits) divided by the number of graded credits attempted that term. Cumulative GPA was calculated using only grades from the term the student took the CCAPS-62 during the 2014-2015 academic year and all subsequent terms through Fall 2017. Only students still enrolled at the university during Fall 2017 were included in the analysis of cumulative GPA.

Dropout. Students not enrolled in the fall term each year following their initial counseling session in 2014-2015, and who did not graduate or enroll in any subsequent term, were considered to have dropped out at that time point. At the Fall 2017 time point, any student not enrolled in courses who had not graduated was considered to have dropped out from the college. Dropout was dummy coded as not dropped out (0) and

dropped out (1), such that positive coefficients in planned analyses indicate higher likelihood of dropout from the university.

Data Analyses

Items from the CCAPS-62 were reverse scored as appropriate and subscale scores computed according to CCAPS-62 scoring guidelines (CCMH, 2015). Specifically, if more than 33% of the items on any subscales were missing, the subscale score was not computed and considered missing. Listwise deletion was used to handle missing data, which led to one case being dropped. Descriptive statistics for all study variables and demographics were examined.

In order to examine the zero-order associations between CCAPS-62 subscales and academic outcomes, correlation coefficients were calculated. Pearson correlations were calculated between subscales, term GPA and cumulative GPA, while point-biserial correlations were calculated to measure the association between subscales and retention into each of the following three academic years.

Hierarchical multiple linear and logistic regression were employed to determine the associations between the CCAPS-62 subscales, and the academic outcomes of GPA (linear regression) and dropout (logistic regression), while adjusting for effects of treatment and time. For analyses of term GPA, the number of therapy sessions a student attended that same term, subsequent to the initial assessment session, served as a treatment covariate. For analysis of cumulative GPA at Fall 2017, the cumulative number of therapy sessions a student attended was entered as a treatment covariate. Because a student's cumulative counseling center therapy attendance is conditionally dependent on them not dropping out from the college, all dropout analyses utilized a dichotomous

control variable (0 = no treatment, 1 = any treatment) to represent any attendance at therapy sessions beyond an initial assessment. To adjust for possible effects of time within the term or time within the academic year on academic outcomes, the number of weeks between when a student took the CCAPS-62 and the end of the term was used as a covariate for analysis of term GPA, and the number of weeks between CCAPS-62 administration and the end of the academic year was used as a covariate in the cumulative GPA and dropout analyses.

Five sets of primary analyses correspond to the outcomes of interest: term GPA, cumulative GPA, and retention status at fall term at 1, 2, and 3 years following the CCAPS-62 administration. For all five hierarchical regression analyses, Academic Distress subscale score, a treatment covariate, and a time covariate were entered first (Model 1). The other seven subscales were added in model two, and an interaction term for Anxiety x Depression was added in model three. Assumptions for multiple regression were met, collinearity statistics were within acceptable limits, and residual plots were examined for normality, linearity, and homoscedasticity. A few extreme outliers for total treatment were present in the data. Four values for total term treatment and three values for total cumulative treatment at Fall 2017 were replaced by the highest present value within three standard deviations of the mean value of treatment attendance (Kwak & Kim, 2017).

CHAPTER III

RESULTS

Missing Data

Data were screened for missingness. One student in the counseling center sample did not have a student identification number associated with their records and was removed from the sample, yielding a sample of 296 students. One student had two CCAPS-62 subscale scores that were missing, with listwise deletion yielding 295 students.

Descriptive Data

Table 1 displays descriptive statistics for all study variables and internal consistency reliability statistics for CCAPS-62 subscales. Means and standard deviations are displayed for continuous variables; percentages are presented for categorical variables. Table 2 displays correlations between CCAPS-62 subscales, term and cumulative GPA, and dropout at all three time points. Most CCAPS-62 subscales had significant positive intercorrelations, with the exception of a small, significant negative correlation (-.14). between scores on Social Anxiety and Substance Use subscales. AD subscale scores had significant small correlations with all five academic outcomes in the hypothesized directions, with absolute correlations ranging from .15 for cumulative GPA to .24 for both term GPA and dropout at the following academic year. Hostility subscale scores had significant, small associations in the hypothesized directions for three out of the five academic outcomes and scores on the Substance Use subscale had a significant, small, negative association with term GPA. Depression and other CCAPS-62 subscales did not have significant correlations with GPA or dropout.

Table 1.

Descriptive Statistics and Internal Consistency Reliability for CCAPS-62

	n	*M*	*SD*	*%*	*α*
CCAPS-62					
Depression	295	1.62	0.97	-	.92
Generalized Anxiety	295	1.68	0.98	-	.87
Social Anxiety	295	1.98	0.95	-	.84
Academic Distress	295	1.71	0.98	-	.82
Eating Concerns	295	1.06	0.91	-	.90
Family Distress	295	1.27	0.92	-	.82
Hostility	295	0.94	0.81	-	.83
Substance Use	295	0.75	0.89	-	.87
GPA					
Term GPA	282	2.99	0.82	-	-
Cumulative GPA	197	3.15	0.49	-	-
Drop out					
Fall 2015	295	-	-	15.3	-
Fall 2016	295	-	-	23.7	-
Fall 2017	295	-	-	29.2	-
Treatment					
Treatment sessions within term	295	1.77	2.26	-	-
Cumulative treatment at Fall 2017	197	7.18	9.13	-	-
Any therapy sessions	295	-	-	73.2	-
Time (weeks)					
Between CCAPS and end of term	295	5.57	2.82	-	-
Between CCAPS and end of academic year	295	19.91	9.84	-	-

Note. α = Cronbach's alpha.

Table 3 displays correlations between the CCAPS-62 subscales and study covariates of time and treatment. No significant associations were found between any of the eight CCAPS-62 subscales and the time of the academic term or time of academic year at which a student took the CCAPS. A number of CCAPS-62 subscales had significant small to moderate positive relationships with the total number of treatment sessions a student attended within both the same academic term they took the CCAPS, and cumulatively throughout their time as a student. This indicates that higher symptom severity in multiple CCAPS domains is associated with a student attending more sessions of therapy. Academic Distress, however, was not one of these domains.

Correlations were also examined between treatment and all academic outcomes and no significant associations were found. Specifically, the number of treatment sessions within the term a student took the CCAPS-62 and their term GPA were not significantly associated $r = .08$, $p = .168$. The total number of therapy sessions a student received through Fall 2017 was also not significantly associated with their Fall 2017 cumulative GPA subsequent to taking the CCAPS-62, $r = .02$, $p = .815$. Finally, whether or not a person received any therapy sessions, the dichotomous covariate for dropout analyses, was not significantly associated with dropout in fall 2015, 2016, or 2017, $r = .02$, $p = .702$, $r = -.01$, $p = .938$, and $r = -.05$, $p = .392$, respectively.

Table 2.

Correlations among CCAPS-62 Subscales, GPA, and Dropout

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. DEP[a]	-												
2. ANX[a]	.71***	-											
3. SA[a]	.68***	.58***	-										
4. AD[a]	.61***	.48***	.41***	-									
5. EC[a]	.47***	.34***	.30***	.36***	-								
6. FD[a]	.44***	.39***	.25***	.31***	.29***	-							
7. HOS[a]	.59***	.44***	.35***	.43***	.30***	.45***	-						
8. SUB[a]	.12*	.03	-.14*	.19**	.27***	.09	.26***	-					
9. tGPA[b]	-.05	.01	.10	-.24***	-.06	-.07	-.22***	-.13*	-				
10. cGPA[c]	.03	.03	-.01	-.15*	.06	.08	-.07	-.03	.59***	-			
11. DO 1[a]	.09	.04	-.01	.24***	.04	.06	.13*	-.02	-.35***	-	-		
12. DO 2[a]	.11	.05	.03	.22***	.02	-.01	.15**	-.03	-.33***	-	-	-	
13. DO 3[a]	.10	.03	.03	.21***	-.01	.00	.11	-.04	-.36***	-	-	-	-

Note. [a] n = 295; [b] n = 282; [c] n = 197. DEP = Depression; ANX = Generalized Anxiety; SA = Social Anxiety; AD = Academic Distress; EC = Eating Concerns; FD = Family Distress; HOS = Hostility; SUB = Substance Use; tGPA = Term GPA; cGPA = subsequent cumulative GPA; DO = dropout at time points 1 (2015), 2 (2016), and 3 (2017). Dropout coded as 1 = dropped out, 0 = not dropped out. * = $p < .05$, ** = $p < .01$, and *** = $p < .001$.

Table 3.

Correlations between CCAPS-62 Subscales and Study Covariates

	Time in Term (n = 295)	Time in Year (n = 295)	Term Therapy Sessions (n = 295)	Cumulative Therapy Sessions (n =197)
Depression	.05	.00	.23***	.25***
Generalized Anxiety	.09	.00	.18**	.25***
Social Anxiety	.11	-.02	.21***	.29***
Academic Distress	-.10	-.09	.03	.09
Eating Concerns	.09	-.01	.10	.15*
Family Distress	.11	.02	.18**	.35***
Hostility	-.04	-.02	.09	.18**
Substance Use	-.07	-.07	-.08	-.13

Note. * = $p < .05$, ** = $p < .01$, and *** = $p < .001$. Time in term measured as the number of weeks between CCAPS-62 administration and the end of the academic term. Time in year measured as the number of weeks between CCAPS-62 administration and the end of the spring academic term.

CCAPS-62 and GPA

To examine the relationships between the CCAPS-62 subscales and GPA, hierarchical linear regressions were conducted for term GPA and cumulative GPA. Table 4 presents the results of all three models for term GPA. Model 1, with only the AD subscale, explained 6.9% of the variance in term GPA, while the eight subscales together in Model 2 accounted for 14.7% of the variance in term GPA. The addition of the Depression x Anxiety interaction in Model 3 did not significantly improve overall prediction, contrary to the hypothesis, $\Delta R^2 = .00$, F (11,270) = 1.39, p = .239. Therefore, results from Model 2 will be highlighted. Results indicate that scores on the AD subscale are a significant predictor of term GPA and that the other subscales add predictive value beyond AD, lending support to the overall hypotheses that the CCAPS-62 as a whole is predictive of term GPA. Partial support for hypotheses regarding specific subscales was found, with AD and Hostility scores, but not Depression scores, being negatively associated with term GPA. Examination of the regression coefficients for AD indicate a minor suppression effect, as the beta coefficient increased as more variables were added to the model (Pandey & Elliot, 2010). Unexpectedly, scores on the Social Anxiety subscale had a positive association with term GPA, such that a 1-point increase on the Social Anxiety subscale was associated with a 0.17-point increase in term GPA.

Results from hierarchical regression analysis for cumulative GPA (Table 5), indicate a lower predictive ability for this more distal measure of GPA. Results from Model 2 were not statistically significant and accounted for 8.9% of the variance in cumulative GPA, F (10,186) = 1.83, p = .059. Though F-tests revealed that all three models overall were not predictive of GPA, AD was a significant predictor in all models.

No other subscales were significant predictors, nor was the interaction between depression and anxiety. Once again, the regression coefficient for AD increased with the addition of the other CCAPS scales, with Model 2 resulting in $b = -.15$, $t(186) = -3.09$, $p = .002$. This corresponds to a 0.15-point decrease in cumulative GPA for every point increase on the AD subscale.

Table 4.

Summary of Hierarchical Regression Analysis for CCAPS-62 Subscales Predicting Term GPA

	Model 1				Model 2				Model 3			
	B	*SE B*	β	*p*	*B*	*SE B*	β	*P*	*B*	*SE B*	β	*p*
Time	-0.02	0.02	-.08	.249	-0.02	0.02	-.06	.380	-0.02	0.02	-.05	.434
Treatment	0.05	0.02	.13	.049	0.03	0.03	.08	.258	0.03	0.03	.08	.266
Academic Distress	-0.22	0.05	-.25	<.001	-0.26	0.06	-.30	<.001	-0.27	0.06	-.31	<.001
Depression					0.06	0.10	.07	.537	0.17	0.13	.20	.205
Gen. Anxiety					0.06	0.07	.07	.425	0.15	0.11	.18	.158
Social Anxiety					0.18	0.07	.20	.015	0.17	0.07	.20	.019
Eating Concerns					-0.01	0.06	-.01	.829	-0.02	0.06	-.02	.788
Family Distress					0.03	0.06	.03	.617	0.02	0.06	.03	.691
Hostility					-0.27	0.08	-.26	<.001	-0.28	0.08	-.27	<.001
Substance Use					0.02	0.06	.03	.695	0.03	0.06	.03	.646
DEP*ANX									-0.06	0.05	-.21	.239
Model Statistics												
R^2		.07				.15				.15		
F for ΔR^2		6.84		<.001		3.57		.001		1.39		.239

Note. N = 282. Time is the number of weeks between CCAPS-62 administration and the end of the academic term. Treatment is the total number of counseling sessions attended during that term. ANX x DEP = Interaction term between Depression and Generalized Anxiety.

Table 5.

Summary of Hierarchical Regression Analysis for CCAPS-62 Subscales Predicting Cumulative GPA at Fall 2017

	Model 1				Model 2				Model 3			
	B	*SE B*	β	*p*	*B*	*SE B*	β	*P*	*B*	*SE B*	β	*p*
Time	0.01	0.00	.12	.094	0.00	0.00	.07	.351	0.00	0.00	.07	.348
Treatment	0.00	0.00	-.02	.760	0.00	0.00	-.07	.373	0.00	0.00	-.07	.376
Academic Distress	-0.08	0.04	-.14	.045	-0.15	0.05	-.29	.002	-0.15	0.05	-.30	.002
Depression					0.14	0.07	.26	.059	0.16	0.10	.30	.129
Gen. Anxiety					0.00	0.05	.00	.992	0.02	0.08	.03	.845
Social Anxiety					-0.29	0.05	-.05	.582	-0.03	0.05	-.06	.570
Eating Concerns					0.05	0.05	.10	.265	0.05	0.05	.10	.260
Family Distress					0.06	0.05	.12	.176	0.06	0.05	.12	.182
Hostility					-0.10	0.06	-.16	.099	-0.10	0.06	-.16	.098
Substance Use					-0.01	0.04	-.01	.866	-0.01	0.05	-.01	.887
DEP*ANX									-0.01	0.04	-.06	.795
Model Statistics												
R^2		.04				.09				.09		
F for ΔR^2		2.50		.061		1.52		.163		0.07		.795

Note. N = 197. Time is the number of weeks between CCAPS-62 administration and the end of the academic year. Treatment is cumulative treatment sessions attended through Fall 2017. ANX x DEP = Interaction term between Depression and Generalized Anxiety

Dropout

Three separate hierarchical logistic regressions were conducted to examine the associations between the CCAPS-62 subscales and dropout from the university in the fall term 1, 2, and 3 years following the administration of the CCAPS-62 (2015-2017). Tables 6, 7, and 8 display the odds ratios, confidence intervals and select model statistics from all three models.. As hypothesized, AD subscale scores had a significant positive association with dropout at all three time points in Model 1. Goodness-of-fit tests demonstrated that the addition of the Depression x Anxiety interaction term in Model 3 did not improve the model for 1, 2, or 3-year retention, $\chi^2(1) = .002$, $p = .965$, $\chi^2(1) = 2.73$, $p = .098$, and, $\chi^2(1) = 3.11$, $p = .078$, respectively. Additionally, examination of Wald statistic values revealed that the interaction was not a statistically significant predictor in any of the analyses. Therefore, emphasis will be placed on the interpretation of the Model 2 containing all CCAPS-62 subscales.

Nagelkerke's R^2 indicated that the model with all CCAPS-62 subscales accounted for approximately 17.4%, 13.7%, and 10.8% of the variance in dropout at Fall 2015, 2016, and 2017 respectively. A 1-point increase in AD scores was associated with a 2.50, 1.94, and 1.87 times increase in the odds of dropout in Fall 2015, 2016, and 2017, respectively. Hostility scores were a significant predictor of dropout only at 2 years following CCAPS-62 administration, with a 1-point increase associated with a 1.70 times increase in the odds of dropout. Contrary to the hypothesis, Depression scores were not associated with dropout at any time point. Unexpectedly, Social Anxiety scores were negatively associated with dropout at the following academic year, such that those with higher Social Anxiety scores were less likely to drop out.

In order to translate these findings into probabilities, marginal effects were calculated from Model 2 results, with the covariate of treatment at zero and other variables set to the distribution of observed values within the sample (Muller & MacLehose, 2014). These show that a 1-point increase in AD is associated with a 9.5, 10.7, and 12.5 percentage point increase in the cumulative risk of dropout after 1, 2, and 3 academic years, respectively. A 1-point increase in Hostility score is associated with an increase of 8.5 percentage points in the probability of dropout after 2 years, and a 1-point increase in Social Anxiety was associated with a 5.6 percentage point decrease in the risk of dropout after 1 year.

To further aid in the examination of the implications of the findings, further analysis of marginal effects is provided at clinically relevant scores in Table 9. Model 2 regressions were used to calculate the predicted probability of dropout for statistically significant predictors' scores at the low cut-point score and elevated cut-point for that subscale. Predicted GPAs were also calculated for significant predictors of term or cumulative GPA at low and elevated cut-points. Predicted GPA and dropout probabilities were calculated for a student who attended zero sessions, with other covariates set to the sample distribution, due to treatment being a dichotomous covariate in the case of dropout analyses (i.e., a student could not have partially attended counseling). The table shows, for example, that a student at the low cut-point for AD has a 9.63% risk of dropout the following year, while a student at the high cut-point would be estimated to have a 19.93% risk of dropout.

Table 6.

Summary of Hierarchical Logistic Regression Analysis for CCAPS-62 Subscales Predicting Dropout at Fall 2015

	Model 1				Model 2				Model 3			
	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*
Time	1.03	0.99	1.07	.069	1.04	1.01	1.08	.026	1.04	1.01	1.08	.026
Treatment	1.07	0.49	2.32	.868	1.24	0.56	2.78	.599	1.24	0.55	2.79	.604
AD	2.03	1.43	2.88	<.001	2.50	1.60	3.92	<.001	2.50	1.60	3.92	<.001
Depression					1.09	0.57	2.11	.793	1.08	0.43	2.68	.874
Gen. Anxiety					0.79	0.47	1.33	.384	0.78	0.33	1.84	.574
Social Anxiety					0.58	0.35	0.97	.037	0.58	0.35	0.97	.037
Eating Concerns					0.98	0.64	1.51	.933	0.98	0.64	1.51	.933
Family Distress					0.87	0.57	1.33	.514	0.87	0.56	1.34	.523
Hostility					1.57	0.93	2.64	.090	1.57	0.93	2.64	.090
Substance Use					0.69	0.45	1.07	.100	0.69	0.45	1.07	.100
DEP x ANX									1.01	0.70	1.45	.965
Model Statistics												
χ^2		20.25		<.001		31.09		.001		31.10		.001
Nagelkerke R^2		.12				.17				.17		

Note. N = 295. Time = weeks between CCAPS-62 administration and the end of the academic year. Treatment is coded 0 = no treatment 1 = attended at least one treatment session. ANX x DEP = Interaction term of Depression and Generalized Anxiety. CI = confidence interval.

Table 7.

Summary of Hierarchical Logistic Regression Analysis for CCAPS-62 Subscales Predicting Dropout at Fall 2016

	Model 1				Model 2				Model 3			
	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*
Time	1.02	0.99	1.05	.192	1.03	0.99	1.06	.076	1.03	0.99	1.06	.067
Treatment	0.92	0.49	1.74	.806	1.03	0.54	1.98	.922	0.98	0.51	1.89	.953
AD	1.71	1.28	2.29	<.001	1.94	1.34	2.81	<.001	2.00	1.37	2.92	<.001
Depression					1.21	0.69	2.12	.508	0.78	0.36	1.69	.523
Gen. Anxiety					0.83	0.54	1.28	.406	0.52	0.26	1.07	.075
Social Anxiety					0.72	0.47	1.10	.125	0.73	0.47	1.12	.151
Eating Concerns					0.90	0.62	1.29	.556	0.90	0.62	1.30	.566
Family Distress					0.70	0.48	1.02	.060	0.72	0.50	1.05	.091
Hostility					1.70	1.08	2.66	.021	1.75	1.11	2.75	.016
Substance Use					0.73	0.51	1.05	.085	0.72	0.50	1.04	.078
DEP x ANX									1.29	0.95	1.74	.098
Model Statistics												
χ^2		15.63		.001		28.25		.002		30.98		.001
Nagelkerke R^2		.08				.14				.15		

Note. N = 295. Time = weeks between CCAPS-62 administration and the end of the academic year. Treatment is coded 0 = no treatment 1 = attended at least one treatment session. ANX x DEP = Interaction term of Depression and Generalized Anxiety. CI = confidence interval.

Table 8.
Summary of Hierarchical Logistic Regression Analysis for CCAPS-62 Subscales Predicting Dropout at Fall 2017

	Model 1				Model 2				Model 3			
	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*	Odds Ratio	CI (95%) Lower	CI (95%) Upper	*p*
Time	1.01	0.98	1.04	.492	1.02	0.99	1.04	.296	1.02	0.99	1.04	.269
Treatment	0.76	0.43	1.35	.349	0.81	0.45	1.46	.482	0.77	0.42	1.39	.382
AD	1.61	1.23	2.11	<.001	1.87	1.32	2.64	<.001	1.93	1.35	2.74	<.001
Depression					1.18	0.70	1.99	.539	0.75	0.36	1.56	.446
Gen. Anxiety					0.82	0.55	1.22	.331	0.52	0.27	1.00	.051
Social Anxiety					0.80	0.54	1.19	.271	0.82	0.55	1.22	.327
Eating Concerns					0.85	0.60	1.20	.355	0.85	0.60	1.21	.366
Family Distress					0.79	0.57	1.12	.183	0.82	0.58	1.15	.255
Hostility					1.40	0.92	2.13	.121	1.44	0.940	2.20	.095
Substance Use					0.74	0.53	1.04	.085	0.74	0.52	1.04	.079
DEP x ANX									1.28	0.97	1.70	.079
Model Statistics												
χ^2		13.75		.003		23.32		.002		26.43		.006
Nagelkerke R^2		.07				.11				.12		

Note. N = 295. Time = weeks between CCAPS-62 administration and the end of the academic year. Treatment is coded 0 = no treatment 1 = attended at least one treatment session. ANX x DEP = Interaction term of Depression and Generalized Anxiety. CI = confidence interval.

Table 9.

Predicted Probability for Dropout and Predicted GPA at Low and Elevated Cut Points For Significant CCAPS-62 Predictors and Associated Academic Outcomes

	Low Cut Point	95% CI	Elevated Cut Point	95% CI
Academic Distress				
Dropout 2015	9.63%	[3.43, 15.83]	19.93%	[9.30, 30.56]
Dropout 2016	19.36%	[10.77, 27.93]	30.71%	[18.96, 42.4]
Dropout 2017	27.93%	[18.00, 37.87]	41.05%	[28.6, 53.4]
Term GPA	3.00	[2.87, 3.13]	2.75	[2.60, 2.90]
Cumulative GPA	3.20	[3.11, 3.29]	3.05	[2.93, 3.17]
Hostility				
Dropout 2016	21.93%	[13.01, 30.86]	27.45%	[16.89, 38.00]
Term GPA	2.97	[2.84, 3.10]	2.81	[2.66, 2.95]
Social Anxiety				
Dropout 2015	15.73%	[7.47, 24.00]	11.43%	[4.84, 18.02]
Term GPA	2.90	[2.77, 3.03]	3.04	[2.89, 3.19]

Note. CI = confidence interval. Treatment covariate set to no treatment for all presented statistics, each prediction is otherwise adjusted to the sample distribution of covariates. See Table 1 for descriptive statistics for GPA and dropout for the study sample.

CHAPTER IV

DISCUSSION

The purpose of this study was to examine the associations between the CCAPS-62 and college academic outcomes within a sample of counseling center clients. Particular emphasis was given to informing the validity of inferences made from scores on the AD subscale, due its ostensible connections with GPA and dropout. Specifically, I hypothesized that scores on the AD, Depression, and Hostility subscales, and the interaction of Depression x Anxiety scores, would be predictive of all measures of GPA and dropout. CCAPS-62 data collected from 295 freshmen undergoing an initial assessment at a college counseling center during the 2014-2015 was connected with academic records to examine relationships with term GPA, cumulative GPA, and dropout at Fall term of the subsequent 3 years.

Results from logistic and multiple linear regression analyses revealed that (a) AD scores were a significant predictor of all outcomes; (b) Depression scores were not associated with any academic outcomes; (c) Hostility scores were associated with lower term GPA and higher risk of dropout by 2 years following CCAPS-62 administration; and (d) Social Anxiety scores were associated with better short-term academic outcomes, higher term GPA and lower dropout risk to the subsequent academic year.

Academic Distress

This is the first study to examine the relationships between AD and any objective measure of academic performance or success. The hypothesis that AD would be positively associated with GPA and dropout was supported by the results. The findings align with previous studies showing associations between a variety of other measures of

academic stress and educational outcomes among college students (Akgun & Ciarrochi, 2003; Baker, 2002; Struthers, Perry, & Menec, 2000). AD was the strongest predictor overall of academic outcomes, and the only subscale found to be predictive of the distal outcomes of cumulative GPA and dropout after 3 years. In the sample, roughly half of the dropout occurred after the first year, consistent with other studies showing higher dropout risk between freshman and sophomore years (Chen, 2012). Because a wide variety of personal and institutional factors influence student persistence and dropout decisions (Reason, 2009), it is noteworthy that AD remained predictive of dropout long after the CCAPS-62 was administered. Similarly, the continued associations between AD and lower cumulative GPA for students who remained at the university indicates that students did not recover academically after their initial experience of academic stress.

The CCAPS-62's subscale measuring academic difficulties is a primary distinguishing characteristic of the tool for use with college students when compared to the range of available symptom inventories for use in other mental health settings. The current findings are particularly important with relation to the AD scale, as the developers of the measure sought to measure academic performance and functioning, not just educational related stress (Locke et al., 2011). In the absence of evidence for validity for these outcomes however, clinicians have been cautioned from making inferences about a student's GPA or other academic indicators (CCMH, 2015). Such caution is warranted given the possibility of motivating forms of stress among college students that would have an inverse relationship with academic well-being (Robotham, & Julian, 2006). This study lends initial support for interpreting AD scores as potentially indicative of both immediate and long-term academic difficulties, rather than mere subjective distress.

Prior to the current study, there were known associations between the AD subscale and the academic adjustment scale of the SACQ (McAleavey et al., 2012) and well-established relationships between the SACQ subscale, GPA and retention (Baker 2002; Credé & Niehorster, 2012). This study provides an important missing link in the validation of the CCAPS-62 AD subscale by providing evidence of the relationship between AD scores and these academic outcomes, and specifically doing so with a counseling center sample, which have rarely been studied with the SACQ subscales or other measures of academic stress. A meta-analysis of studies employing the academic adjustment scale of the SACQ found correlations of .29 for freshman GPA, and .18 for dropout (Credé & Niehorster, 2012). Therefore, within the counseling center population, AD scores appear to have a slightly stronger association with dropout and similar associations with GPA as its referent measure. This indicates that the AD subscale performs at least as well at predicting academic outcomes among counseling center clients as similar measures do among the general student population. Previous studies among counseling center clients raised questions due to the weak associations between AD subscale scores and the Academic Problems scale of the CAS (MacFarlane et al., 2015). Because the CAS scales have not had their validity examined in a similar fashion, the results presented here makes the CCAPS-62's subscale of academic stress a preferable measure at this time.

Hostility

Hostility scores were found to be associated with lower term GPA and higher risk of dropout within 2 years following CCAPS-62 administration, lending partial support to the hypothesis. Across diverse samples, hostility has been found to be inversely

correlated with educational attainment (Elbogen et al., 2010; Scherwitz, Perkins, Chesney, & Hughes 1991). However, hostility has rarely been specifically examined as a construct of relevance to academic outcomes among college students. One such study examined irritability and anger using a single self-report item among a general sample of 185 undergraduates and found no significant correlation with semester GPA (Trockel, Barnes, & Egget, 2000). Another cross-sectional study found that college students high in anger reported greater frequency of stressful college events ranging from unexpected low grades to trouble finding parking on campus (Lopez & Thurman, 1986). More recently, Arria and colleagues (2013b) found that students higher in aggression-hostility were more likely to experience interruptions in enrollment over the course of 4 years. The current findings that Hostility scores are associated with lower term GPA and dropout within 2 years add to these previous findings and lend support to the CCAPS-62 measure of hostility being an indicator of academic risk among counseling center clients.

The limited research on hostility in higher education settings seems due at least partly to the nosologic space it occupies within the realm of psychopathology. Hostility is unique among the CCAPS-62's subscales, as it captures emotions and experiences including irritability, anger, violent and aggressive impulses, and argumentative behaviors that do not have direct diagnostic equivalents but which are symptoms of psychiatric diagnoses that are associated with dropout or lower GPA, such as bipolar disorders (Breslau et al., 2008; Hunt et al., 2010) and antisocial personality disorder (Hunt et al., 2010; King, 2000). Though not a formal symptom, anger and hostility commonly co-occur with unipolar depression (Koh, Kim, & Park 2002; Posternak & Zimmerman, 2002), the combination of which is associated with greater chronicity,

psychosocial impairment, and psychiatric comorbidities (Judd, Schettler, Coryell, Akiskal, & Fiedorowicz, 2013). Therefore, the domains captured by the Hostility subscale may be both indicative of specific and particularly impairing disorders, as well as a characteristic that is associated with greater risk, including academic impairment, independent of a given diagnosis.

Social Anxiety

Classroom participation, public presentations, study groups, and attending faculty office hours are among the academic areas that can be particularly challenging for an individual experiencing social anxiety (Russel & Shaw, 2009; Russel & Topham, 2012). Yet unexpectedly, scores on the Social Anxiety subscale were found to be associated with higher term GPA and decreased likelihood of dropout within 1 year. Studies of adult clinical and community samples find that social anxiety disorder is associated with a range of functional impairments, including occupational and student role functioning and high school non-completion (Aderka et al., 2012; Stein & Kean, 2000). While there have not been studies among counseling center clients specifically, studies of social anxiety among college students paints a more complex picture between social anxiety and academic outcomes. Two previous studies demonstrated no associations between social anxiety, GPA and retention (Strahan, 2003; Topham & Moller, 2011), while a larger, more recent study found that social anxiety was directly associated with GPA and indirectly associated with GPA through the presence of social ties (Brook & Willoughby, 2015). No studies to date have found positive associations between social anxiety and functional outcomes or quality of life indicators, as was found in the current study.

It is important to note that some previous studies examined those who met criteria for social anxiety disorder. The relatively weak positive predictive power (0.17) of scores on the Social Anxiety subscale (McAleavey et al., 2012) for its corresponding diagnosis means that many students with high scores on the subscale do not have social anxiety disorder. Therefore, it is possible that a subset of students may experience the social discomfort, public speaking anxiety, and difficulty making friends that are assessed by the scale without meeting diagnostic criteria in that domain, and without accompanying impairment in academic or other role functioning. Given the absence of significant zero order correlations between Social Anxiety subscale scores and any academic outcomes and the adjustment for academic stress within the study models, such an explanation seems plausible. These findings are parallel to those of Comer and colleagues (2011), who found that once socio-demographic and clinical correlates were accounted for, relationships between social anxiety disorder and social and role functioning were non-existent. Their study of anxiety disorders was also noteworthy for similarly finding that specific phobia was associated with improved quality of life once these correlates were accounted for. It seems then, that there may be indirect pathways by which certain anxiety disorder symptoms could contribute to positive outcomes. Strahan (2003) speculated that an individual fearing negative evaluation from others might try harder to avoid the stigma associated with college dropout, or added social difficulties associated with transferring to a different school. Because the current study accounted for a measure of academic functioning and comorbid symptomology, it is possible that among students who are otherwise academically capable and well-adjusted, a certain level of social anxiety could have a motivating effect that serves to buffer them from feared negative

evaluations, such as poor grades. It may also be possible that individuals higher in social anxiety may avoid certain non-academic social events, and use this time in pursuit of their educational goals through studying.

Depression

Contrary to hypotheses, scores on the Depression subscale were not associated with GPA or retention at either univariate or multivariate levels at any time point. This study adds to a body of literature calling the relationships between depression and academic outcomes into question. Two major psychiatric epidemiology studies have found no association between depressive disorders and educational attainment (Breslau et al., 2008; Hunt et al., 2010), and a meta-analysis of 17 studies of depression and college GPA found no significant relationship (Richardson et al., 2012). The absence of a relationship between depression and academic outcomes is counterintuitive, given the range of impairments found among those with depression, including in cognitive domains needed for achievement in an educational setting (Rhebergen et. al., 2010; Rock, Roiser, Riedel, & Blackwell, 2014).

The seminal study by Eisenberg and colleagues (2009), which showed associations between depression symptoms on the PHQ-9 and both GPA and retention, offers one potential clue to better understanding this relationship. They found that within the depression measure, it was the item assessing interest or pleasure in doing things which was particularly predictive of GPA. The Depression subscale on the CCAPS-62 does not have a comparable item measuring general anhedonia, which may account for the lack of significant findings in the present study.

These disparate findings also serve as a reminder of the importance of validation research on different symptom inventories, even when measuring the same underlying construct. The aforementioned study is also notable for their finding of substantially lower GPAs among those with comorbid anxiety. The present study did not find a significant interaction effect for depression and anxiety on GPA or dropout, echoing other findings (e.g., Arria et al., 2013a). With relation to the findings for the Generalized Anxiety subscale, it is also worth highlighting that in the CCAPS-62, irritability is measured as a component of the Hostility subscale, and not within the Generalized Anxiety subscale, though irritability is a symptom of generalized anxiety disorder, and measured as such by the GAD-7, a commonly used scale in other studies in this area (Spitzer, Kroenke, Williams, & Löwe, 2006). Given previous findings and the current findings on the relation between Hostility scores and academic outcomes, this may partially account for the absence of significant effects for anxiety or the depression-anxiety interaction.

Clinical Implications

Academic functioning is an outcome domain of particular salience to college counseling centers. This study provides initial evidence for validity of making inferences regarding academic outcomes from scores on the CCAPS-62. The effect sizes found in the present study are clinically relevant for students. For example, a .26 decrease in term GPA associated with a 1-point increase in AD score may mean the difference between success or failure on outcomes of importance to students, such as academic probation, dean's lists, qualifying for certain scholarships, and graduate school admissions.

Similarly, the 5-10% changes in the risk of dropout based on CCAPS-62 scores found in this study translate to a meaningful amount of student dropout at the university level.

Clinicians who are provided with more data about a student's level of academic risk should be able to harness this information in the assessment, triage, referral, and treatment planning processes. While this academic risk assessment information is important for practitioners and administrators, the utility of this research depends not just on the accuracy of interpretations that are made but on the value of the decisions made from such inferences (Cizek, 2012; Sireci, 2016). Therefore, the utility of the present findings for counseling centers will depend on whether the CCAPS-62 is an improvement over any existing ways that academic risk was being assessed, and the usefulness of actions taken as a result of inferences made.

The CCAPS-62 as a whole has weaker associations with academic outcomes than traditional predictors such as high school GPA or SAT and ACT scores (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015; Zahner, Ramsaran, & Steedle, 2012). However, those well-known predictors are used in admissions processes but are not typically used to identify students at risk once they have started at a college. There currently are no accepted best practices for identifying academic functioning or risk within counseling center settings. Known practices range from asking students to self-report their GPA at intake (CCMH, 2017b) or asking students if they are considering dropping out (Van Brunt, 2008) to accessing and reviewing students' academic records directly. As a result of the dearth of research in this area, reviewing CCAPS-62 scores may be beneficial beyond current practices in helping counseling center staff identify students who are at increased academic risk. The results from this study can begin empowering clinicians to

interpret AD scores as associated with objective risk, rather than simply subjective distress. The findings of the full models in this study also demonstrate that other CCAPS-62 subscales provide more information about academic functioning and risk above and beyond the AD subscale. Therefore, Hostility, Social Anxiety, and AD scores should be examined together, and alongside other data collected in the intake process in order to gain a better picture of the student within the context of the educational setting. High scores on Hostility and AD subscales may help alert clinicians to conduct further assessment of a student's academic needs, which may include domains such as their educational history, recent academic performance, academic self-efficacy, learning challenges or disabilities, and current use of academic supports and services.

The clinical utility of any improvement in detecting students at academic risk will be dependent on whether or not this information leads to actions, such as interventions or referrals that help mitigate this risk. Similarly, counseling center administrators and clinicians will need to decide how to weight academic risk compared to other clinical concerns when making triage decisions. Research suggests that providing successful treatment for whatever a student's presenting concern is makes it more likely that a student experiences concurrent improvements in their academic functioning (Choi et al., 2010). Interventions in counseling centers that support academic well-being can be categorized as either psychological counseling or academic counseling, which is focused on domains such as study skills or time management (Sharkin, 2004). Using scores on the CCAPS-62 to trigger engaging in a more thorough assessment of student academic needs and concerns may help tailor interventions and improve outcomes.

Unlike other scales, AD scores were not associated with the number of sessions a student attended, and Hostility scores were weakly associated only with cumulative therapy sessions attended. This indicates that, relative to other clinical concerns, students with higher academic risk may be receiving less treatment. This is unfortunate, given that CCAPS-62 Hostility and AD scores tend to improve over time with treatment at a counseling center (Ghosh, Rieder, Bennet, & Martin, 2017; Lockard et al., 2012). Counselors may therefore derive added benefit from engaging in clinical practices that can increase treatment engagement and reduce premature termination (Swift, Greenberg, Whipple, & Kominiak, 2012).

Limitations

The current findings should be considered within the context of relevant limitations to the study. First, there are two factors that limit the generalizability of the results. While the freshman sample examined provided the ability to track retention and GPA for an extended time, freshmen also face higher levels of academic risk, including higher risk of dropout following the first year (Chen, 2012), and unique stressors associated with the adjustment to the college environment, which may affect relationships between CCAPS-62 scores and academic variables. The study also utilized a sample taken from a single large public research university in the Pacific Northwest, and therefore may not generalize to all other institutional settings.

Although attempts were made to control for confounding effects of treatment, this is challenging to accomplish with existing clinical data and without the use of a control group. Both the cumulative and dichotomous covariates used in analyses to indicate the amount or presence of counseling services received did not account for pertinent factors

such as the type of interventions delivered, or the amount of clinical improvement, which are likely to affect the relationship between CCAPS-62 scores at initial assessment and later functional outcomes. As a result, it is possible that non-significant relationships between certain symptoms and academic outcomes, such as more distal dropout and cumulative GPA, are due in part to successful treatment in the intervening period, which in turn, reduced academic risk. Additionally, treatment was only accounted for if it was received at the counseling center itself. As a result, there are likely students who received psychiatric medication at the university health center or therapy elsewhere after their initial assessment who are considered as not receiving treatment in the study, which may partially account for the lack of significant effect for the treatment covariates overall.

Recommendations for Future Research

Future research can build on these findings in ways that increase the accuracy and utility of predictive information about academic risk. Future studies may also wish to illuminate the causal mechanisms behind these predictions. Adding other psychosocial and demographic information that is traditionally collected at counseling centers to predictive models may improve the ability to detect academic risk. Student background domains such as first-generation student status (Cataldi, Bennett, Chen, & Simone, 2018), learning disabilities (Troiano, Liefeld, & Trachtenberg, 2010), psychiatric history (Breslau et al., 2008, Hunt et al., 2010), financial stress (Joo, Durband, & Grable, 2008), and racial-ethnic identity (Musu-Gillette et al., 2017) are factors that may influence students' academic risk and/or inform intervention strategies. It would also be useful to examine whether the CCAPS-62 is predictive of academic outcomes above and beyond traditional predictors used in admissions, such as high school GPA, SAT, and ACT

scores, to understand what unique aspects of student functioning are being captured by the CCAPS-62. Using these or other pre-morbid measures of functioning, including assessments of pre-college mental health, which is often missing from studies would also further research into the causal relationships between distress among college counseling center clients, GPA, and retention. Examining mental health, academic ability, and academic outcomes over time in a way that allows for the examination of reciprocal relationships, such as cross-lagged designs, is needed for a more accurate look into how the "downward spiral" process of worsening mental health and academic outcomes unfolds. Identifying students at risk of low GPA or dropout is helpful only to the extent that it holds the possibility of improving outcomes in some way. Future studies are needed to examine questions pertaining to downstream effects of the identification process. It is important to know therefore, if inferences regarding academic risk from the CCAPS-62 can lead to changes in clinical practice that improve student outcomes. At the assessment stage, it would be helpful to test whether using CCAPS-62 scores to trigger a more in-depth assessment of a student's academic history, functioning, and needs, leads to better academic or clinical outcomes compared to a counseling center's existing methods, such as relying on intake paperwork or students' self-reported presenting concerns. The present findings indicated that the CCAPS-62 was more predictive of short-term than long-term academic outcomes, which may indicate that the timing of subsequent interventions is important. As triage and wait-list systems become more commonplace at counseling centers (DiMino & Blau, 2012; Hardy et al., 2011), understanding if wait-time for services influences academic outcomes will be important for counseling center administrators trying to determine prioritization for care.

Determining what downstream interventions are most effective for those identified as being at academic risk will be essential to maximizing the usefulness of the CCAPS in this domain. Comparing outcomes of those receiving academic counseling, psychological counseling, those referred to academic support services such as tutoring (Grillo, & Leist, 2013), and combinations of these services, following assessment can yield a more effective intervention process for those at elevated academic risk and increase the likelihood that the processes that follow from CCAPS-62 administration lead to a meaningful change in student outcomes.

Counseling-as-usual tends to lead to improvements in CCAPS-62 scores on the Hostility and AD subscales (Ghosh et al., 2017; Lockard et al., 2012). Therefore, the current findings would be well complimented by studying whether these improvements in CCAPS-62 scores over time are also associated with an improvement in GPA or retention rates. These types of studies may also help shed light on the inconsistent findings in the literature on counseling and retention, which typically have not accounted for presenting symptomology or specific interventions used (for a discussion, see Choi et al., 2010).

Finally, the findings of Social Anxiety scores being associated with positive short-term academic outcomes when accounting for AD scores and other symptoms is the first known study finding of positive functional outcomes associated with social anxiety. Few existing theories would seem to explain why those experiencing the type of social discomfort, difficulty making friends, and public speaking anxiety measured by the scale would perform better academically. Therefore, further research on such connections is warranted to allow for explorations of causal pathways that this study does not permit.

Summary and Conclusion

The purpose of this study was to examine relationships between the CCAPS-62 and academic outcomes among university counseling center clients. Findings revealed that scores on the AD and Hostility subscales were associated with lower GPA and increased dropout, while Social Anxiety scores were associated with higher term GPA and retention to the university. This study also provides initial validity evidence for interpreting scores on the AD scale as indicative of objective academic difficulties. As a whole, the CCAPS-62 was more predictive of short-term outcomes than long-term dropout risk or cumulative GPA. The effect sizes found here are likely to be meaningful to students and other campus stakeholders. College counseling centers operate under the assumption that services they provide are helpful to students both academically and emotionally (Choi, Buskey, & Johnson, 2010; Sharkin, 2004). The current findings indicate that using multiple CCAPS-62 subscales scores together may aid counseling centers in individualizing services to students with greater academic needs.

APPENDIX A

CCAPS-62

Name: _____ **Date:** _____

INSTRUCTIONS: The following statements describe thoughts, feelings, and experiences that people may have. Please indicate how well each statement describes you, during the past two weeks, from "not at all like me" (0) to "extremely like me" (4), by marking the correct number. Read each statement carefully, select only one answer per statement, and please do not skip any questions.

	Not at all like me				Extremely like me
1. I get sad or angry when I think of my family	0	1	2	3	4
2. I am shy around others	0	1	2	3	4
3. There are many things I am afraid of	0	1	2	3	4
4. My heart races for no good reason	0	1	2	3	4
5. I feel out of control when I eat	0	1	2	3	4
6. I enjoy my classes	0	1	2	3	4
7. I feel that my family loves me	0	1	2	3	4
8. I feel disconnected from myself	0	1	2	3	4
9. I don't enjoy being around people as much as I used to	0	1	2	3	4
10. I feel isolated and alone	0	1	2	3	4
11. My family gets on my nerves	0	1	2	3	4
12. I lose touch with reality	0	1	2	3	4
13. I think about food more than I would like to	0	1	2	3	4
14. I am anxious that I might have a panic attack while in public	0	1	2	3	4
15. I feel confident that I can succeed academically	0	1	2	3	4
16. I become anxious when I have to speak in front of audiences	0	1	2	3	4
17. I have sleep difficulties	0	1	2	3	4
18. My thoughts are racing	0	1	2	3	4
19. I am satisfied with my body shape	0	1	2	3	4
20. I feel worthless	0	1	2	3	4
21. My family is basically a happy one	0	1	2	3	4
22. I am dissatisfied with my weight	0	1	2	3	4
23. I feel helpless	0	1	2	3	4
24. I use drugs more than I should	0	1	2	3	4
25. I eat too much	0	1	2	3	4
26. I drink alcohol frequently	0	1	2	3	4
27. I have spells of terror or panic	0	1	2	3	4
28. I am enthusiastic about life	0	1	2	3	4
29. When I drink alcohol I can't remember what happened	0	1	2	3	4
30. I feel tense	0	1	2	3	4
31. When I start eating I can't stop	0	1	2	3	4
32. I have difficulty controlling my temper	0	1	2	3	4
33. I am easily frightened or startled	0	1	2	3	4

CCAPS-62

34. I diet frequently	0	1	2	3	4
35. I make friends easily	0	1	2	3	4
36. I sometimes feel like breaking or smashing things	0	1	2	3	4
37. I have unwanted thoughts I can't control	0	1	2	3	4
38. There is a history of abuse in my family	0	1	2	3	4
39. I experience nightmares or flashbacks	0	1	2	3	4
40. I feel sad all the time	0	1	2	3	4
41. I am concerned that other people do not like me	0	1	2	3	4
42. I wish my family got along better	0	1	2	3	4
43. I get angry easily	0	1	2	3	4
44. I feel uncomfortable around people I don't know	0	1	2	3	4
45. I feel irritable	0	1	2	3	4
46. I have thoughts of ending my life	0	1	2	3	4
47. I feel self conscious around others	0	1	2	3	4
48. I purge to control my weight	0	1	2	3	4
49. I drink more than I should	0	1	2	3	4
50. I enjoy getting drunk	0	1	2	3	4
51. I am not able to concentrate as well as usual	0	1	2	3	4
52. I am afraid I may lose control and act violently	0	1	2	3	4
53. It's hard to stay motivated for my classes	0	1	2	3	4
54. I feel comfortable around other people	0	1	2	3	4
55. I like myself	0	1	2	3	4
56. I have done something I have regretted because of drinking	0	1	2	3	4
57. I frequently get into arguments	0	1	2	3	4
58. I find that I cry frequently	0	1	2	3	4
59. I am unable to keep up with my schoolwork	0	1	2	3	4
60. I have thoughts of hurting others	0	1	2	3	4
61. The less I eat, the better I feel about myself	0	1	2	3	4
62. I feel that I have no one who understands me	0	1	2	3	4

APPENDIX B

University of Oregon Counseling & Testing Center
1590 E. 13th Ave., Eugene, OR. 97403
541-346-3227

Consent Form

IMPORTANT
PLEASE READ BEFORE YOU MEET WITH YOUR COUNSELOR
Services at the University Counseling and Testing Center (UCTC) are partially funded by Health fees and are only available to currently enrolled students who have paid these fees. Individual, couple, and group counseling are available and require a prior screening or initial assessment interview. Individual sessions normally run 45-50 minutes. The Center is typically open from 8:00 am to 5:00 pm, Monday through Friday, with the exceptions of Thursday mornings, 8 am to 10:30 am, and official University holidays. A support/crisis telephone service is available during the hours that the UCTC is closed. This service is contracted through ProtoCall and staffed by mental health professionals who work closely with the UCTC clinical staff to provide the best possible care.

LIMITS ON COUNSELING
Like many non-profit service centers, the Counseling Center experiences a high demand for its limited resources, which makes it necessary to use our professional time optimally. We ask that you notify the Center at least 48 hours in advance if you cannot make your scheduled appointment. Should you miss two sessions without canceling in advance, another client may be assigned to fill your time slot. We understand that illnesses and other unexpected emergencies occasionally will require a shorter cancellation period.
To meet the needs of as many students as possible, most clients are seen in a brief therapy format, i.e., from one to ten sessions. Counseling is concluded at the point when clients seem to have the capacity to work out their own problems without undue difficulty. If longer term counseling is indicated, it may be necessary to receive this elsewhere. Your counselor or another staff member can help with possible referrals to other providers as needed.

WAITING LIST PROCEDURES
In light of high demand on our services, the Counseling Center operates with a waiting list at times, the size of which fluctuates during the year. We encourage you to speak with your assessment counselor about the length of wait, if any, and to discuss other options, such as obtaining outside referrals, if necessary. If you are placed on our waiting list, we will contact you by email or

phone when an opening becomes available. Should you feel the need for crisis assistance or support while you are waiting for ongoing sessions, please feel free to contact us at any time (24/7).

PROBLEMS WITH YOUR COUNSELOR OR THE CENTER

A trusting relationship is a key ingredient of successful counseling. Conflicts and tensions are sometimes a normal part of the therapeutic process. If you experience this, you are encouraged to bring it up with your counselor. When such issues cannot be resolved through discussion, the counselor's responsibility is to facilitate a transfer to another counselor or service as appropriate. As a client, you always have the right to raise a concern about your treatment with the counselor, the Clinical Director, or Director. The front desk staff may be able to answer any questions you might have about who can help you with your concerns.

CONFIDENTIALITY

The University Counseling and Testing Center (UCTC) provides confidential psychological services to students, consistent with the parameters of state and federal laws. Providing confidential services means that Counseling Center staff members do not release your information outside the UCTC without your permission.

The main, but not only, exceptions to confidentiality may arise in situations involving danger to yourself or others, abuse or neglect of a child or vulnerable adult, court orders or subpoena of records, or your emotional condition being used as a claim or defense in a legal situation.

Information regarding students is routinely shared internally among Counseling Center staff, primarily for case consultation and therapist supervision. The Counseling Center may exchange information regarding your treatment with other health care professionals for the purposes of coordinating care without your written consent, as specified by law

If you are a student majoring in a professionally regulated area (e g., Law), or if your work requires government security clearance (e.g., Department of Defense), please be advised that those regulatory boards may ask you to authorize disclosure of your Counseling Center records.

The information you provide may be used in aggregate form, i.e. all information uniquely identifying any individual is removed, for the purposes of maintaining accurate statistics and conducting research.

The Counseling Center offers students the option of using email as one mode of communication, usually for scheduling purposes. Please be aware that the privacy of email cannot be guaranteed. If you choose to use email to communicate with your counselor, do so carefully and with the knowledge that any information sent could be access by outside parties even after being deleted. Our preference would be to use email primarily for scheduling purposes.

Please contact the Counseling Center or talk with your therapist if you have more specific questions about confidentiality at the Counseling and Testing Center.

AFTER HOURS CRISIS

The UCTC contracts with a professional support/crisis counseling service to assist students when our center is closed. That service is through ProtoCall Services. This service is staffed by qualified mental health professionals who work closely with the UCTC to provide you the best quality care. The UCTC receives confidential reports regarding services ProtoCall provides.

APPOINTMENT REMINDERS

The Counseling Center utilizes an automated system for delivering appointment reminders through text messaging and/or University of Oregon email accounts. The scope of information contained in these reminders will be limited to dates and times of Counseling Center appointments. You may opt out of receiving reminders at any time by advising administrative staff (front desk) that you no longer wish to receive reminders by text, email or either method.

FOR STUDENTS NOT ENROLLED FOR THE CURRENT TERM

I understand that I may be eligible for services between enrolled terms, only if I was registered the previous term and I am already enrolled for the next academic term. Your university account will be billed a "stop-out" fee. See table for current fees. It is my responsibility to establish a relationship with another health care provider in the community if I think I might not re-enroll. Upon my written authorization, the Counseling Center will arrange to have copies of my counseling records sent to this new provider for continuity of care. I also understand I will be responsible for all testing charges.

FALL $33.00
WINTER $33.00
SPRING $33.00
Law (Fall Semester) $50.00
Law (Spring Semester) $50.00

MISSED APPOINTMENT/LATE-CANCELLATION FEE:

There is a $25 missed appointment/late-cancellation fee. All appointments must be cancelled or rescheduled by 1 p.m. of the previous day (or by 1 p.m. on Friday for a Monday appointment), to avoid charges for a missed appointment or late-cancellation. A missed appointment fee may also be incurred if arriving late results in a canceled or rescheduled appointment. Missed appointment and late-cancellation fees will be billed to your UO account.

TAPING OF SESSIONS

A number of our counselors are professionals in training who are required to tape sessions as a part of their supervision. All taping is done with the client's consent. Tapes are used only within the Center and only for training or supervision purposes. Audio and video tape recordings are given the same protection as other confidential information, and are erased when the therapy relationship ends. Giving your permission may make it easier to assign you to a counselor if the decision is made for receiving services from this counseling center.

Please choose one of the three options below. If you have any questions or reservations, please discuss them with your drop in counselor.

☐ I have read the above and by checking this box, give my consent to audio/video tape.

☐ I have read the above and do NOT give my permission to audio/video tape.

☐ I have read the above and will discuss my option with the intake therapist.

In case of emergency (such as hospitalization, ER visit, serious concerns about your risk for suicide), or if a counselor is unable to reach you for an extended period, is there someone you give the counselor permission to contact?

Emergency Contact Name, Relationship, and Phone Number

☐ I acknowledge that I have read and understand the above information regarding services at the University of Oregon Counseling & Testing Center. I understand that if I have any questions regarding this information I can discuss them with my counselor.

Client Signature Date

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