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Suicidal behaviors among college students: Are transfer students at greater risk?

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SUICIDAL BEHAVIORS AMONG COLLEGE STUDENTS:
ARE TRANSFER STUDENTS AT GREATER RISK?

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
International Family & Community Studies

by
Laura S. Bogardus
May 2017

Accepted by:
Dr. Mark A. Small, Committee Chair
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ABSTRACT

Suicide is a major health concern on U.S. college campuses. Research on risk and protective factors related to suicidal behaviors among college students has revealed that certain student populations such as veterans, international students, and LGBTQ students may be at greater risk for suicide. However, no known research on undergraduate transfer student status in relation to suicide ideation and attempts exists. Using the Triadic Theory of Influence (TTI) (Flay & Petraitis, 1994) as a framework, this study seeks to shed light on the relationship between transfer student status and suicide ideation and attempts, as well as the hypothesized mediating effects of intrapersonal level and social level risk and protective factors. Findings from the American College Health Association National College Health Assessment (ACHA-NCHA) Fall 2013, 2014, and 2015 datasets suggest significant differences by transfer student status among key demographics and risk and protective factors for suicidal behaviors, and that transfer students experience higher frequencies of risk factors associated with mental health diagnosis and treatment, higher frequencies of risk factors associated with psychological distress, and lower frequencies of protective factors associated with social connectivity. Findings also suggest that the constructs of mental health diagnosis and treatment, psychological distress, and to a lesser degree social connectivity mediate the relationship between transfer student status and suicide ideation and attempts. Though use of ACHA-NCHA datasets provided for robust sampling, this study was limited by its use of secondary data as items pertaining to transfer student status and social connectivity measures were limited. These findings may inform ongoing practice and future research into methods that reduce risk factors and bolster protective factors among undergraduate college transfer students.

DEDICATION

I dedicate this work to all people struggling with depression and suicidal behaviors. Your life has value. You are important. You matter.

If you haven't talked to someone about your depression, please reach out to a caring friend, family member, or mental health professional for help. We all need help in our lives, and we are here to help each other. There are some wonderful crisis and suicide prevention resources listed in the Appendix.

I am grateful to God, and to my family, friends, mental health professionals, and others that have inspired me over the years to live life with hope. Thank you.

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CHAPTER ONE

INTRODUCTION

Suicide is the second leading cause of death among college-aged youth (Centers for Disease Control and Prevention [CDC], 2015). In addition, a great number of college students suffer with suicidal thoughts and suicidal attempts each year (CDC, 2013; Suicide Prevention Resource Center [SPRC], 2014). As most suicides co-occur with emotional or mental disorders (Blumenthal, 1988), reports that increasing numbers of students enter college with mental health conditions have spurred colleges and universities to respond (Center for Collegiate Mental Health [CCMH], 2015; De Luca, Franklin, Yueqi, Johnson, & Brownson, 2016; Haas, Hendin, & Mann, 2003; Schwartz, 2011). Among college students with mental health conditions, a recent survey conducted by The National Alliance on Mental Illness (NAMI, 2012) found that 73% reported experiencing a mental health crisis on campus. It is thus critical that colleges and universities have a complete understanding of suicidal behaviors and of the risk and protective factors associated with suicide in order to provide the best awareness, prevention and response possible.

Haas et al. (2003) state that suicides can result from numerous risk factors, most prominently in relation with psychiatric illnesses and compounded by consequent psychosocial crises. People with psychiatric disorders such as depression and other mood disorders that reduce coping behaviors are at greatest risk of suicide (Blumenthal, 1988; Gould, Greenberg, Velting, & Shaffer, 2003; Haas et al., 2003; McLean, Maxwell, Platt, Harris, & Jepson, 2008). Other risk factors for suicide can include conditions such as

self-harm, prior suicide attempts (McLean et al., 2008; Shaffer et al., 1996), posttraumatic stress disorder (Mazza, 2000), stressful experiences, substance misuse (Brownson, Drum, Swanbrow Becker, Saathoff, & Hentschel, 2016), hopelessness (Beck, Brown, Berchick, Stewart, & Steer, 2006), sexual minority status (Blosnich & Bossarte, 2012), relationship problems (Beautrais, Joyce, & Mulder, 1997), and social isolation (Beck et al., 2006; DeLeo, Bertolote, & Lester, 2002; McLean et al., 2008). Fortunately, risk factors may be mitigated by certain protective factors, which can include conditions that foster social connectedness, social problem solving skills, religiosity (Hilton, Fellingham, & Lyon, 2002), family cohesion, or other protective connections (De Luca et al., 2016; Gould et al., 2003; McLean et al., 2008).

Increased risk for suicidal behaviors exists among sub-sets of college student populations that often experience greater exposure to risk factors and lesser exposure to protective factors, such as international students, veterans, and LGBTQ students (Blosnich & Bossarte, 2012). Recently, research has attempted to investigate college transfer students as a potentially high risk population, with early findings showing higher experience of mental health challenges and less social cohesion (Ishanti & McKitrick, 2010; Mehr & Daltry, 2016). Though these findings point to increased incidents of suicide-related risk factors and fewer protective factors among the growing sub-set of college transfer students, little attention has been paid to their suicidal behaviors (Shapiro, Dundar, Wakhungu, Yuan, & Harrell, 2015).

Using the Theory of Triadic Influence (Flay & Petraitis, 1994) as a framework, this study investigated differences between suicide risk and protective factors among U.S.

college transfer and nontransfer students. This study sought insight into the questions, “What is the prevalence of suicide ideation and attempts among U.S. college transfer students in comparison to nontransfer students? Do college transfer students exhibit differing levels of suicide-related risk factors and protective factors than college nontransfer students? Does transfer student status have an indirect effect on increased risk for suicidal behavior through the mediating roles of the risk and protective factors?”

This study hypothesized that transfer students would have a higher likelihood than nontransfer students of reporting suicide attempts and ideation during the past year, and of reporting suicide ideation while drinking alcohol during the past year. Next, transfer students were hypothesized to report higher levels on risk factor variables and lower levels on protective factor variables than their nontransfer counterparts. The final hypothesis was that transfer student status would have an indirect effect on increased risk for suicidal behavior through the mediating roles of the risk and protective factors.

This study is significant in that it is the first known study to examine suicidal ideation and attempts as well as risk and protective factors among the college transfer student population. Results may support increased attention to the experiences of transfer students at receiving institutions in efforts to reduce risk factors, build upon protective factors, and encourage the use of mental health and other student services among at-risk college transfer students.

Definitions

Suicidal behaviors refer to a complex set of behaviors that include suicidal thoughts, intentions, ideation, gestures, attempts, completions, and equivalents

(Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). Suicidal ideation may be defined as thinking about, considering, or planning suicide. Suicide attempts may be defined as non-fatal, self-directed, potentially injurious behavior with any intent to die as a result of the behavior. A suicide attempt may or may not result in injury. Suicide is defined as death caused by self-directed injurious behavior with any intent to die as a result of the behavior (Centers for Disease Control and Prevention [CDC], 2016a). Suicide risk factors are defined as a combination of individual, relationship, community, and societal factors that contribute to the risk of suicide. Protective factors are conditions that buffer individuals from suicidal thoughts and behavior (CDC, 2016b).

College transfer students may be defined as students who have at one time attended another academic institution prior to their current institution for post-secondary studies. Nontransfer college students are students that have only attended their current academic institution for post-secondary studies (Mehr & Daltry, 2016). This study focused only on transfer and nontransfer students pursuing undergraduate degrees.

Organization

A review of the literature, which underscores the prevalence of suicidal behaviors among college students, follows this introduction. Commonly understood risk and protective factors are discussed, followed by a review of the literature pertaining to the college transfer student experience, with an emphasis on factors affecting mental health. An overview of the Theory of Triadic Influence is introduced as the organizing framework for the risk and protective factors examined in this study, with primary influences in the intrapersonal and social domains. Next, the methods section including

data source information, study population demographics, and statistical testing strategy is described, followed by the results of this analysis. The discussion follows with a summary of the analyses and findings and a review of the limitations of this study. Implications for higher educational institutions are explained and recommendations for further research are provided. The final section consists of the conclusion to this study.

CHAPTER TWO

LITERATURE REVIEW

Suicidal Behaviors among College Students

Suicide risk on college campuses has increased dramatically as the numbers of students enrolled in college, including those with behavioral health problems, has grown. (Gould et al., 2003; Haas et al., 2003; Lee, Olson, Locke, Michelson & Odes, 2009). In the United States, there are currently 20.5 million students attending colleges and universities as of fall semester, 2016. This figure represents an overall increase of college students enrolled in U.S. institutions by 5.2 million since fall of 2000 (National Center for Education Statistics [NCES], 2016b). Along with the rise in student population, recent surveys suggest that there are more students with psychological problems attending college than in years past. Using data from the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions, Blanco et al. (2008) found that almost half of college-aged individuals experienced a psychiatric disorder within the prior year. According to the CCMH 2015 Annual Report, students' use of college counseling centers has increased more than five times the rate of institutional enrollment over the last six years. The 2014 National Survey of Counseling Centers (NSCC) reported that 94% of college counseling center directors felt that there is a trend toward greater numbers of students with severe mental health problems on college campuses. Of these directors, 89% reported an increase in anxiety disorders among students, 69% reported an increase in crises requiring immediate response, 60% reported an increase in psychiatric medication issues, and 58% reported an increase in clinical depression among students

served (Gallagher, 2015). Though use of mental health services on college campuses continues to increase (Gallagher, 2015; Haas et al., 2003; Reetz, Krylowicz, Bershad, Lawrence, & Mistler, 2015), the majority of students that seriously consider suicide do not seek out mental health services (Drum, Brownson, Burton Denmark, & Smith, 2009). The 2014 NSCC survey of counseling directors found that of the 125 (primarily undergraduate) student suicides reported therein, 86% of these students had not sought counseling assistance (Gallagher, 2015). These statistics point to the importance of providing preventive interventions and services to the increasing number of distressed students on college campuses (Lee et al., 2009).

Suicide Risk Factors

An understanding of the risk factors that may contribute to college students' mental health distress is important when identifying and assisting students in distress. Risk factors for suicide involve a combination of individual, relationship, community, and societal factors that contribute to the risk of suicide (CDC, 2016b; DeLeo et al., 2002). Though there is no "all-inclusive" list, risk factors may include demographic characteristics such as gender, age, medical history (McLean et al., 2008), sexual orientation (Blosnich & Bossarte, 2012), cultural background, and religious persuasion (CDC, 2016b). Risk factors can represent conditions such as family history of suicide, substance misuse (Brownson et al., 2016), history of mental disorders (especially clinical depression) (Blumenthal, 1988), lack of access to mental health services and stigma related to its use, and easy access to lethal methods of harm to self (DeLeo et al., 2002; McLean et al., 2008). They may represent a state of mind, such as feelings of

hopelessness, loss (relational, social, work, financial), and social isolation (Beck et al., 2006; DeLeo et al., 2002; McLean et al., 2008). Risk factors may result from adverse life events such as previous self-harm and suicide attempts (McLean et al., 2008), interpersonal conflicts, and relationship difficulties (Beautrais et al., 1997; DeLeo et al., 2002). Media coverage that glamorizes suicide can influence suicidal behaviors, contributing to risk (SPRC, 2014). Though risk factors may be associated with suicide, there may not be a causal relationship (CDC, 2016b; Gould et al., 2003; Kisch, Leino, & Silverman, 2005). For example, not all students reporting symptoms of depression have considered suicide, but for those that have considered suicide, symptoms of depression are almost universally present (Kisch et al., 2005). The combination of major life transitions, changing family and peer support groups, expanded academic requirements, and overall new environments that students experience may contribute to risk factors experienced by students (Gould et al., 2003; SPRC, 2004).

Suicide Protective Factors

Just as an understanding of suicide risk factors is valuable when assisting distressed college students, a strong knowledge of the protective factors that serve to buffer students from suicidal thoughts and behaviors is also useful. Though there is no exhaustive agreed upon list of protective factors, these factors generally stem from individual characteristics or behaviors, social support, and school and community factors. Individual characteristics may include positive beliefs, emotional regulation, and physical activity (McLean et al., 2008). Individuals' problem solving skills can serve to safeguard people from considering suicide, as can certain cultural and religious beliefs that

discourage suicide (Hilton et al., 2002; McLean et al., 2008). Forms of social support, such as connections with family and friends, concern and care from faculty and mentors, and availability of crisis support resources serve important protective roles (Gould et al., 2003; McLean et al., 2008). School and community protective factors can include a sense of belonging, involvement in activities, and a supportive and inclusive environment (McLean et al., 2008). Additionally, the accessibility and use of effective mental, physical and substance abuse treatment services along with ongoing support from medical and mental health providers are considered strong protective factors (CDC, 2016b; Gould et al., 2003; McLean et al., 2008; SPRC, 2014). In fact, studies have shown that participation in individual and group counseling by college students positively impacts retention (Lee et al., 2009).

Transfer Student Research

An understanding of suicidal behaviors among college students as well as students' risk and protective factors for suicide can help educators better understand the stressors faced by college students. Likewise, an understanding of the general characteristics often shared by certain at-risk student populations can help improve the effectiveness of student programs and resources. The following section discusses the rising numbers of college transfer students as well as their characteristics, particularly those transferring from community colleges. Previous research pertaining to mental health among community college students and the transfer student population is then introduced to help frame this study.

Increasing Numbers of College Transfer Students

Undergraduate college student attendance in the United States had been on the rise and is projected to continue rising. Between 2003 and 2013, undergraduate enrollment increased by 21% from 14.5 million to 17.5 million (NCES, 2016a; NCES, 2016b). Between 2014 and 2025, undergraduate enrollment is expected to increase by almost 14% to include 19.8 million undergraduate students (NCES, 2016c).

The American Association of Community Colleges (AACC) (2015) examined federal data to find that 35% of students who attended public 4-year institutions in 2011-2012 had attended community college at some point in the past. In fact, 45% of all undergraduate students in 2014 were community college students (AACC, 2016). About eight million degree-seeking students are enrolled in community colleges each year (Strempel, 2013). Most community college students intend to transfer to 4-year institutions in order to earn baccalaureate degrees. Yet while more than 80% of community college students intend to transfer, only 25% of those actually do transfer within five years, and only 17% earn their bachelor's degree within six years of transfer (Jenkins & Fink, 2015). When narrowing the pool to consider only community college students that earned associates degrees as their first post-secondary credential in 2008-09, 41% went on to complete a baccalaureate degree within six years (National Student Clearinghouse Research Center, 2015). These figures point to significant numbers of community college transfer students matriculating at 4-year institutions, as well as wide gaps between student intentions to complete baccalaureate degrees and actual completion rates. Among the population of students that transfer from one 4-year institution to another 4-year institution, the NCES found that 20% of students beginning college in fall

2003 with intent to pursue a bachelor's degree had transferred elsewhere by spring 2006 (Berkner, He, Mason, & Wheelless, 2007). Taken together, the transfer student population is significant and is expected to continue expanding well into the future.

The rise in numbers of transfer students can be explained through a variety of factors. First, it is widely known that the cost to attend college is skyrocketing, with massive student debt accompanying such costs. Attending community college during the first two years of college and then transferring to a 4-year institution is a way to significantly reduce college costs while still attaining a baccalaureate degree (D'Amico, Dika, Elling, Algozzine, & Ginn, 2014; Rhine, Milligan, & Nelson, 2000; Strempel, 2013). Federal and state funded grants and scholarships that cover significant portions of community college costs have been successful in influencing some students to begin their college careers at community colleges. Community college can also provide a gateway to college completion for students with lower GPAs upon high school graduation. Non-traditional students, such as those who are older, work full-time, or have family responsibilities may attend community colleges due to lower cost, and ease of accessibility such as class hours offered outside of traditional daytime schedules or geographical locations that are convenient to work or home. Additionally, many first generation college students begin their college careers at community colleges, where student success programs can be helpful in acclimating students to college life. Statistics show that higher numbers of minority students attend community colleges when compared to attendance at 4-year institutions (NCES, 2015). For these reasons, college transfer from community college to 4-year colleges and universities can provide

important pathways to degree attainment for a diverse variety of student populations (Blaylock & Bresciani, 2011; Jain, Herrera, Bernal & Solorzano, 2011). Likewise, institutions can benefit because transfer students “contribute to broader student-body richness in terms of race/ethnicity, age, veteran status, geographic or socioeconomic diversity, and life experience” (Strempe, 2013, p. 13).

The Transfer Process

Due to the increased numbers of transfer students, the wide gap in degree completion, and the avenue that college transfer provides for underrepresented groups of students to access college degrees (Jenkins & Fink, 2015), researchers have become increasingly interested in understanding transfer students’ transition into 4-year colleges and universities. Most scholarly attention has been directed toward academic performance (Ishitani & McKittrick, 2010; Laanan, 1996; Mehr & Daltry, 2016). In the 1960’s, Hills (1965) identified a phenomenon he called “transfer shock,” which refers to an initial decline in academic performance among new transfer students. Later research refined the concept of transfer shock to reveal that the decline in GPA is generally limited to the first year after transfer, after which GPA tends to resume previous levels after an adjustment period. Further research noted that while science, technology, engineering, and mathematics (STEM) majors tended to experience transfer shock, other majors such as those in the arts and humanities tended to experience “transfer ecstasy” as GPAs increased after transfer (D’Amico et al., 2014; Rhine et al., 2000).

Related transfer student research has focused on issues surrounding the smooth academic progression of students from community college to 4-year institution. In

numerous qualitative studies, transfer students have indicated the importance of college matriculation and course articulation agreements between community college “sending” schools and 4-year “receiving” schools that guarantee admissions acceptance at receiving schools as well as acceptance of general education courses. Course articulation and college credit transfer issues both in general education and within specific majors have been a recurring point of contention that many institutions have sought to rectify through improved coordination between sending and receiving institutions (College Board, 2011). Transfer students rely heavily on Internet resources such as college websites for course selection and admissions procedures, as well as on competent and informed academic advising at both sending and receiving institutions (Ellis, 2013; Nuñez & Yoshimi, 2016; Townsend, 2008).

Other researchers have turned their attention to the institutional environments within which students transfer and to the academic or adjustment challenges students may experience as they make this transition (Ishitani & McKittrick, 2010). At the 4-year institutional level, transfer students are less likely to be involved in on-campus social activities, such as athletics and campus organizations, than nontransfer students (D’Amico et al., 2014; Ishitani & McKittrick, 2010; Mehr & Daltry, 2016). However, transfer students generally have higher participation in activities that allow for socialization within their major course of study (D’Amico et al., 2014). Nunez and Yoshimi (2016) suggest that transfer students’ strong focus on personal career outcomes may be a reason for their socio-academic involvement in activities, such as research collaboration and major-specific service groups. These interaction preferences may flow

from social habits formed at the community college level, where students typically do not spend much extra time socializing on campus, and from outside commitments to work and family that may limit free time. Additionally, peer-based connections with nontransfer students can be challenging since nontransfer students have already formed friendships and established peer networks on campus (Ishitani & McKittrick, 2010; Townsend & Wilson, 2006). In qualitative studies, transfer students have identified difficulty in establishing interactions with new friends and with faculty at receiving institutions, especially in large universities (Ellis, 2013; Townsend, 2008). Transfer students often compare their community college experiences, including small class sizes and strong student-faculty interaction with feelings of anonymity at receiving institutions. Some transfer students have noted that faculty at 4-year institutions appear uninterested in them as students and may not express the same levels of concern for their success as they perceived from community college faculty (Nuñez & Yoshimi, 2016; Townsend & Wilson, 2006). These and other academic and social issues brought forth by transfer students have fueled institutional interest in improving both sending and receiving college experiences to facilitate greater transfer student retention and success.

College Transfer Students and Mental Illness

Though the increasing numbers of transfer students and the higher incidence of mental health challenges among students are well documented, there are only a few studies that explore college transfer students' mental health. One recent study of undergraduate students at a public university in the northeastern U.S. found that transfer students faced greater mental health challenges than nontransfer students. This study

revealed that among students seeking university-based counseling services, transfer students exhibited higher levels of depression, including hopelessness, social isolation, sadness, and crying, as well as higher levels of social anxiety, including discomfort around people, feeling judged, or disliked interpersonally than nontransfer students (Mehr & Daltry, 2016). Beiter and colleagues (2015) similarly found that transfer students were more anxious, stressed, and depressed than nontransfer students. In one large research university study, transfer students who struggled academically as indicated by GPA, and students who reported low self-concept of their intellectual ability, faced adjustment challenges (Laanan, 2007).

Mental illnesses among college students are not confined to 4-year institutions. Among community college mental health counselors, more than half reported increasing numbers of students seeking help for depression and anxiety issues, among other issues (Patel, 2015). In 2011-2012, the AACC (2015) found that about 12% of community college students reported having some type of disability. Of those students, 28% specified that the disability included mental illness or depression, which represents a six percent increase over data acquired in 2007–2008. Despite significant numbers of community college students with mental health challenges, few on-campus resources exist to serve the mental health needs of community college students. In a recent survey only 8% of community college mental health counselors reported providing on-site psychiatry, and 19% reported that no personal or mental health counseling was offered at their institutions (Patel, 2015).

These findings suggested that transfer students' academic status, college adjustment, and mental health are important aspects to consider when researching transfer student experiences. While differences in transfer students' college academic success and engagement have been addressed in the literature, few studies exist that examine mental health. To date, there are no known studies that examine transfer student status in relation to suicide risk and protective factors and suicidal behaviors. This study examines differences in prevalence of suicide ideation and attempts between transfer and nontransfer students and explored the explanatory (i.e., mediating) role of intrapersonal and social risk and protective factors.

Theory of Triadic Influence

To gain a better understanding of the phenomenon of suicidal behaviors and their associations with college students' risk and protective factors, the Theory of Triadic Influence (TTI) (Flay & Petraitis, 1994) was selected as an organizing framework. The TTI explicates the interrelationships between intrapersonal level, social level, and cultural or environmental level factors that affect health related behavior. Previous ecological theorists argued that a thorough understanding of behavior requires analysis of the broad sociocultural context in which the behavior occurs (macroenvironment) as well as the social situational factors that surround the behavior (microenvironment). Also critical is an understanding of the person-centered factors of the individual, the behavior itself, and the interaction between each of these. The TTI was developed as a metatheory to provide a roadmap of sorts among the intrapersonal level, the social level, and the cultural or environmental level factors. It includes Ajzen's (1985) Theory of Planned Behavior,

which posits that health related behaviors are guided by intentions and decisions. These health related decisions are influenced by one's attitude toward the behaviors, perceptions of self-efficacy in performing the behaviors, and social pressures to perform the behaviors. The authors of TTI took Ajzen's theory a step further to assert that attitudes, self-efficacy, and social norms represent "streams of influence" with different origins, flowing through different variables. These streams of influence affect health related decision making, both independently and in unison. Flay and Petraitis (1994) elaborate further to assert that five tiers of influence exist, within which each stream of influence flows. The top tier among the five tiers of influence represents "ultimate causes" of behavior. These root causes emerge from an individual's background and environment. The second "social-person nexus" tier represents the interaction among ultimate causes to affect an individual's social relationships, values, and sense of self. On the third "expectancy-value" tier, the social-person nexus is more specifically applied to a particular behavior, such as an individual's beliefs regarding the behavior and its consequences. The fourth "cognitive" tier includes self-efficacy, attitudes, and social normative beliefs, where all three streams of influence flow. The fifth tier, the "decision /intention to act" is determined by the fourth cognitive tier and is the final predictor of health related behavioral action. Overall, the theory accounts for the direct and indirect effects of influences as well as their interactions on health related behavior at the macro, micro, and person-centered levels (Flay & Petraitis, 1994).

Applying the TTI framework to this study facilitated categorization of suicide risk and protective factors as influences at the intrapersonal level and social level of the

theory's structure. This helped to organize the study by theoretical factors across both transfer and nontransfer students status.

CHAPTER 3

DATA AND METHODS

Dataset

Data for this study were drawn from the National College Health Assessment (NCHA), which has been administered by the American College Health Association (ACHA) each spring and fall semester since 2000. Data originate from the revised NCHA I Ib wave, which consists of surveys conducted between fall 2011 through spring 2015, and the revised NCHA I Ic wave, which consists of surveys conducted from fall 2015 onward. This study solely includes data from fall 2013, fall 2014, and fall 2015.

Restricted datasets were provided for this study upon submission of a data use request form to ACHA and receipt of a signed data use agreement. ACHA de-identified the data by institution prior to transmission. Student respondents were not identified in the data. A copy of this study's data use agreement was placed on file with the Clemson University Office of Sponsored Programs. This study was reviewed by the Clemson University Institutional Review Board and was approved for exempt status.

The Fall 2013 NCHA I Ib began with self-selection of 63 postsecondary institutions, with 34,587 surveys completed by students on these campuses. Only U.S. located institutions that surveyed all students or used a random sampling technique were included in the analysis, yielding a dataset consisting of 32,964 from 57 schools (mean response rate 20%). Fifty-three schools completed web-based surveys, while the remaining four completed the survey in paper format.

The Fall 2014 NCHA I Ib began with self-selection of 39 postsecondary institutions, with 30,517 surveys completed by students on these campuses. Using the same techniques as the Fall 2013 NCHA, a dataset consisting of 25,841 students at 34 schools (mean response rate 17%) was established. All but one school completed the web-based survey, while the remaining school completed in the survey via paper format.

The Fall 2015 NCHA I Ic began with self-selection of 47 postsecondary institutions with 22,931 web-based surveys completed by students on these campuses. Only U.S. located institutions that surveyed all students or used a random sampling technique were included in the analysis, yielding a dataset consisting of 19,861 students at 40 schools (mean response rate 15%).

Combined Datasets

Both I Ib and I Ic datasets utilized an identical self-report survey structure, with two exceptions. Survey instrument I Ic included e-cigarettes as a substance use variable; however this variable was not relevant to this study and was excluded. Dataset I Ic utilized an expanded variable set to define gender, and this variable was recoded to reflect the same measures found in dataset I Ib.

Once combined, the fall 2013, 2014, and 2015 datasets yielded participation 74,011 student respondents. Data from community colleges and other 2-year institutions were removed. Responses that indicated graduate, non-degree seeking, and other student status were removed. These modifications yielded a dataset composed of 59,887 undergraduate student respondents with 1st through 5th year enrollment status. Lastly, cases with reported ages outside of an 18 to 30 years of age range were removed, yielding

a final dataset of 56,936 undergraduate student responses between the ages of 18 and 30. Due to the repetitive nature of the ACHA-NCHA survey, which is distributed each fall and spring semester, annual samples may include repeated participation by institutions and individual student respondents over the course of the three year sampling time frame.

Survey Instrument

The NCHA survey contains items that cover demographics, social norms, mental health, health risk behaviors, and health care utilization. It has been completed by over 1.4 million students at more than 740 colleges and universities since its inception in 2000 (ACHA, 2016b).

The survey was evaluated and found to be reliable and valid using an independent triangulation method from various national resources including the CDC 1995 National College Health Risk Behavior Survey (NCHRBS); the Harvard School of Public Health 1999 College Alcohol Study (CAS); the US Department of Justice 2000 National College Women Sexual Victimization Study (NCWSV); the ACHA-NCHA 1998, Spring 1999, and Fall 1999 Pilots; and the ACHA-NCHA Spring 2000. Data were collected by sampling all or by random-sampling within institutions. While the survey is not generalizable due to the self-selection of participating institutions, the generalizability was evaluated by ACHA and found to yield comparable results with other surveys using the same population (ACHA, 2016a).

Sample

Institution Type, Size, and Setting

Using the Carnegie classification, this sample included 8,689 (15.3%) respondents attending baccalaureate colleges, 17,041 (29.9%) respondents attending masters' colleges and universities, 30,790 (54.1%) respondents attending research institutions, and 416 (.7%) respondents attending special focus institutions. By campus size, 18,511 (32.5%) respondents attended institutions of a size of 20,000 students or more, 15,890 (27.9%) attended institutions with 10,000 to 19,999 students, 9,272 (16.3%) respondents attended institutions with 5,000 to 9,999 students, and 13,263 (23.3%) respondents attended campuses with less than 5000 students. Somewhat more than half of respondents attended public institutions (32,937; 57.8%) while the remaining attended private institutions (23,999; 42.2%). Respondents attended institutions located in the Northeast region (21,767; 38.2%), the South region (18,743; 32.9%), the West region (11,633; 20.4%), and the Midwest region (4,793; 8.4%).

Campus settings varied amongst the sample, with 18,616 (32.7%) of respondents attending institutions located in large or very large cities (population 250,000 and above), 19,457 (34.2%) of respondents attending institutions located in small cities (population 50,000-249,999), and 18,863 (33.1%) of respondents attending institutions located in large towns, small towns, or rural communities (population less than 50,000). Students primarily attended non-religiously affiliated schools (48,197; 84.7%). Just 817 (1.4%) of respondents reported attending postsecondary minority institutions as defined by the U.S. Department of Education.

Sample Demographics

The resulting combined fall 2013, fall 2014, and fall 2015 sample of 56,936 students consisted of 37,818 (66.4%) females, 18,329 (32.2%) males, and 582 (1.0%) transgender. Gender status was missing in 207 cases (.3%). Respondents' ages ranged from 18 years (14,064; 24.7%), 19 years (12,146; 21.3%), 20 years (10,888; 19.1%), 21 years (9,788; 17.2%), 22 years (4,455; 7.8%), 23 years (1,895; 3.3%), and 24 to 30 years (3,700; 6.6%). The mean age of respondents was 20.12 (*SD* 2.164). Students described themselves as white (41,025; 72.1%), black or African American (4,740; 8.3%), Hispanic or Latino/a (6,706; 11.8%), Asian or Pacific Islander (6,295; 11.1%), American Indian, Alaskan Native or Native Hawaiian (1,337; 2.3%), biracial or multi-racial (2,408; 4.2%), and other (1,602; 2.8%). Most students described themselves as heterosexual (49,631; 87.2%), with 1,597 (2.8%) respondents identifying as gay or lesbian, 3,015 (5.3%) respondents identifying as bisexual, 2,421 (4.2%) respondents identifying as unsure or other, and 272 (.5%) missing data. International students comprised 6.3% of the study population, representing 3,589 respondents. Regarding student enrollment status, 54,987 (96.6%) respondents reported being full-time students while 1,828 (3.2%) respondents reported being part-time or other (121; .2% missing data). Students in this sample were enrolled as first year undergraduate students (16,763; 29.4%), second year undergraduate students (12,651; 22.2%), third year undergraduate students (13,079; 23.0%), fourth year undergraduate students (11,016; 19.3%), and fifth year or more undergraduate students (3,427; 6.0%). Most student respondents reported being single (53,775; 94.4%), while 1,946 (3.4%) respondents reported being married or partnered. Other reported categories included divorced (162; .3%), separated (51; .1%), and other (831; 1.5%), with 171 (.3%)

respondents missing data. Just over half of respondents reported not being in a relationship (32,365; 56.8%). Others reported being in a relationship but not living together (19,762; 34.7%) and being in a relationship and living together (4,693; 8.2%), with 116 (.2%) respondents missing data. Students primarily lived in campus residence halls (26,707; 46.9%) and other off campus housing (16,730; 29.47%). Other living arrangements included parent or guardian home (7,344; 12.9%), fraternity or sorority house (1,436; 2.5%), other campus housing (3,265; 5.7%), and other (1,325; 2.3%), with 129 (.2%) respondents missing data. Greek fraternity and sorority participation was reported at 7,953 (14.0%), with 260 (.5%) respondents missing data. Students' primary source of health insurance included parents' plan (43,639; 76.6%), college/university sponsored plan (6,459; 11.3%), another plan (3,988; 7.0%), no health insurance (2,012; 3.5%), and not sure if I have a plan (701; 1.2%), with 137 (.2%) missing data.

Measures

Dependent Variables: Suicidal Behaviors

Included in this analyses were three dependent variables that assessed for suicidal behaviors of ideation and attempts. The first two variables were derived from the questions, "Have you ever seriously considered suicide?" and, "Have you ever attempted suicide?" Responses choices included: 1) No, never; 2) No, not in last 12 months; 3) Yes, in the last 2 weeks; 4) Yes, in the last 30 days; and 5) Yes, in the last 12 months. To measure suicide ideation dichotomously, a new variable was computed to reflect "seriously considered suicide in the last 12 months" by combining negative responses including choices 1) and 2) as "No (0)" and affirmative response choices 3), 4), and 5) as

“Yes (1).” Suicide attempt in the last 12 months was measured by similarly combining negative (0) and affirmative (1) response choices to compute the dichotomous variable, “attempted suicide in the last 12 months.” Missing responses were removed from the analysis.

The third dependent variable was derived from the question, “Within the last 12 months, have you [seriously considered suicide] when drinking alcohol?” Response choices were 1) N/A, don’t drink; 2) No; and 3) Yes. To isolate the responses to only students that drink alcohol, the response choice “N/A, don’t drink” was removed from the analysis. Missing responses were also removed from the analysis. Negative (0) and affirmative (1) responses were included as a dichotomous dependent variable.

Demographics

Demographic questions assessed age, gender, and race. Age was limited to 18 to 30 years and was recorded as the numerical figure given in response to the question, “How old are you?” Gender was coded as Female (0), Male (1), and Transgender or Other (2). Race was coded as White (0) and Nonwhite (Hispanic or Latino/a, Asian or Pacific Islander, Black or African American, Biracial or Multiracial, American Indian, Alaskan Native, North Hawaiian, or Other (1).

Other demographics reported in this study included sexual orientation, international student status, relationship status, veteran status, and mean cumulative GPA. Sexual orientation was coded as “Heterosexual (0)” or “Bisexual, Gay, Lesbian, Unsure, and Other (1).” International student status was coded as “No (0)” or “Yes (1).” Relationship status was coded as “Not in a relationship (0)” or “In a relationship (1).” To

measure veteran status, students were asked, “Are you currently or have you been a member of the United States Armed Services (Activity Duty, Reserve, or National Guard)? Response categories included: 1) No; 2) Yes and I have deployed to an area of hazardous duty; and 3) Yes and I have not deployed to an area of hazardous duty. Responses were grouped dichotomously by “No (0)” and “Yes (1)” with categories 2) and 3) combined to create the affirmative response. To measure mean cumulative GPA, students responded to the question, “What is your approximate cumulative grade average?” by selecting a letter grade of 1) A, 2) B, 3) C, 4) D/F, or 5) N/A.

Health related demographics included willingness to seek mental health treatment and status of health insurance coverage. To measure willingness to seek mental health treatment, students were asked to respond to the question, “If in the future you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional?” Responses were reverse coded as “No (1)” and “Yes (0).” To measure health insurance coverage, students reported their primary source of health insurance as: 1) My college/university sponsored plan; 2) My parents’ plan; 3) Another plan; 4) I don’t have health insurance; and 5) I am not sure if I have health insurance. Responses were reverse coded with choices 1 through 3 recorded as “Yes (0)” and responses to choice 4 recorded as “No (1).” Responses to choice 5 (I am not sure if I have health insurance) were removed.

Primary Predictor Variable: Transfer Student Status

Transfer student status was measured by the question, “Have you transferred to this college or university within the last 12 months?” Response categories included “No (0)” and “Yes (1).”

Hypothesized Mediating Variables

Mental Health Diagnosis and Treatment. To assess mental health diagnosis and treatment primarily within the categories of depression, anxiety, and sleep disorders, students were asked whether they had received a mental health diagnosis or treatment within the last 12 months for a range of conditions. The depression category consisted of responses to two conditions labeled “Depression” and “Bipolar Disorder.” The anxiety category consisted of responses to the conditions labeled “Anxiety,” “Obsessive Compulsive Disorder,” “Panic Attacks,” and “Phobia.” The sleep disorder category consisted of responses to the conditions labeled “Insomnia” and “Other Sleep Disorder.” Response categories were collapsed into “No (0)” or “Yes (1)” responses from the following choices: 1) No; 2) Yes, diagnosed but not treated; 3) Yes, treated with medication; 4) Yes, treated with psychotherapy; 5) Yes, treated with medication and psychotherapy; and 6) Yes, other treatment. To create dichotomous variables by category, students’ negative responses included choice 1) while affirmative responses included the combined choices of 2) through 6).

To determine receipt of mental health services from a student’s current college or university, students were asked, “Have you ever received psychological or mental health services from your current college/university’s Counseling or Health Service?” Response choices reverse coded as “No (1)” or “Yes (0).”

Substance Use. To assess substance use, behaviorally specific questions about personal consumption of alcohol, marijuana, other illegal drugs, and prescription drug use (not prescribed to the student) were included. Alcohol use, marijuana use, and other drug use were measured by questions assessing the type of substance used and frequency used, such as, “Within the last 30 days, how many days did you use [type of substance]?” The survey instrument provided short definitions of substances next to each question. Response choices included: 1) Never used; 2) Have used, but not in last 30 days; 3) 1-2 days; 4) 3-5 days; 5) 6-9 days; 6) 10-19 days; 7) 20-29 days; and 8) Used daily.

To measure “Alcohol Use,” which was defined as beer, wine, or liquor, responses were recoded as: No (0); Yes, not in last 30 days (1); Yes, 1-2 days this month (2); Yes, 3-5 days this month (3); Yes, 6-9 days this month (4); and Yes, 10 days or more this month (5).

To measure “Marijuana Use,” which was defined as pot, weed, hashish, or hash oil, responses were recorded as: No (0); Yes, not in last 30 days (1); and Yes in last 30 days (2). Marijuana use was recoded as “No (0)” or “Yes (1)” by combining affirmative responses into one variable.

To measure “Other Drug Use,” the following eleven drug categories were identified as variables: 1) cocaine (crack, rock, freebase); 2) methamphetamine (crystal meth, ice, crank); 3) other amphetamines (diet pills, bennies); 4) Sedatives (downers, ludes); 5) hallucinogens (LSD, PCP); 6) anabolic steroids (testosterone); 7) opiates (heroin, smack); 8) inhalants (glue, solvents, gas); 9) MDMA (Ecstasy); 10) other club drugs (GHB, Ketamine, Rohypnol; and 11) other illegal drugs. Responses to use of any

one or more of the above listed other illegal drugs were recoded into one dichotomous “Other Drug Use” variable, with response choice 1) labeled “No (0)” and response choices 2) through 8) combined and labeled “Yes (1).”

Prescription drug use was measured by a set of dichotomous questions with the stem, “Within the last 12 months, have you taken any of the following prescription drugs that were not prescribed to you?” Prescription drug categories included: 1) antidepressants (e.g., Celexa, Lexapro, Prozac, Wellbutrin, Zoloft); 2) erectile dysfunction drugs (e.g., Viagra, Cialis, Levitra); 3) pain killers (e.g., OxyContin, Vicodin, Codeine); 4) sedatives (e.g., Xanax, Valium); and 5) stimulants (e.g., Ritalin, Adderall). Responses to use of any one or more of the above listed prescription drugs were recoded into one dichotomous “Prescription Drug Use” variable (0 = none) (1 = at least one).

Psychological Distress. Psychological distress was measured through a combination of reported intrapersonal level depressive symptoms, reports of harm to self, individual and interpersonal trauma within the last year, relationship abuse within the last year, and sexual assault within the last year. To measure “Depressive symptoms,” students were asked if they have ever: 1) Felt things were hopeless; 2) Felt overwhelmed by all you had to do; 3) Felt exhausted (not from physical activity); 4) Felt very lonely; 5) Felt very sad; 6) Felt so depressed that it was difficult to function; 7) Felt overwhelming anxiety; and 8) Felt overwhelming anger. To measure “Self-harm,” students were asked, “Have you ever intentionally cut, burned, bruised, or otherwise injured yourself?” Response choices for both depressive symptoms and self-harm questions were indicated

by time frames including: 1) No, never; 2) No, not in the last 12 months; 3) Yes, in the last two weeks; 4) Yes, in the last 30 days; and 5) Yes, in the last 12 months. No (0) responses consisted of choices 1) and 2), while Yes (1) responses combined choices 3) through 5) to create a dichotomous “Depressive symptoms” variable and a dichotomous “Self-harm” variable.

Intrapersonal and social level trauma were measured with the question, “Within the last 12 months, have any of the following been traumatic or very difficult for you to handle?” Students responded with “No (0) or “Yes (1)” to “Intrapersonal Level Trauma” variable choices including: 1) Career-related issue; 2) Finances; and 3) Personal health issue. Students similarly responded “No (0)” or “Yes (1)” to “Social Level Trauma” choices including: 1) Death of a family member or friend; 2) Family problems; 3) Intimate relationships; 4) Other social relationships; and 5) Health problem of a family member or partner.

Relationship abuse within the last 12 months was measured by asking respondents if they had been in an intimate (coupled/partnered) relationship that was: 1) Emotionally abusive (e.g., called derogatory names, yelled at, ridiculed); 2) Physically abusive (e.g., kicked, slapped, punched); and 3) Sexually abusive (e.g., forced to have sex when you didn’t want it, forced to perform or have an unwanted sex act performed on you). The three response categories were collapsed into a dichotomous “No (0) or “Yes (1)” response to measure “Relationship Abuse.”

Sexual assault within the last 12 months was measured by asking respondents the following three questions: 1) “Were you sexually touched without your consent?” 2)

“Was sexual penetration attempted (vaginal, anal, oral) without your consent?” and 3) “Were you sexually penetrated (vaginal, anal, oral) without your consent?” All three response categories were collapsed into a dichotomous “No (0) or “Yes (1)” response to measure “Sexual Assault.”

Social Connectivity. For the purposes of this study, variables representing social connectivity included indications of group participation such as fraternity or sorority membership, campus athletic participation, weekly volunteer activity, and weekly hours worked for pay. To measure fraternity or sorority membership, students were asked, “Are you a member of a social fraternity or sorority? (e.g., National Interfraternity Conference, National Panhellenic Conference, National Pan-Hellenic Council, National Association of Latino Fraternal Organizations). Response choices were reverse scored to reflect No (1) or Yes (0) for “Fraternity or Sorority Participation.” To measure athletic participation within the last 12 months, students reported whether or not they participated in organized college athletics at any of the following levels: 1) varsity athletics; 2) club sports; and 3) intramurals. Response categories were collapsed into a single category representing “Organized College Athletic Participation.” Response choices were reverse scored to reflect No (1) or Yes (0).

To measure volunteer activity, students were asked to report how many hours a week they volunteered. Response categories included: 1) 0 hours; 2) 1-9 hours; 3) 10-19 hours; 4) 20-29 hours; 5) 30-39 hours; 6) 40 hours; and 7) more than 40 hours. First, a mean number of hours volunteered per week was calculated. A new dichotomous “Volunteer” variable was then created with responses reverse coded to category 1)

representing “No Volunteer Hours (1)” and categories 2) through 7) representing “Volunteer at Least 1 Hour per Week (0).” To measure hours worked, students were asked to report how many hours a week they work for pay. Response categories mirrored the volunteer hour categories. A mean number of hours worked for pay per week was calculated. A new dichotomous “Work for Pay” variable was then created with responses reverse coded to category 1) representing “No Work Hours (1)” and categories 2) through 7) representing “Worked for Pay at Least 1 Hour per Week (0).”

Statistical Analysis

This research was based on quantitative analysis of secondary data from 56,936 undergraduate students who completed NCHA surveys fall 2013, 2014, and 2015. The purpose of this study was to investigate differences between U.S. college transfer and nontransfer students in the prevalence of suicidal behaviors, the number and degree of suicide-related risk and protective factors, and if risk and protective factors acted as mediators of transfer status and suicidal behavior association. This research hypothesized that 1) transfer students would have a higher likelihood than nontransfer students of reporting suicide attempts and ideation during the past year, and of reporting suicide ideation while drinking alcohol during the past year; 2) transfer students would report higher levels on risk factor variables and lower levels on protective factor variables than their nontransfer counterparts; and 3) transfer student status would have an indirect effect on increased risk for suicidal behavior through the mediating roles of the risk and protective factors.

Two analytical programs were used to perform statistical procedures - the Statistical Package for the Social Sciences (SPSS) for Windows and the add-on PROCESS macro for SPSS, version 2.1 (Hayes 2013; 2016). First, descriptive statistics were conducted to examine the prevalence of suicidal behaviors, as well as to examine the frequency distributions of the other study variables. Second, inferential statistical analyses, including cross tabulation and analyses of variance (ANOVA), were conducted to explore the relationship between categorical variables by percentages and means. Third, a principal component analysis was performed to determine if the variables assessing risk and protective factors could be reduced to a smaller number of constructs along intrapersonal levels and social levels of the TTI. This approach reduced the number of statistical tests and also provided for robust measurement of the risk and protective factors. Fourth, PROCESS was used to conduct mediation analyses to test the indirect associations of transfer student status with suicidality due to risk and protective factors. PROCESS is a modeling tool that uses an ordinary least squares or logistic regression-based path analytic framework for estimating direct and indirect effects in single and multiple mediator models (Hayes, 2016). The mediators were tested together in a multiple mediation model for the analyses.

To test the first hypothesis that transfer students would have a higher likelihood than nontransfer students of reporting suicide attempts and ideation during the past year and of reporting suicide ideation while drinking alcohol, a series of cross tabulations were performed. These analyses were conducted to study the bivariate associations between transfer student status and suicidal behaviors occurring within the last 12 months,

specifying suicidal attempts, suicide ideation, and suicide ideation when drinking alcohol as the outcomes.

To test the second hypothesis that transfer students would report higher levels on risk factor variables and lower levels on protective factor variables than their nontransfer counterparts, a series of cross tabulations and analyses of variance (ANOVA) were performed. These analyses were conducted to examine the bivariate associations between transfer student status and risk and protective factors including selected demographics, mental health diagnosis and treatment, substance use, psychological distress, and social connectivity.

Regarding the third hypothesis that transfer student status would have an indirect effect on increased risk for suicidal behavior through the mediating roles of the risk and protective factors, PROCESS was used to test the direct effects of transfer status on the hypothesized mediator variables, the direct effects of the risk and protective factors on suicidal behaviors, and the indirect effect of transfer status on suicidal behaviors. To address multicollinearity between the three suicidal behavior variables, each was examined using separate models and controlling for age, gender, and race. Table 1 summarizes research questions, hypotheses, and the statistical analyses that were used in this research. Figure 1 represents the hypothesized mediation model used in this research.

Table 1

Research Questions and Statistical Analyses

Research Questions and Hypotheses	Statistical Analyses	Research Variables
<p>RQ₁: What is the prevalence of suicide ideation and attempts among U.S. college transfer students in comparison to nontransfer students?</p> <p>H₁: Transfer students would have a higher likelihood than nontransfer students of reporting suicide attempts and ideation during the past year, and of reporting suicide ideation while drinking alcohol during the past year.</p>	<p>Chi-square analysis</p>	<p>Independent Variable: Transfer student status</p> <p>Dependent Variables: Suicide attempt Suicide ideation Suicide ideation while drinking</p>
<p>RQ₂: Do college transfer students exhibit differing levels of suicide-related risk factors and protective factors than college nontransfer students?</p> <p>H₂: Transfer students would report higher levels on risk factor variables and lower levels on protective factor variables than their nontransfer counterparts.</p>	<p>Chi-square analysis ANOVA</p>	<p>Independent Variable: Transfer student status</p> <p>Dependent Variables:</p> <p><i>Demographics</i> Gender Age Race Sexual orientation Year in school Enrollment status Current residence Marital status Relationship status International student status Veteran status Cumulative GPA Willingness to seek mental health Health insurance coverage</p> <p><i>Mental Health Diagnosis and Treatment</i> Anxiety Depression Sleep disorder Receipt of psychological or mental health services from current college / university</p>

Mediation Variables:

Mental health index
Psychological distress index
Substance use index
Social connectivity index

Control Variables:

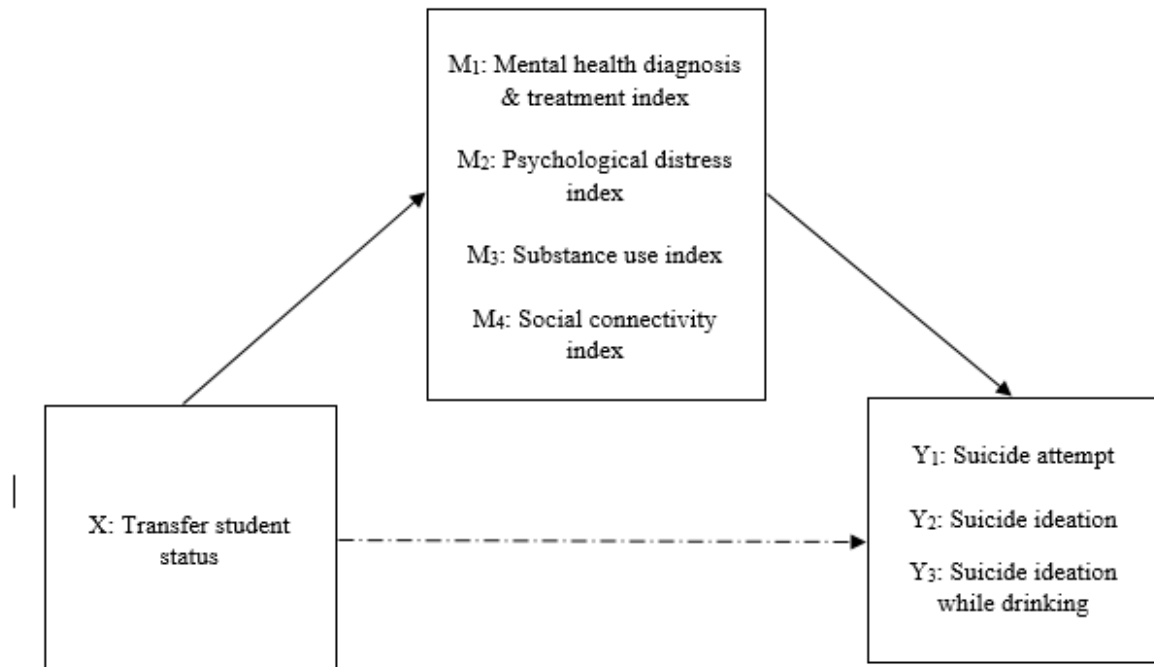
Age
Gender
Race

Dependent Variables:

Suicide attempt
Suicide ideation
Suicide ideation while drinking

Figure 1.

Hypothesized mediation model.



Note. ----- Indicates indirect effect.

CHAPTER 4

RESULTS

Dataset Preparation

Prior to addressing the research questions and testing this study's hypothesized relationships, several transformations were made to ensure the data met the necessary criteria for carrying out statistical analyses. Specifically, the transformations included cleaning the data, addressing missing values issues, and computing dichotomous variables. As transfer student status was the primary independent variable in this study, respondents that did not report on transfer status were removed from the study.

Descriptive Statistics

The total number of observations was 56,936, which represented two transfer student statuses: nontransfer student ($N = 46,908$); and transfer student ($N = 10,028$). Descriptive statistics were generated.

Demographic Characteristics

Results of demographic characteristics between transfer and nontransfer student status are shown in Table 2. Differences on demographic characteristics by transfer student status were examined using Chi-square analysis and ANOVAs. As shown in Table 2, there were significant differences for multiple demographic variables. There was a significant effect for age by transfer student status, with a higher mean age for transfer students. An examination of the data by transfer student status for race revealed significantly fewer white transfer students and significantly more transfer students that reported their race as 1) Hispanic or Latino/a, 2) Asian or Pacific Islander, 3) American

Indian, Alaskan Native, Native Hawaiian, or 4) Other. There were no significant differences in reported race by transfer student status for Black or African American as well as Biracial or Multiracial categories.

Significant differences in response to the item “year in school” were found by transfer student status, with fewer transfer students in first second, fourth, and fifth year status, but more transfer students in third year status. This result corresponds with the common trend for college students to complete their first two years at a junior college or community college, and then transfer to a 4-year institution at the start of their junior (third) year. As might be expected, significantly more transfer students were enrolled in college or university part time and fewer were enrolled full-time than nontransfer students. There were also significant differences in students’ current residence, with fewer transfer students living on campus or in fraternity or sorority houses. More transfer students reported living off campus, in parent or guardian homes, or reporting other residential arrangements. Significantly fewer transfer students were single and more transfer students were married or partnered, divorced, separated, or other. Significantly more transfer students reported being in a relationship. There were also significantly more transfer students reporting international student status or reporting veteran status than nontransfer students in either group. In terms of mean cumulative GPA and GPA by grade, there were significant differences among approximate grades. Fewer transfer students reported “A” and “C” grades and more transfer students reporting “B” grades and no GPA due to program grading protocol. There were no significant differences in terms of gender and sexual orientation.

Table 2

Demographic Characteristics of College Student Sample, Ages 18 - 30 (ACHA-NCHA IIb, Fall Semesters 2013-14 and ACHA-NCHA IIc, Fall Semester 2015)

	Nontransfer N = 46,908 % or M (SD)	Transfer N = 10,028 % or M (SD)	Total N = 56,936 % or M (SD)	X ² or F
Gender				4.82 ₁
Female	66.5	67.0	66.6	
Male	32.4	31.7	32.3	
Transgender/Other	1.1	1.3	1.1	
Mean age (18-30)	19.96 (SD = 1.99)	20.86 (SD = 2.71)	20.12 (SD = 2.16)	1447.67 ₂ ***
Race				
White	72.5	70.1	72.1	23.96 ₁ ***
Hispanic or Latino/a	11.3	13.9	11.8	54.29 ₁ ***
Asian or Pacific Islander	11.2	10.5	11.1	3.96 ₁ *
Black or African American	8.3	8.6	8.3	0.85 ₁
Biracial or multiracial	4.2	4.3	4.2	0.10 ₁
Am. Indian, Alaskan N., N. Haw.	2.3	2.7	2.3	7.83 ₁ **
Other	2.7	3.3	2.8	7.38 ₁ **
Sexual orientation				3.57 ₁
Heterosexual	87.7	87.2	87.6	
Bisexual	5.3	5.6	5.3	
Gay/lesbian	2.8	3.0	2.8	
Unsure/other	4.3	4.2	4.2	
Year in school				1085.79 ₁ ***
1 st year	30.4	24.9	29.4	
2 nd year	22.4	21.2	22.2	
3 rd year	20.4	35.1	23.0	
4 th year	20.5	13.8	19.3	
5 th year	6.2	5.1	6.0	
Enrollment status				133.41 ₁ ***
Full-time	97.2	95.0	96.8	
Part-time	2.4	4.5	2.8	
Other	0.4	0.5	0.4	
Current residence				864.50 ₁ ***
On campus housing	54.8	43.1	52.7	
Off campus housing	28.8	32.3	29.5	
Parent/guardian home	11.6	19.2	12.9	
Fraternity / sorority house	2.8	1.3	2.5	
Other	2.0	4.1	2.3	
Marital status				322.96 ₁ ***
Single	95.4	91.5	94.7	
Married/partnered	2.9	5.9	3.4	
Divorced, separated, other	1.7	2.5	1.9	

In a relationship	42.1	47.3	43.0	91.12 ₁ ***
International student status	5.0	12.4	6.3	763.30 ₁ ***
Veteran status	1.3	2.9	1.6	129.52 ₁ ***
Mean cumulative GPA	1.72	1.74	1.73	11.62 ₂ **
Approximate cumulative GPA				70.65 ₁ ***
	A	38.2	35.0	37.6
	B	47.7	49.8	48.0
	C	10.2	9.9	10.1
	D/F	0.6	0.6	0.6
	N/A	3.4	4.7	3.6

Note. $X^2 = 1$. $F = 2$

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

Analysis of Suicidal Behaviors

Research Question 1: What is the prevalence of suicide ideation and attempts among U.S. college transfer students in comparison to nontransfer students?

Results of the bivariate associations between transfer and nontransfer student status and suicide attempts and ideation variables are shown in Table 3. To determine the prevalence of suicidal ideation and attempts by transfer student status, three Chi-square analyses were performed. Though the descriptive analysis of the bivariate associations revealed slightly greater frequency of suicidal behaviors among transfer students, no statistically significant differences were found between nontransfer student and transfer student status for either suicide attempts within the last 12 months or seriously considered suicide (suicide ideation) within the last 12 months. However, there was a significant difference by transfer student status for the dependent variable, seriously considered suicide while drinking alcohol within the last 12 months. The hypothesis that transfer students would have a higher likelihood than nontransfer students of reporting suicide

attempts and ideation during the past year was not supported by the analyses. The hypothesis that transfer students would have a higher likelihood of reporting suicide ideation while drinking alcohol during the past year when compared to nontransfer students was supported.

Table 3

Bivariate Associations of Transfer Student Status and Suicide Variables

	Nontransfer % or M (SD) N = 46,908	Transfer % or M (SD) N = 10,028	Total % or M (SD) N = 56,936	X ²
Attempted suicide, last 12 months N = 56,542	1.5	1.6	1.5	.783
Seriously considered suicide, last 12 months N = 56,641	9.1	9.5	9.2	1.09
Seriously considered suicide while drinking, last 12 months N = 38,705	2.8	3.4	2.9	6.99**

** $p < .01$

Analysis of Risk and Protective Factors

Research Question 2: Do college transfer students exhibit differing levels of suicide-related risk factors and protective factors than college nontransfer students?

As noted earlier, there were significant differences by transfer student status among several risk and protective factor demographic characteristics including gender, age, race, international student status, veteran status, marital and relationship status, and GPA. This study examined differences among additional risk and protective factors beyond demographic characteristics, guided by the intrapersonal level and social level domains of the TTI framework. To determine if differing levels of intrapersonal and

social suicide-related risk protective factors by transfer student status were exhibited, a series of additional Chi-square analyses and ANOVAs were conducted. Results for health-related demographics, mental health diagnosis and treatment, psychological distress, substance use, and social connectivity are shown in Table 4.

Health-related Demographics

Two health-related demographics were analyzed to assess 1) whether or not students had health insurance coverage, and 2) students' willingness to seek mental health treatment when faced with a difficult personal problem. Significant differences were found by transfer student status for both variables. Transfer students were significantly less likely to be willing to seek mental health treatment than non-transfer students. Likewise, transfer students were significantly less likely to have health insurance coverage than non-transfer students.

Mental Health Diagnosis and Treatment

Next, four mental health diagnosis and treatment related variables were analyzed to determine if differences existed by transfer student status. Chi-square analyses revealed significant differences by transfer student status, such that transfer students reported higher frequencies of diagnosis or treatment for "anxiety," "depression," and "sleep disorder." When combined, all three mental health diagnosis or treatment variables yielded a significantly higher mean among transfer students than among nontransfer students. To determine differences by transfer student status in receipt of psychological or mental health services from one's current institution via their counseling or health

service centers, a Chi-square analysis revealed a highly significant difference in that transfer students had less frequent use of such services.

Psychological Distress

The next step was to analyze suicide risk factors related to psychological distress by transfer student status. First, several depressive symptoms including ever felt hopeless, felt overwhelmed, felt exhausted (not from physical activity), felt very lonely, felt very sad, so depressed it was difficult to function, felt overwhelming anxiety, and overwhelming anger were examined using Chi-square analyses. Significantly higher rates of depressive symptoms were found among transfer students for the variables “felt hopeless,” “felt overwhelmed,” “so depressed it was difficult to function,” and “overwhelming anger.” All other differences among depressive symptoms including “felt exhausted, not from physical activity,” “felt very lonely,” “felt very sad,” and “felt overwhelming anxiety” by transfer student status were not statistically significant. An ANOVA revealed a significantly higher mean across all depressive symptoms among transfer students. Second, intentional self-injury by transfer student status was analyzed to reveal a significant difference, with transfer students reporting a higher likelihood of self-injury.

At the traumatic experience - intrapersonal level, significantly higher rates were found among transfer students on each variable including “career related issue,” “finances,” and “personal health issue.” An ANOVA revealed a significantly higher mean across the above listed intrapersonal level variables for transfer students. At the traumatic experience – social level, significantly higher rates were found among transfer

students in each variable, including “family problems,” “intimate relationships,” and “health problem of a family member or partner.” Differences among other traumatic experience – social level variables, including “death of a family member or friend” and “other social relationships” were not significant. An ANOVA revealed a significantly higher mean across the above listed social level variables for transfer students.

Intimate relationship abuse and sexual assault risk factor variables were examined using Chi-square analyses. Significant results for relationship abuse within the last 12 months were found, which revealed higher prevalence of relationship abuse among transfer students. Significant results for sexual assault within the last 12 months were also found, though transfer students’ reported experience of sexual assault was less prevalent than nontransfer students’ reported experience.

Substance Use

Next, substance use by transfer student status and type of substance was analyzed. Chi-square analyses revealed significant differences by each type of substance, including alcohol, marijuana, other illegal drugs, and prescription drugs. Transfer students exhibited significantly fewer numbers of alcohol drinks during their most recent experience and significantly less use of marijuana in the last 30 days. Transfer students’ reported lifetime use of marijuana was not significantly different than that of nontransfer students. Use of other illegal drugs was significant by transfer student status, with higher reported use by transfer students than nontransfer students. Use of prescription drugs that were not prescribed to the student was also significantly higher for transfer students than nontransfer students.

Social Connectivity

The fourth set of variables analyzed included protective factors from the social level domain of TTI. There were significant differences found on all four protective factor variables. The Chi-square analyses revealed that transfer students were less frequently involved in fraternity or sorority membership and had less participation in campus athletics. ANOVAs revealed significantly less mean volunteer hours spent per week among transfer students and significantly more mean hours worked for pay per week among transfer students.

The hypothesis that transfer students will report higher levels on risk factor variables and lower levels on protective factor variables than their nontransfer counterparts was supported overall, with a few exceptions. Descriptive analyses revealed that transfer students had a smaller mean number of alcohol drinks during the most recent experience than nontransfer students. They also reported less frequent use of marijuana within the last 30 days. Transfer students worked more mean hours for pay per week, although it was unclear whether this variable is truly a measure of social connectivity or whether it may also be related to other issues, such as more frequent experience of financial trauma. Results of the bivariate associations of selected risk and protective factor variables with transfer and nontransfer student status are shown in Table 4.

Table 4

<i>Bivariate Associations of Selected NCHA Risk and Protective Variables with Transfer Student Status</i>				
	Nontransfer % or M (SD) N = 46,908	Transfer % or M (SD) N = 10,028	Total % or M (SD) N = 56,936	X ² or F
Health-related demographics				
Do not have health insurance ϕ	3.1	5.9	3.6	177.60 ₁ ***
Willing to seek mental health treatment ϕ	72.3	70.9	72.1	8.05 ₁ **
Mental health diagnosis and treatment				
Diagnosis or treatment, last 12 months	.318 (.718)	.363 (.774)	.326 (.729)	31.89 ₂ ***
Anxiety				
Depression	15.5	16.9	15.7	12.24 ₁ ***
Sleep disorder	11.7	13.7	12.1	30.80 ₁ ***
	4.6	5.9	4.8	28.17 ₁ ***
Received psychological / mental health services from current institution's counseling or health service, ever ϕ	16.9	10.6	15.8	240.07 ₁ ***
Psychological distress				
Depressive symptoms	5.83 (2.58)	5.91 (2.60)	5.84 (2.58)	9.37 ₂ **
Felt hopeless	66.1	68.7	66.6	23.33 ₁ ***
Felt overwhelmed	90.7	89.7	90.5	9.20 ₁ **
Felt exhausted, not physical activity	87.5	87.1	87.4	1.71 ₁
Felt very lonely	77.0	77.8	77.1	3.25 ₁
Felt very sad	79.2	79.8	79.3	1.64 ₁
So depressed, difficult to function	53.9	57.2	54.5	34.53 ₁ ***
Overwhelming anxiety	68.5	69.5	68.6	3.74 ₁
Overwhelming anger	59.6	62.0	60.0	20.69 ₁ ***
Intentional self-injury (cut, burned, bruised, other)	19.2	20.8	19.5	12.98 ₁ ***
Traumatic / very difficult to handle, last 12 months – intrapersonal level	.220 (.414)	.244 (.429)	.225 (.417)	25.79 ₂ ***
Career related issue	22.0	24.4	22.4	25.78 ₁ ***
Finances	32.4	39.9	33.7	203.63 ₁ ***
Personal health issue	19.4	21.8	19.8	28.23 ₁ ***
Traumatic / very difficult to handle, last 12 months – social level	.579 (.494)	.600 (.490)	.583 (.493)	14.69 ₂ ***
Death of family member or friend	15.5	16.1	15.6	2.39 ₁
Family problems	27.9	31.0	28.5	37.81 ₁ ***
Intimate relationships	30.2	32.6	30.6	21.24 ₁ ***
Other social relationships	26.5	26.8	26.5	0.64 ₁

Health problem of family member or partner	18.7	20.8	19.1	22.10 ₁ ***
Intimate relationship abuse, last 12 months	9.5	11.1	9.8	25.40 ₁ ***
Sexual assault, last 12 months ϕ	8.9	7.8	8.7	13.10 ₁ ***
Substance use				
Number of alcohol drinks, most recent experience ϕ	3.24 (3.82)	3.09 (3.66)	3.22 (3.79)	21.74 ₂ ***
Used marijuana ever	36.0	36.1	36.0	.048
Used marijuana but not in last 30 days	18.2	19.4	18.4	11.57 ₁ **
Used marijuana in last 30 days	17.8	16.7	17.6	
Used other illegal drug(s), ever	13.7	15.5	14.1	20.15 ₁ ***
Used prescription drug(s) (not prescribed), last 12 months	11.8	12.7	12.0	5.66 ₁ *
Social connectivity				
Fraternity / sorority member	14.7	11.0	14.0	95.19 ₁ ***
Campus athletic participation	33.6	24.1	31.9	341.92 ₁ ***
Mean volunteer hours per week	1.45 (.660)	1.37 (.633)	1.44 (.656)	122.53 ₂ ***
Mean paid hours worked per week ϕ	2.07 (1.32)	2.23 (.1.51)	2.10 (1.36)	114.41 ₂ ***

Note. $X^2 = 1$, $F = 2$. ϕ = Not included in PROCESS mediation analyses.

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

Mediation Analyses

Research Question 3: Does transfer student status have an indirect effect on increased risk for suicidal behaviors through the mediating roles of the risk and protective factors?

Principal Component Analysis

To begin investigation of research question three, principal component analysis (PCA) was used to locate underlying dimensions of risk and protective factors in preparation for PROCESS mediation analyses. Varimax (Kaiser, 1958), an orthogonal method of rotation, was selected to maximize the variance of factor loadings, with

Eigenvalue set at 1. Initially, 20 variables were included in the PCA model to explore relationships between variables and to identify distinct risk and protective factor dimensions; 14 variables were retained for the final model. Each item included in the analysis loaded onto one of four factor dimensions with a correlation of .30 or above, with the exception of the intentional self-injury variable which loaded on two of the four factor dimensions above .30. The health-related demographics - health insurance coverage and willingness to seek mental health treatment - did not theoretically contribute to the following four factor solution, and were thus removed from the PCA. Table 5 demonstrates the factor solution that emerged after running the analysis.

Factor 1: Mental Health Diagnosis or Treatment. Suicidal behavior risk factor items that loaded highly together on the first factor included anxiety, depression, sleep disorder, intentional self-injury, and receipt of psychological or mental health services from current institution's counseling or health services. Self-injury was removed from factor 1 due to its higher loading on factor 2. Though the variable "receipt of psychological or mental health services..." loaded on the first factor, it was removed from the PCA model due to concerns over potential differences in accessibility between transfer and nontransfer students (transfer students would have attended their current institution for less time than nontransfer students), which may have skewed results. The remaining three variables were characterized as "mental health diagnosis or treatment."

Factor 2: Psychological Distress. Items loading on the second factor, characterized as "psychological distress," included depressive symptoms, self-injury, traumatic experience - intrapersonal level, traumatic experience – social level, intimate

relationship abuse, and sexual assault. Sexual assault was removed from the second factor due to significantly fewer transfer students reporting sexual assault within the last 12 months in comparison to nontransfer students.

Factor 3: Substance Use. Items that loaded highly together on the third factor included number of alcohol drinks during most recent experience, marijuana use (ever), other illegal drug use, and prescription drug use (not prescribed). The variable, “Number of alcohol drinks...” was removed from the third factor due to concerns that this variable did not assess high-risk drinking because transfer students reported drinking significantly fewer alcohol drinks during their most recent experience in comparison to nontransfer students. It is notable that although there were no significant differences in use of marijuana ever by transfer student status, fewer transfer students reported using marijuana within the last 30 days. The variable “marijuana use, ever” was retained within factor 3 along with drug use and prescription drug use. Together these three items were characterized as “substance use.”

Factor 4: Social Connectivity. Finally, social connectivity related variables including fraternity or sorority membership, campus athletic participation, weekly volunteer participation, and paid hours worked per week loaded together on the fourth factor. The variable “paid hours worked per week” was removed from the analysis due to concerns that this variable, which had a significantly higher mean among transfer students, may be more of an indication of other issues, e.g., financial, than a strong indicator for social connectivity. Therefore, the remaining three items were characterized as “social connectivity.”

Table 5

Principal Components Analysis, Rotated Component Matrix

		Component 1	Component 2	Component 3	Component 4
Mental health diagnosis or treatment	Anxiety	.811	.150	.051	-.001
	Depression	.816	.182	.078	.028
	Sleep disorder	.681	.012	.056	-.002
Psychological distress	Depressive symptoms	.180	.725	.096	.084
	Self-injury	.319	.424	.169	.113
	Traumatic experience – intrapersonal level	-.023	.603	-.006	.004
	Traumatic experience – social level	.058	.750	.043	-.007
	Intimate relationship abuse	.083	.374	.131	-.036
Substance use	Marijuana	.024	.129	.737	-.038
	Other illegal drugs	.080	.099	.791	.019
	Prescription drugs	.097	.081	.685	-.055
Social connectivity	Fraternity / sorority membership	-.031	.014	-.135	.695
	Campus athletic participation	.074	.163	-.083	.516
	Volunteer participation	-.014	-.151	.184	.687

Note. Rotation method is Varimax with Kaiser Normalization. Rotation converged in 4 iterations.

Index Development

In this study, PCA was employed primarily to locate and confirm suspected underlying dimensions of risk and protective factors in preparation for PROCESS mediation analyses. Four indexes that combined the corresponding variables were computed. All indexes correlated with each other at acceptable levels. See Table 6 for a list of selected variables by index. See Table 7 for index correlations.

Table 6

Risk and Protective Factor Indexes based on PCA

Index 1: Mental health diagnosis and treatment	Anxiety Depression Sleep disorder
Index 2: Psychological distress	Depressive symptoms Intentional self-injury Traumatic experience – intrapersonal level Traumatic experience – social level Intimate relationship abuse
Index 3: Substance use	Marijuana use (ever) Illegal drug use Prescription drug use (not prescribed)
Index 4: Social connectivity	Fraternity / sorority membership Campus athletic participation Volunteer participation

Table 7

Pearson Correlations (r) Between Indexes

		Index 1: Mental health	Index 2: Psychological distress	Index 3: Substance use	Index 4: Social connectivity
Index 1: Mental health	r Sig. (2-tailed) N	1 55,769			
Index 2: Psychological distress	r Sig. (2-tailed) N	.321** .000 53,855	1 54,766		
Index 3: Substance use	r Sig. (2-tailed) N	.187** .000 53,976	.231** .000 53,049	1 54,986	
Index 4: Social connectivity	r Sig. (2-tailed) N	.037** .000 54,922	.061** .000 53,951	-.023** .000 54,158	1 56,022

** Correlation is significant at the 0.01 level (2-tailed).

PROCESS Mediation Analyses

Several analyses were conducted to test the mediation effects of each individual and combined index on the three outcome variables of suicide attempt, suicide ideation, and suicide ideation while drinking by transfer student status while controlling for gender, age, and race. Because the results of testing by individual index on each outcome were nearly identical to results of testing indexes together on each outcome, this analyses included all four indexes in each of the three PROCESS mediation models for more parsimonious analyses. Across all models, transfer student status predicted significantly higher levels of mental health diagnosis and treatment ($b = .028, SE = .009, t = 3.24, p < .01$), significantly higher levels of psychological distress ($b = .083, SE = .037, t = 2.23, p < .05$), and significantly lower levels of social connectivity among transfer students ($b = .176, SE = .010, t = 18.0, p < .001$). These figures were derived from model 1, with similar figures for model 2 and 3, affected only slightly by sample size per model. Transfer student status did not significantly predict higher levels of substance use in any model. Additionally, no significant direct effect on suicide attempt, suicide ideation, and suicide ideation while drinking by transfer student status was found in models 1, 2 or 3.

Model 1: Suicide Attempt. Higher levels of suicide attempts were prospectively predicted by mental health diagnosis and treatment ($b = .602, SE = .035, z = 17.30, p < .001$), substance use, ($b = .127, SE = .038, z = 3.37, p < .001$) and psychological distress ($b = .789, SE = .034, z = 22.94, p < .001$). Social connectivity did not predict significant differences.

Examining the indirect effects revealed support for the mediating role of the mental health diagnosis and treatment index and the psychological distress index in the associations between transfer student status and suicide attempt. Bias-corrected bootstrap confidence intervals (CI) for the indirect effects of mental health diagnosis and treatment on suicide attempt (*coefficient* = .017, CI = .005, .029) and psychological distress on suicide attempt (*coefficient* = .065, CI = .011, .130) were above zero, indicating that the mental health diagnosis and treatment index and the psychological distress index had indirect effects on suicide attempt due to their mediating roles. The substance use index and the social connectivity index did not have indirect effects on suicide attempt. The results of the mediation analysis for suicide attempt are displayed in Table 8.

Table 8

Model Coefficients for Testing Mediators for Transfer Status on Suicide Attempts

Model 1 N = 50,625	Transfer status (X)			Suicide attempt (Y)		
	Coeff	SE or 95% CI	<i>t</i>	Coeff	SE or 95% CI	<i>z</i>
Direct effect of Transfer Status (X) on Y				-.021	.102	
Direct effect of X on M						
Index 1: Mental health (M)	.028	.009**	3.24			
Index 2: Psychological distress (M)	.083	.037*	2.23			
Index 3: Substance use (M)	-.012	.010	-1.11			
Index 4: Social connectivity (M)	.176	.010***	18.0			
Direct effect of M on Y						
Index 1: Mental health (M)				.602	.035***	17.30
Index 2: Psychological distress (M)				.789	.034***	22.94
Index 3: Substance use (M)				.127	.038***	3.37
Index 4: Social connectivity (M)				-.020	.047	-4.30
Indirect effect of X on Y thru M						
Index 1: Mental health (M)				.017 (.005, .029)*		
Index 2: Psychological distress (M)				.065 (.011, .130)*		
Index 3: Substance use (M)				-.002 (-.005, .001)		
Index 4: Social connectivity (M)				-.004 (-.020, .013)		

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

Model 2: Suicide Ideation. All mediation indexes prospectively predicted significantly higher levels of suicide ideation: mental health diagnosis and treatment ($b = .471, SE = .018, z = 26.84, p < .001$), substance use, ($b = .090, SE = .018, z = 5.05, p < .001$), psychological distress ($b = .708, SE = .014, z = 50.92, p < .001$), and social connectivity ($b = .116, SE = .022, z = 5.39, p < .001$).

Analyses of the second model revealed support for the mediating role of the mental health diagnosis and treatment index, the psychological distress index, and the social connectivity index in the associations between transfer student status and suicide ideation. Bias-corrected bootstrap confidence intervals (CI) for the indirect effects of mental health diagnosis and treatment on suicide ideation ($coefficient = .013, CI = .004, .021$), psychological distress on suicide ideation ($coefficient = .057, CI = .004, .105$), and social connectivity on suicide ideation ($coefficient = .020, CI = .013, .029$) were above zero, indicating that these three indexes had indirect effects on suicide ideation due to their mediating roles. The substance use index did not have an indirect effect on suicide ideation. The results of the mediation analysis for suicide ideation are displayed in Table 9.

Table 9

Model Coefficients for Testing Mediators for Transfer Status on Suicide Ideation

Model 2 N = 50,708	Transfer status (X)			Suicide ideation (Y)		
	Coeff	SE or 95% CI	t	Coeff	SE or 95% CI	z
Direct effect of Transfer Status (X) on Y				-.021	.045	
Direct effect of X on M						
Index 1: Mental health (M)	.027	.009**	3.14			
Index 2: Psychological distress (M)	.080	.037*	2.16			
Index 3: Substance use (M)	-.012	.010	-1.19			
Index 4: Social connectivity (M)	.176	.010***	18.0			
Direct effect of M on Y						
Index 1: Mental health (M)				.471	.018***	26.84
Index 2: Psychological distress (M)				.708	.014***	50.92
Index 3: Substance use (M)				.090	.018***	5.05
Index 4: Social connectivity (M)				.116	.022***	5.39
Indirect effect of X on Y thru M						
Index 1: Mental health (M)				.013	(.004, .021)*	
Index 2: Psychological distress (M)				.057	(.004, .105)*	
Index 3: Substance use (M)				-.001	(-.003, .001)	
Index 4: Social connectivity (M)				.020	(.013, .029)*	

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

Model 3: Suicide Ideation While Drinking. Mental health diagnosis and treatment ($b = .397$, $SE = .031$, $z = 12.78$, $p < .001$), substance use, ($b = .375$, $SE = .032$, $z = 11.71$, $p < .001$) and psychological distress ($b = .696$, $SE = .028$, $z = 24.57$, $p < .001$) prospectively predicted significantly higher levels of suicide ideation while drinking. Social connectivity did not predict significant differences.

An examination of the indirect effects of model 3 revealed support for the mediating role of the mental health diagnosis and treatment index and the psychological distress index in the associations between transfer student status and suicide ideation while drinking. Bias-corrected bootstrap confidence intervals (CI) for the indirect effects of mental health diagnosis and treatment on suicide ideation while drinking (*coefficient* = .014, CI = .006, .025) and psychological distress on suicide ideation while drinking (*coefficient* = .098, CI = .035, .160) were above zero, indicating that the mental health diagnosis and treatment index as well as the psychological distress index significantly accounted for the association between transfer student status and suicide ideation while drinking. The substance use index and the social connectivity index did not significantly account for the association between transfer student status and suicide ideation while drinking. The results of the mediation analysis for suicide ideation while drinking are displayed in Table 10.

Table 10

Model Coefficients for Testing Mediators for Transfer Status on Suicide Ideation While Drinking

Model 3	Transfer status (X)			Suicide ideation while drinking (Y)		
N = 35,819	Coeff	SE or 95% CI	<i>t</i>	Coeff	SE or 95% CI	<i>z</i>
Direct effect of Transfer Status (X) on Y				.083	.085	
Direct effect of X on M						
Index 1: Mental health (M)	.036	.011***	3.42			
Index 2: Psychological distress (M)	.141	.043***	3.31			
Index 3: Substance use (M)	.003	.013	.240			
Index 4: Social connectivity (M)	.206	.012***	17.30			
Direct effect of M on Y						
Index 1: Mental health (M)				.397	.031***	12.78
Index 2: Psychological distress (M)				.696	.028***	24.57
Index 3: Substance use (M)				.375	.032***	11.71
Index 4: Social connectivity (M)				-.000	.040	-.009
Indirect effect of X on Y thru M						
Index 1: Mental health (M)				.014 (.006, .025)*		
Index 2: Psychological distress (M)				.098 (.035, .160)*		
Index 3: Substance use (M)				.001 (-.008, .012)		
Index 4: Social connectivity (M)				-.000 (-.016, .017)		

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

The results of the PROCESS mediation analyses generally supported the hypothesis that transfer student status would have an indirect effect on increased risk for suicidal behaviors through the mediating roles of the risk and protective factors. Strong support for the hypothesis on all three suicidal behavior outcomes was found for the mental health diagnosis and treatment index as well as the psychological distress index.

While transfer student status significantly affected the social connectivity index, there were mixed results for the direct and indirect effects of the social connectivity index on suicidal behavior outcomes. The social connectivity index predicted significantly higher levels of suicide ideation and significantly accounted for the association between transfer student status and suicide ideation while drinking. All other social connectivity direct and indirect effects were not significant.

No direct effect was found for transfer student status on the substance use index. However, the substance use index predicted significantly higher levels of suicide attempt, suicide ideation, and suicide ideation while drinking. The substance use index did not account for the association between transfer student status and any suicidal behavior outcome.

CHAPTER 5

DISCUSSION

Summary and Analysis of Findings

Research Question One

Research question one asked, “What is the prevalence of suicidal ideation and attempts among U.S. college transfer students in comparison to nontransfer students?” The hypothesis that transfer students would have a higher likelihood than nontransfer students of reporting suicide attempts and ideation during the past year, and of reporting suicide ideation while drinking alcohol during the past year was only partially supported. Results of this study showed a significant bivariate association between suicide ideation while drinking and transfer student status, with transfer students exhibiting greater prevalence of suicide ideation while drinking. However, no bivariate significant associations between suicide attempt or suicide ideation and transfer student status were found.

Research Question Two

This study helped to provide insight into the second research question, “Do college transfer students exhibit differing levels of suicide-related risk factors and protective factors than college nontransfer students?” With the exception of certain demographic characteristics such as sexual orientation and gender, the hypothesis that transfer students would report higher levels on risk factor variables and lower levels on protective factor variables than their nontransfer counterparts was supported. This study showed that transfer students as a group exhibited significantly more demographic-based

risk factors than nontransfer students such as racial minority status, international student status, and veteran status. This finding is not surprising, as community colleges are recognized as the primary point of college entry for students from culturally diverse backgrounds (Blaylock & Bresciani, 2011). Among health-related demographics, significantly fewer transfer students than nontransfer students carried health insurance coverage. This finding is in line with the fact that part-time students, older college students, minority students, and students with lower family incomes are more likely to be uninsured than traditional college students (Redden, 2008). Additionally, transfer students were generally less willing to seek mental health treatment for a serious personal problem than non-transfer students. This finding could potentially be related to lesser rates of health insurance coverage among transfer students as well as other potential barriers to treatment-seeking such as financial concerns, cultural issues, lack of awareness of campus resources, or lack of time.

When exploring risk factors pertaining to mental health, transfer students generally exhibited significantly greater frequency of diagnosis and treatment for anxiety, depression, and sleep disorders. While diagnosis and treatment may be considered protective factors when treatment is appropriately maintained, the dataset selected for this study only explored the occurrence of mental health diagnosis and treatment. Thus, these conditions are considered risk factors for the purpose of this study. Though transfer students received fewer psychological and mental health services from their current institutions' counseling or health services, confounding factors such as length of enrollment time at one's current institution may affect the validity of this item.

This study revealed significantly higher levels of psychological distress-related risk factors experienced by transfer students, especially across depressive symptoms and particularly with regard to feeling hopeless, feeling overwhelmed, feeling so depressed it was difficult to function, and feeling overwhelming anger. Transfer students as a group exhibited a significantly higher incidence of intentional self-injury than nontransfer students. They also appear to have faced a significantly greater frequency of traumatic experiences that were very difficult to handle during the 12 month periods preceding data collection, both at the intrapersonal level and social level. At the intrapersonal level, transfer students experienced greater frequency of career-related issues, financial issues, and personal health issues than nontransfer students. At the social level, transfer students faced a greater frequency of family problems, intimate relationship problems, and health problems of family members or partners. Transfer students as a group reported a significantly higher incidence of intimate relationship abuse but a significantly lower incidence of sexual assault during the year prior to data collection when compared to nontransfer students. This finding may be correlated with demographic differences by transfer student status, e.g., transfer students are more frequently married, in relationships, live off campus, and live with parents or guardians.

There were limited findings in terms of frequency of substance use, especially recent use. Transfer students as a group drank fewer alcohol drinks during their most recent drinking experience than nontransfer students, and they used marijuana less as a group during the 30 day period prior to data collection. However, there were no significant differences by transfer student status in marijuana use ever. Transfer students

as a group more frequently used other illegal drugs than nontransfer students during their lifetimes, but the instrument did not collect data pertaining to illegal drug use by time frame, which may have limited the relevance of this item. A significant difference by transfer student status was found for prescription drug use (not prescribed to the student), with transfer student use being more frequent than nontransfer students overall.

Transfer students generally reported significantly less campus-based social connectivity, an important protective factor for suicide, than nontransfer students. They reported being less involved in fraternity or sorority membership, less frequent participation in campus athletics, and volunteered less frequently than nontransfer students. This finding is in line with studies that show lesser involvement in campus-based social activities among transfer students (D'Amico et al., 2014; Lester, Brown, & Mathias, 2013; Townsend & Wilson, 2009). Transfer students reported a significantly higher mean number of hours worked for pay per week, which is consistent with other findings on transfer student employment status (Mehr & Daltry, 2016). Based on the TTI, the variable "hours worked" was initially categorized as a social influence, but while this finding loaded slightly above .30 onto the social connectivity factor 4 during the initial PCA, it was removed from the selected PCA model and subsequent mediation analyses. The removal of paid work hours from the social connectivity index was based theoretically on the item's potential relationship with other demographics or suicide risk factors such as such as part-time enrollment status, lower GPA, financial stress, or feeling overwhelmed by all one had to do.

Research Question Three

Research question three asked, “Does transfer student status have an indirect effect on increased risk for suicidal behaviors through the mediating roles of the risk and protective factors?” The results of this study generally supported the hypothesis that transfer student status would have an indirect effect on increased risk for suicidal behaviors through the mediating roles of the risk and protective factors. Results regarding the mental health diagnosis and treatment index as well as psychological distress index were supported, with transfer student status having significant direct effects. Both indexes also significantly predicted suicide attempt, suicide ideation, and suicide ideation while drinking. Both mental health and psychological distress indexes had significant indirect effects on all three suicidal behavior outcomes.

Results were nuanced for the substance use index and the social connectivity index. The direct effect of transfer student status on the substance use index was not significant. While the substance use index significantly predicted suicide attempt, suicide ideation, and suicide ideation while drinking, it did not have significant indirect effects on any suicidal behavior outcome. The direct effect of transfer student status on the social connectivity index was significant, and there was a significant association between social connectivity and suicide ideation. As hypothesized, the social connectivity index accounted for the indirect effect of transfer student status on suicide ideation. However, the social connectivity index had no direct or indirect effect on suicide attempt or suicide ideation while drinking. It may be that transfer students interpret social connectivity differently than non-transfer students, as transfer students are more likely to be engaged

in socio-academic connections (D'Amico et al., 2014). Unfortunately, this study did not include socio-academic influences when testing for social connectivity.

Limitations

The nature of secondary data analysis, while providing strong reliability, validity, and a robust sample size, served the primary limitation to this study due to the inability to craft survey items specific to the aims of this study. For example, previous research on transfer student acculturation has shown social connectivity to be an important protective factor in positive adjustment to a new campus environment, and that transfer students often make social connections in the classroom (Townsend & Wilson, 2006). However, the ACHA-NCHA instrument used in this study contained few variables measuring social connectivity and no variables measuring socio-academic connections. The lack of robust social connectivity measures likely exerted a negative impact on the validity of the social connectivity index.

This study was also limited by variables pertaining to mental health treatment, in that there were no items assessing treatment maintenance. Therefore, mental health treatment maintenance could not be considered as a protective factor among the subset of students that reported mental health diagnosis and treatment. There was only one question measuring lifetime receipt of psychological and mental health services from students' counseling or health services at their current institution. Because this item asked solely about respondents' experience with their current institution and did not include length of time since enrollment, comparisons of mental health service utilization by transfer student status could not be considered as valid.

There were also complications pertaining to substance use questions including measurement of lifetime illegal drug use rather than use by recent time frame, which may have limited the relevance of this item.

Perhaps most importantly, this study was limited by the inclusion of just one transfer student status item measuring transfer within the last 12 months. This study would have benefited from the inclusion of additional transfer student status questions measuring length of time at current institution by year, number of transfers made during pursuit of undergraduate education, length of time since beginning undergraduate studies, and characteristics of institutions from which students transferred, e.g., community college, technical school, or other 4-year or above institution.

Other limitations of this study included the overrepresentation of female respondents (66.6% in this study compared to 56% of 4-year college enrollment in 2014) (NCES, 2016c) and white student respondents (72.1% in this study compared to 61.8% of 4-year college enrollments in 2014) (NCES, 2015) when compared to demographics of the baccalaureate degree seeking population. Despite the limitations inherent in use of secondary data sources, the large sample size proved to be a substantial benefit in that most studies on suicidal behaviors contain small numbers of reports of suicide ideation and attempt (Nock, 2008). As this study is one of the first to explore suicidal behaviors by transfer student status, it serves an exploratory function that can contribute to continuing conversations about college transfer student mental health status.

Implications

With over 40% of college students attending more than one institution while pursuing a 4-year degree, college transfer students represent a sizeable population of students from diverse backgrounds (Strempel, 2013). Their success is integral to the success of higher education institutions and society as a whole, and should be recognized as such. While first year students and transfer students face the most evident college adjustment difficulties (Lee et al., 2009), the findings in this study and other studies on the transfer student experience illustrate the different types and frequencies of stressors that transfer students confront.

College Transfer Students and Mental Health

Recent research examining mental health among college students to include transfer student status as a subgroup found higher incidence of mental health challenges among transfer students when compared to nontransfer students (Beiter et al., 2015; Mehr & Daltry, 2016). Beiter et al. (2015) found that transfer students exhibited higher levels of anxiety, stress, and depression than nontransfer students, with significant differences in anxiety levels. Mehr and Daltry (2016) compared students seeking counseling services by transfer student status, and found significantly higher levels of depression, social anxiety, academic distress, family distress, and general distress, leading the authors to suggest a higher prevalence of mental health distress among transfer students.

Unfortunately, there has been a lack of research on the mental health of transfer students (Beiter et al., 2015; Laanan, 1996).

This study sought to expand the literature on mental health and transfer students status, particularly regarding suicidal behaviors, and found that transfer students

exhibited significantly greater prevalence of mental health diagnosis and treatment for anxiety, depression, and sleep disorders. In addition, the mental health diagnosis and treatment index significantly predicted suicide attempt, suicide ideation, and suicide ideation while drinking, and had significant indirect effects on all three suicidal behavior outcomes. These results suggest that transfer students experience higher rates of mental health distress.

Institutions should take steps to proactively address mental health needs among college students, with special attention paid to the needs of transfer students. Outreach to transfer students should be intentional to ensure students are aware of available mental health resources. Outreach to students can begin at the sending institution, with information sharing about mental health services available at both the sending and receiving institutions. Information about student health insurance and student health service use should be clearly and thoughtfully provided. Stigma concerning receipt of mental health services should be addressed head on in a sustained manner to normalize services and improve students' willingness to seek services if and when needed. Issues pertaining to mental health service access, such as facility location, counselor availability, hours of operation, and variety of services (individual, group, online screening, and online counseling) should be thoroughly examined with input from transfer students. Much can be learned through focus groups and direct interaction with transfer students regarding mental health service access and use, which can guide adjustments by campus administrators and staff.

Campus mental health staff can be trained for greater awareness of the different stressors faced by many transfer students. They can be equipped to provide appropriate techniques for delivering care to this special at-risk population. Campus efforts to normalize and promote mental health through student-led organizations such as Healthy Minds chapters, psychology clubs, public health clubs, and suicide prevention and awareness programs should incorporate outreach to transfer students as well as involvement by transfer students. The special concerns of sub-populations of transfer students, such as international students and students with veteran status, should be examined to ensure mental health care access and utilization is taking place appropriately (SPRC, 2004). Overall, campus administrators and faculty can look for ways to support transfer students as a unique group to ensure this population's mental health needs are addressed.

College Transfer Students and Psychological Distress

Existing literature on transfer students suggests that psychological distress can be heightened from the experience of transfer adjustment issues (Beiter et al., 2015; Lee et al., 2009; Mehr & Daltry, 2016). Transfer students may experience frustration, financial stress, and psychological stress when coursework is not accepted by receiving institutions (Townsend, 2008). Previous qualitative studies among transfer students have identified that these students seek specific resources from both 2-year sending colleges and 4-year receiving colleges (Ellis, 2013; Nuñez & Yoshimi, 2016; Townsend, 2008). First, they want to ensure that their earned college credits will transfer to the receiving institution. They view credits that do not transfer as a highly distressing waste of time, money, and

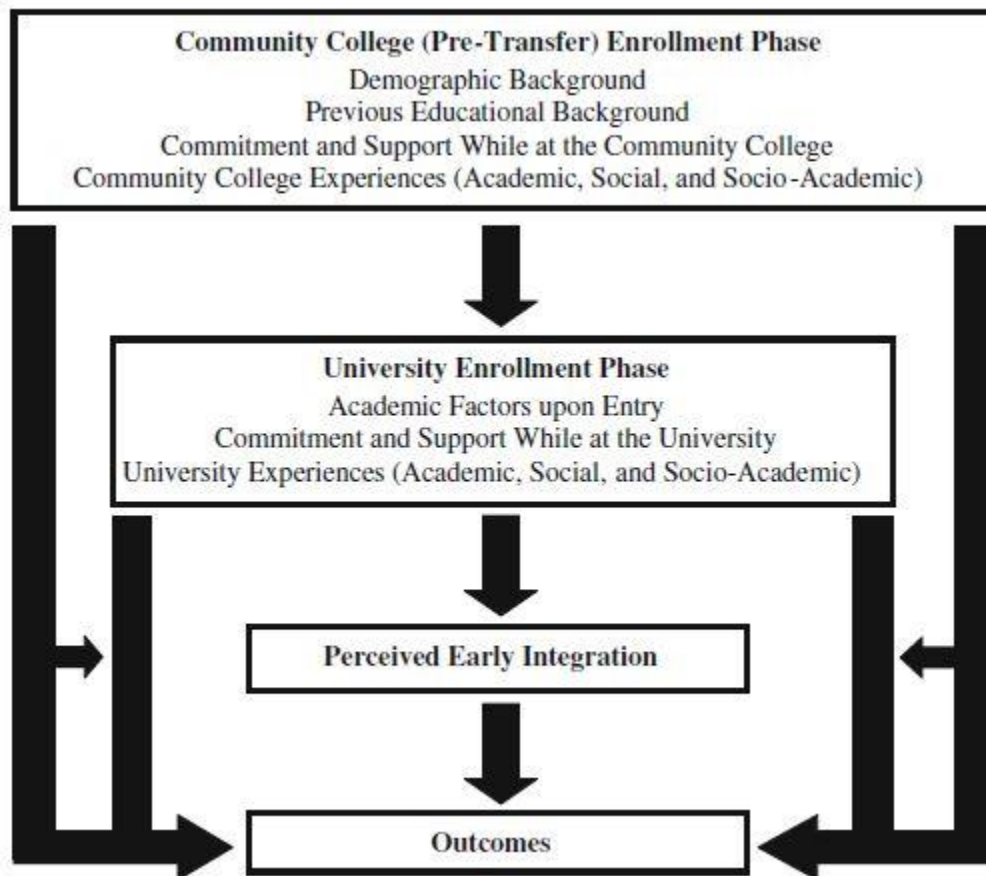
effort (Ellis, 2013). Transfer students seek clear and accurate admissions instructions and information about the transfer process. Many students select their 4-year institution based on their intended academic major, so it is important that they know in advance which courses will help them prepare for and advance toward their intended degree. They desire precise academic advising on both general education and major requirements in order to transfer in an efficient and cost-effective manner because they are often balancing home, employment, and community responsibilities that slow progress toward degree completion (Blaylock & Bresciani, 2011; Eggleston & Laanan, 2001; Ellis, 2013; Jain et al., 2011; Rhine et al., 2000; Townsend, 2008). Relatedly, financial literacy and financial aid information are also priorities among transfer students, who may have enrolled in 2-year institutions to save on college costs and who may be financing their own education (Blaylock & Bresciani, 2011; Eggleston & Laanan, 2001; Rhine et al., 2000; Townsend, 2008).

Informed by transfer student-centered research, more attention has been paid to the responsibilities of both sending and receiving institutions in fostering improved transitions among transfer students in the recent past. D'Amico et al. (2014) recommend that 4-year university entry should not be considered the starting point for interventions meant to improve transfer student success. The authors expanded on Tinto's (1993) Longitudinal Model of Institutional Departure to include influential factors at the community college level. Figure 2 illustrates the revised model that includes student goals and commitments, academic and social experiences, and pre-entry attributes to college. Two-year and 4-year institutions must work together collaboratively beyond the

confines of admissions offices to include campuses in their entirety, whereby institutions consider the effects of existing programs on transfer students (Jain et al., 2011). By improving the transfer process, the psychological stressors related to risk factors may be lessened among transfer students.

Figure 2

Revised conceptual framework for the future study of community college transfer students, developed by D'Amico et al., 2014.



Community colleges, as sending institutions, are responsible for normalizing the transfer function so that all students who seek to transfer can do so (Ornelas & Solórzano, 2004). Laanan (1996) suggests that community colleges offer workshops focusing on the skills and information necessary for successful transfer, and that these workshops feature former community college students that can serve as role models. Other strategies include early identification of transfer students via application forms, followed by separate orientations that advise students of GPA requirements to transfer as well as the potential for transfer shock. Advanced preparation helps students become psychologically ready for 4-year institutional environments (Rhine et al., 2000). Community college advisors should be well-versed in the requirements at common receiving institutions. Relationship development between advisors at both sending and receiving institutions can foster improved knowledge and information sharing that benefit community college students' successful transfer (College Board, 2011; Rhine et al., 2000).

The concept of a transfer receptive culture has gained traction in recent years. Jain et al. (2011) define transfer receptive culture as “an institutional commitment by a 4-year college or university to provide the support needed for students to transfer successfully – that is, to navigate the community college, take the appropriate coursework, apply, enroll, and successfully earn a baccalaureate degree in a timely manner.” Such a culture shift requires an overall shift in mindset related to transfer students and an institution-wide commitment toward their success. Transfer students can be viewed as succeeding “because” they are transfer students, not “despite” being transfer students (Jain et al., 2011). This motivated group of students brings a wealth of positive attributes to the 4-

year institution and should be recognized and assisted in successful completion by greater attunement to their needs, permeating throughout higher educational culture (Blalock & Bresciani, 2011; College Board, 2011; D'Amico et al., 2014; Ellis, 2013; Jain et al., 2011; Strempele, 2013). At the same time, they continue to require the attention and services typically provided to first year students. A College Board (2011) survey of higher education leaders employed with leading receiving institutions recommended that 4-year colleges and universities monitor and assess the transfer student experience just as they would monitor and assess the first-year student experience, and that orientation programs should address the unique needs and concerns of transfer students. They suggest offering transition courses for transfer students, developing a campus transfer center to facilitate peer relationships and access to the larger campus community, developing transfer peer mentoring programs, and reserving transfer student housing on or near campus to help facilitate campus integration (College Board, 2011).

To be sure, academic support is of great importance to transfer student success, and improved social support builds protective factors that help insulate students from suicide related risk factors. At the same time, transfer student success also requires a balancing of other elements that support students' mental health, reduce psychological and situational risk factors, and build students' protective mechanisms.

This study produced findings consistent with previous literature that transfer students face greater levels of psychological distress, particularly across depressive symptoms with regard to feeling hopeless, feeling overwhelmed, feeling so depressed it was difficult to function, and feeling overwhelming anger. There was a significantly

higher incidence of intentional self-injury among transfer students when compared to nontransfer students. They reported a significantly greater prevalence of recent traumatic experiences that were very difficult to handle at the intrapersonal level and social level, including greater prevalence of career-related issues, financial issues, and personal health issues, family problems, intimate relationship problems, and health problems of family members or partners. In addition, the psychological distress index significantly predicted suicide attempt, suicide ideation, and suicide ideation while drinking, and had significant indirect effects on all three suicidal behavior outcomes.

In line with recommendations for improving awareness and access to campus mental health services, institutions can improve communications with transfer students to learn more about the intrapersonal and social psychological stressors they face. Focus groups and informal conversations with transfer students can help administrators better understand how to support students as they balance work, school, financial, and family responsibilities.

Transfer students are often self-reliant in finding information and are heavy users of college websites as information sources. They seek information on how to navigate their new college environment, including access to college campus-based resources. It is incumbent upon sending and receiving institutions that informational resources be kept up to date, and that staff be well versed in changes that affect transfer students (Ellis, 2013; Nuñez & Yoshimi, 2016; Townsend, 2008). By providing better access and accurate information about college financial costs, academic requirements, and student

resources, transfer students may experience less confusion, frustration, lack of familiarity with the institution, and associated stress.

College Transfer Students and Substance Use

None of the literature examined for this study identified significant differences by transfer student status in relation to substance misuse. This research found only slight differences in substance use by transfer status. While substance use was found to have a direct effect on suicide ideation, suicide attempt, and suicide ideation while drinking, there were no mediating effects found on suicidal behaviors by transfer status.

Substance misuse among the college student population at large remains a concerning topic, especially in the area of alcohol use. Alcohol use by college students is associated with risky behaviors and poor health outcomes (Hingson, Heeren, Winter, & Wechsler, 2005). Regarding suicidal behaviors, there is a well-established link between substance misuse and suicide risk (Dvorak, Lamis, & Malone, 2013; Miller, Mahler, & Gold, 1991). Brownson et al. (2016) conducted a study of students that had attempted suicide and found that 53% were using drugs or alcohol before or during their suicide attempt, and that 85% stated the use was related to their attempt. Such reports are of great concern to campus leaders and have prompted development of campus-based interventions to decrease substance use and increase healthier coping strategies (Blanco et al., 2008). Such interventions and outreach efforts to reduce substance misuse should be preventive and proactive in nature (Brownson et al., 2016).

College Transfer Students and Social Connectivity

Transfer students have different social connectivity needs than nontransfer students. Previous studies have shown lesser involvement in campus-based social activities (D'Amico et al., 2014; Ishanti & McKittrick, 2010; Lester, Brown, & Mathias, 2013; Townsend & Wilson, 2009) and lower levels of social connectivity (Laanan, 2007; Mehr & Daltry, 2016; Townsend & Wilson, 2006) among transfer students when compared to nontransfer students. Transfer students also attend college on a part-time basis more frequently and work more hours in paid employment than nontransfer students (Mehr & Daltry, 2016). These studies suggest that transfer students may experience lesser socially based protective factors. However, D'Amico and colleagues (2014) suggest that transfer students may make important social connections through their academic activities, which may be a proxy for more traditional college-based social involvement.

This study found significantly less campus-based social connectivity among transfer students than among nontransfer students, including less involvement in fraternity or sorority membership and less frequent participation in campus athletics. Transfer students also volunteered less frequently than nontransfer students and worked more hours for pay per week, which is consistent with other findings on transfer student employment status (Mehr & Daltry, 2016). The direct effect of transfer student status on the social connectivity index was significant. Regarding suicidal behaviors, this study found a significant association between social connectivity and suicide ideation but no significant association between social connectivity and suicide attempt or suicide ideation while drinking. Though the social connectivity index accounted for the indirect effect of

transfer student status on suicide ideation, it did not have an indirect effect on suicide attempt or suicide ideation while drinking.

To understand aspects of social connection among transfer students, one must first understand that while these students are new to the receiving college environment, unlike other first-year college students they are already accustomed to some aspects of college and academic life. Thus, transfer students do not want to be grouped with first year college students socially, because they see their experience level and priorities to be different from this relatively younger group of students (Townsend, 2008). Transfer students seek their own “space” to connect with other transfer students in order to develop peer friendships. This may include their own transfer-specific orientations, development of physical space, and targeted social events and opportunities (Ellis, 2013; Jain et al., 2011). Townsend (2006) found that transfer students that are housed on campus preferred housing assignments with other transfer students rather than placement with first year college students. Reasons cited included different priorities toward socializing and academics among transfer students, who are typically older and closer to completing their educational degrees.

Many institutions with significant transfer student populations have established transfer student success programming to help students acclimate to their new environment. Programming often includes dedicated transfer student orientation sessions and follow-up activities. Summer institutes and short introductory courses are other methods leveraged by 4-year institutions to enhance the success and integration of transfer students early on. Ongoing activities established within institutions include

dedicated transfer student offices that provide advising, guidance, and regular communications through multiple sources to engage transfer students. Some colleges have experimented with living and learning communities for transfer students, including bridge programming that intentionally develops transfer relationships between sending and receiving institutions and enrolled students. D'Amico et al. (2014) suggest that stronger connections forged through bridge program participation have helped prospective transfer students build greater levels of preparation and integration needed for success at receiving institutions.

Some receiving institutions have developed mentoring programs that connect new transfer students with experienced transfer students that have navigated the system and can offer pertinent direction and advice. Others have developed transfer student councils to ensure that transfer student concerns are voiced in student government. Programming focused on assisting transfer students to develop social connections while considering their unique time constraints may be another effective way to improve transfer students' level of adjustment to their new campus environment, and ultimately their success as students (College Board, 2011). One large southeastern university established a buddy program for campus involvement, where transfer (or other) students can be paired with an experienced, involved student to explore membership in campus organizations. This program encourages students to get involved in groups on campus that suit their interests while at the same time making socially-based student connections (Clemson University Student Affairs, N.D.).

Transfer students seek opportunities to make connections with faculty, and they look for socio-academic ways to do so (D’Amico et al., 2014; Ellis, 2013; Nuñez & Yoshimi, 2016). Students expressed that open access to community college faculty was a positive factor in their 2-year college experience and often lamented that faculty at 4-year institutions seem detached from aiding in their success (Davies & Casey, 1999). Cejda (1997) suggested that faculty and administrators at 4-year institutions may view transfer students as “academically suspect,” though more recent research has identified improvements in institutional views of transfer students (College Board, 2011). Ultimately, transfer students that transition from smaller, student-focused community college settings to larger research-focused university settings find that they must adjust their expectations and seek out relationships with faculty. Ellis (2013) reported that transfer students exhibit strong agency by reaching out to faculty, and that they desire more opportunity to interact with faculty in classroom, laboratory, and research settings. Despite efforts, transfer students often experience difficulty making connections with faculty (D’Amico et al., 2014). These challenges can be contributing factors to transfer students’ lesser experience of socially based protective factors.

To help facilitate these important relationships, receiving institutions can make it a priority for faculty to connect with transfer students in a socio-academic environment. Transfer student programs can reach out to faculty as well as administrators and staff by involving them in programming or inviting them to present on relevant transfer-relevant topics. Faculty can be encouraged to reach out directly to transfer students to show care and to invite their participation in academic activities. Making faculty aware of the social

challenges faced by many transfer students may help spur on efforts to improve transfer students' impressions and experiences.

Overall, transfer students may be managing a diverse combination of stressors involving mental health, psychological distress, and social connections that can impact academic performance and healthy adjustment within the university setting. These factors may contribute to transfer students' greater experience of intrapersonal suicide risk factors and lesser experience of social suicide protective factors, which were shown to have a mediating effect on suicidal behaviors for some students.

Future Research

The findings of this study may serve as a launching point for further exploration of suicide risk and protective factors by transfer student status. The unique stressors faced by transfer students could be investigated in greater detail to gain a clearer understanding of their nature and relationship with suicidal ideation and attempts. Future research on factors affecting transfer students' reluctance to seek mental health treatment and their lesser use of on-campus psychological and mental health services compared to nontransfer students could provide valuable insight into alleviating barriers and increasing help-seeking behaviors. It is possible that transfer students' mental health service use at 4-year receiving institutions may be influenced by their previous 2-year sending institutions' mental health environment, where fewer college insurance programs and counseling services are provided and more students are uninsured when compared to 4-year institutions (EAB, 2016; Lederman, 2013; Patel, 2015).

Recent mental health surveys among community college students found that community college students between ages 18 and 24 reported high levels of depression symptoms (40%) and anxiety symptoms (33%), with 23% reporting frequent, severe signs of depression compared to 11% of 4-year college students (EAB, 2016). Despite higher rates of mental health concerns among community college students than 4-year college students, only limited mental health resources are available at community colleges. Even with recent growth in services, just 14% of community colleges offer on-site psychiatry resources, and most community college mental health counselors are also tasked with academic and career counseling responsibilities (Lederman, 2013). These factors, compounded by transfer students' lesser familiarity with receiving institutions' mental health resources, may influence help seeking behavior at receiving institutions. This study's findings that transfer students are more distressed about their own health conditions and the health conditions of family and friends may also be connected and merits further inquiry.

Transfer students increased experience of risk factors involving intimate relationship abuse or distress, as well as distress related to family relationships may merit further research. At the same time, transfer students' relationships may prove to be important protective factors. The relational issues impacting transfer students' mental health could be studied to determine better ways to leverage family in transfer students' success.

The financial pressures faced by transfer students, and their propensity to work more hours for pay, could merit additional research attention to better understand how

financial stress may impact students' mental health and suicidal behaviors. These pressures may play a role in types and levels of social connectivity among transfer students.

A broader understanding of transfer students' levels of social connectivity within their new campus environment, as well as with non-campus affiliated social connections, could build upon important protective factor research to lessen the experience of suicidal behaviors. Prior to transfer, community college students primarily connect with their campus community while attending classes, and this trend appears to continue among transfer students at their receiving institutions, at least to some degree. D'Amico et al. (2014) found that transfer students tend to value campus connections related to their academic areas of study, such as participation in study groups, research with faculty, and academic student clubs. Further research could more clearly identify the social interactions that serve as protective factors among transfer students to guide college and university programs and policies.

Studies utilizing secondary data could be of particular benefit if data sources were to incorporate more items pertaining to transfer student status. For example, the ACHA-NCHA instrument used in this study only assessed whether the student had transferred or not within the last 12 months. If the ACHA-NCHA were to include an item that measured length of time since the students' transfer to their current institution, then use of campus-based mental health services by transfer status could be more clearly identified. Inclusion of items that measure the number of transfers per respondent, the reasons for transfers, and transfer trajectory (2-year to 4-year, 4-year to 4-year, or 4-year to 2-year) could be

useful in identifying the types of stressors that interfere with college retention and degree attainment among transfer students.

Another potentially rich source for research transfer student status and mental health includes the CCMH Standardized Data Set (SDS), which is collected every few years and focuses on students that have visited campus counseling and psychological services centers at least once prior to data collection. The latest CCMH SDS includes data from 139 colleges and universities and 100,736 students. Though this instrument is comprehensive in its mental health coverage, it only asks one transfer student status item, “Did you transfer from another campus/institution to this school?” Questions expanding on transfer student status could surely enhance options for research in this area if they were added to the instrument.

A comprehensive source for data on college student suicide was produced in 2006 and again in 2011 by the Research Consortium, which is affiliated with the University of Texas Counseling and Mental Health Center. The 2011 report entitled, “Survey of Distress, Suicidality, and Student Coping” named as its objectives, “A) to confirm findings related to the continuum of suicidal thinking in college students, B) to understand student stressors, attitudes, and coping behaviors related to a recent stressful period, and C) to gain insight into students’ utilization of resources and help-seeking behaviors.” This dataset included participation by 74 U.S. colleges and universities and 26,000 students. Though questions were asked about other student characteristics such as international student status and veteran status, there were no questions pertaining to transfer student

status. Should this a new version of this report be produced, inclusion of items measuring transfer student status would be important to this line of research.

Secondary data studies that focus solely on transfer students' college experience could benefit from inclusion of mental health related variables. Improvements in transfer student policies and programs have often resulted from research that specifically asked transfer students to share their feedback, input, and suggestions (Blalock & Bresciani, 2011; Ellis, 2012; Townsend, 2008). Rich data regarding risk and protective factors among transfer students could help colleges and universities continue build effective mental health components within their transfer student programming.

In addition to secondary data research, and primary data collection methods should be employed to expand knowledge of suicidal risk and protective factors by transfer student status.

Though primary data on suicidal behaviors has been historically difficult to obtain due to low base rate and motivation to conceal these behaviors (Nock, 2008), the ability to develop specific lines of questions that delve into transfer students' experience of risk and protective factors, as well as suicidal behaviors, would be greatly enhanced and could reveal new information.

Future research could benefit from the use of focus groups for input on provision of university-based services. A focus group study by Ellis (2013) revealed transfer students' feelings regarding the academic changes they faced, the behaviors they felt were necessary for success, and how colleges can improve the transfer student experience. A similar format could be utilized to better understand transfer students'

awareness, access, and use of university-based services and activities including mental health services, transfer student programming, and student organizational involvement.

Conclusion

The purpose of this study was to investigate suicidal behaviors by transfer student status, with special attention paid to the risk and protective factors that transfer students experience at a greater frequency than nontransfer students. Previous research related to suicidal behaviors and risk and protective factors among college students has shown that certain student populations may be at greater risk for suicide. Yet while some research exists on transfer students and mental health, most transfer student research has focused on academic issues and to a lesser degree on social adjustment issues. Existing research supports lower levels of social connection and higher mental health issues among transfer students; yet, this population has not been widely recognized as an at-risk population in relation to suicide ideation and attempts.

By using the TTI (Flay & Petraitis, 1994) as an organizing framework, this study explored relationships between transfer students and intrapersonal level risk factors as well as social level protective factors. While data did not fully support a direct relationship between transfer student status and suicide ideation and attempts, this research uncovered significant differences among demographics and risk and protective factors by transfer student status. Specifically, this research found that transfer students experience higher frequencies of risk factors associated with mental health diagnosis and treatment, higher frequencies of risk factors associated with psychological distress, and lower frequencies of protective factors associated with social connectivity. Findings also

suggest that mental health diagnosis and treatment, psychological distress, and to a lesser degree social connectivity mediate the relationship between transfer student status and suicide ideation and attempts.

This study benefits from the established validity and reliability of the ACHA-NCHA dataset and with the large sample size drawn from three recent, combined datasets. However, since no other known research exists that explores transfer student status and suicidal behaviors, it is difficult to know whether or not the results are isolated. While the current study extends the body of research on transfer students as a demographic group, much more research is needed to gain a better understanding of the mental health and well-being of transfer students.

Though this study was limited by the constraints of secondary data, it may serve as a launching point for future primary data studies on transfer student status and mental health, particularly risk and protective factors associated with suicide ideation and suicide attempt. It may also serve to encourage producers of secondary data to consider including additional survey items that can facilitate the assessment of transfer student status in relation to mental health. College and university programs should consider including transfer students as a special at-risk population when developing and implementing mental health policies and programming, including suicide prevention and awareness programming. Finally, mental health staff, administrators, and faculty should be attuned to the unique stressors faced by many college transfer students, so that mental health and socially based interventions may be tailored to their needs at the intrapersonal and social levels.

APPENDIX

Crisis and Suicide Prevention Resources

For Emergency


Dial 911. If you are concerned about immediate self-harm or harm to someone else, emergency services should be accessed. Call 911.

Clemson University Resources

1. Clemson University Campus Police at 864-656-2222
2. Clemson University Counseling and Psychological Services (CAPS)
864-656-2451: During business hours
864-656-2222: After-hours psychological emergency (CUPD – Ask for CAPS counselor on call)
3. Clemson University Tigers Together To Stop Suicide:
<https://www.clemson.edu/suicideprevention>

Hotlines

There are several hotlines that provide trained staff or volunteers who can help you talk or text about your concerns and feelings.



National Suicide Prevention LifeLine
1-800-273-TALK (8255)
TTY equipment: 1.800.799.4TTY (779-4889)
Over 150 languages offered
<http://suicidepreventionlifeline.org>



Mental Health America Greenville Crisis Line
864-271-8888
<http://www.mhagc.org>



National Hopeline Network
1.800.SUICIDE (784.2433)
<http://www.hopeline.com>

Text Line



Crisis Text Line
Text "Tigers" to 741-741
Free, Confidential, 24/7
<http://www.crisistextline.org>

Chat Line



Suicide Prevention Lifeline Chat

<http://www.suicidepreventionlifeline.org/GetHelp/LifelineChat.aspx>

REFERENCES

- American Association of Community Colleges. (2016). 2016 *fact sheet*. Retrieved from <http://www.aacc.nche.edu/AboutCC/Documents/AACCFactSheetsR2.pdf>
- American Association of Community Colleges. (2015). *Data points: Among four-year college students, 2011-2012*. Retrieved from <http://www.aacc.nche.edu/Publications/datapoints/Pages/default.aspx>
- American Association of Community Colleges. (2015). *Data points: Diverse disabilities*. Retrieved from http://www.aacc.nche.edu/Publications/datapoints/Documents/DiverseDisabl_MD.pdf
- American College Health Association National College Health Assessment. (2016a). *Generalizability, reliability, and validity analysis*. Retrieved from <http://www.acha-ncha.org/grvanalysis.html>
- American College Health Association National College Health Assessment. (2016b). *Participation history*. Retrieved from http://www.acha-ncha.org/partic_history.html
- Ajzen, I. (1985). From intentions to action: A theory of planned behavior. Kuhl & Beckman (Eds.), Heidelberg, Germany: Springer.
- Beautrais, A. L., Joyce, P. R., & Mulder, R. T. (1997). Precipitating factors and life events in serious suicide attempts among youths aged 13 through 24 years. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36(11), 1543-1551. [https://doi.org/10.1016/S0890-8567\(09\)66563-1](https://doi.org/10.1016/S0890-8567(09)66563-1)

- Beck, A. T., Brown, G., Berchick, R. J., Stewart, B. L., & Steer, R. A. (2006). Relationship between hopelessness and ultimate suicide: A replication with psychiatric outpatients. *Focus*, 4(2). 291-296.
<http://dx.doi.org/10.1176/foc.4.2.291>
- Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders*, 173, 90-96.
doi: 10.1016/j.jad.2014.10.054
- Berkner, L., He, S., Mason, M., & Wheelless, S. (2007). *Persistence and attainment of 2003–04 beginning postsecondary students: After three years (NCES 2007-169)*. National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. Retrieved from
<http://nces.ed.gov/pubsearch>.
- Blaylock, R. S., Bresciani, M. J. (2011). Exploring the success of transfer programs for community college students. *Research & Practice in Assessment*, 6, 43-61.
- Blanco, C., Okuda, M., Wright, C., Hasin, D. S., Grant, B. F., Liu, S., Olfson, M. (2008). Mental health of college students and their non-college-attending peers: Results from the national epidemiologic study on alcohol and related conditions. *Arch Gen Psychiatry*, 65(12), 1429-1437. doi:10.1001/archpsyc.65.12.1429
- Blosnich, J., & Bossarte, R. (2012). Drivers of disparity: differences in socially based risk factors of self-injurious and suicidal behaviors among sexual minority college students. *Journal of American College Health*, 60(2), 141-149.

- Blumenthal, S. J. (1988). Suicide: a guide to risk factors, assessment, and treatment of suicidal patients. *Medical Clinics of North America*, 72(4), 937-971.
- Brownson, C., Drum, D. J., Swanbrow Becker, M. A., Saathoff, A., & Hentschel, E. (2016). Distress and suicidality in higher education: implications for population-oriented prevention paradigms. *Journal of College Student Psychotherapy*, 30(2), 98-113.
- Cejda, B. D. (1997). An examination of transfer shock in academic disciplines. *Community College Journal of Research and Practice*, 21, 279-288.
- Center for Collegiate Mental Health. (2015). *2015 annual report* (Annual Report). University Park, PA: Penn State University. Retrieved from <http://ccmh.psu.edu/ccaps-instruments/>
- Centers for Disease Control and Prevention. (2013). *Web-based injury statistics query and reporting system (WISQARS)*. National Center for Injury Prevention and Control. Retrieved from <https://www.cdc.gov/injury/wisqars/>
- Centers for Disease Control and Prevention. (2015). *10 leading causes of death by age group, United States – 2015*. National Center for Injury Prevention and Control. Retrieved from https://www.cdc.gov/injury/wisqars/pdf/leading_causes_of_death_by_age_group_2015-a.pdf
- Centers for Disease Control and Prevention. (2016a). *Definitions: Self-directed violence*. National Center for Injury Prevention and Control. Retrieved from <http://www.cdc.gov/violenceprevention/suicide/definitions.html>

- Centers for Disease Control and Prevention. (2016b). *Suicide: Risk and protective factors*. National Center for Injury Prevention and Control. Retrieved from <https://www.cdc.gov/violenceprevention/suicide/riskprotectivefactors.html>
- Clemson University Student Affairs. (N.D.). *Tiger quest buddies*. Retrieved at <http://www.clemson.edu/studentaffairs/invitations/tiger-quest-buddies/>
- College Board. (2011). *Improving student transfer from community colleges to four-year institutions: The perspective of leaders from baccalaureate-granting institutions*. New York City: Stephen J. Handel. Retrieved from http://www.jkcf.org/assets/1/7/Perspective_of_Leaders_of_Four-Year_institutions.pdf
- D'Amico, M. M., Dika, S. L., Elling, T. W., Algozzine, B., & Ginn, D. J. (2014). Early integration and other outcomes for community college transfer students. *Research in Higher Education, 55*, 370-399. doi:10.1007/s11162-013-9316-5
- Davies, T. G., & Casey, K. (1999). Transfer student experiences: Comparing their academic and social lives at the community college and university. *College Student Journal, 33*, 60-71.
- De Luca, S. M., Franklin, C., Yueqi, Y., Johnson, S., & Brownson, C. (2016). The relationship between suicide ideation, behavioral health, and college academic performance. *Community Mental Health Journal, 52*, 534-540. doi:10.1007/s10597-016-9987-4

- DeLeo, D., Bertolote, J., & Lester, D. (2002). Self-directed violence. Chapter 7. In E. G. Krug, L. L. Dahlberg, J. A. Mercy, A. Zwi, & R. Lozano (Eds.), *World report on violence and health* (183-212). Geneva: World Health Organization. Retrieved from http://www.who.int/violence_injury_prevention/violence/global_campaign/en/chap7.pdf
- Drum, D. J., Brownson, C., Burton Denmark, A., & Smith, S. E. (2009). New data on the nature of suicidal crises in college students: Shifting the paradigm. *Professional Psychology: Research and Practice*, *40*(3), 213-222. doi:10.1037/a0014465; 10.1037/a0014465.supp (Supplemental)
- Dvorak, R. D., Lamis, D. A., & Malone, P. S. (2013). Alcohol use, depressive symptoms, and impulsivity as risk factors for suicide proneness among college students. *Journal of affective disorders*, *149*(1), 326-334.
- EAB. (2016). *Survey: 49% of community college students report symptoms of mental health illnesses*. Retrieved from <https://www.eab.com/daily-briefing/2016/03/16/survey-49-percent-of-community-college-students-report-symptoms-of-mental-health-illnesses>
- Eggleston, L. E., & Laanan, F. S. (2001). Making the transition to the senior institution. *New Directions for Community Colleges*, *2001*(114), 87-97. doi:10.1002/cc.23
- Ellis, M. M. (2013). Successful community college transfer students speak out. *Community College Journal of Research and Practice*, *37*(2), 73-84. doi:10.1080/10668920903304914

- Flay, B. R., & Petraitis, J. (1994). The Theory of Triadic Influence: A new theory of health behavior with implications for preventive interventions. *Advances in Medical Sociology, IV*, 19-44.
- Gallagher, R. P. (2015). National survey of college counseling centers 2014. [Project report.]. The International Association of Counseling Services (IACS). Retrieved from http://d-scholarship.pitt.edu/28178/1/survey_2014.pdf
- Gould, M. S., Greenberg, T., Velting, D. M., & Shaffer, D. (2003). Youth suicide risk and preventive interventions: A review of the past 10 years. *American Academy of Child and Adolescent Psychiatry, 42*(4), 386-405.
doi:10.1097/01.CHI.0000046821.95464.CF
- Haas, A. P., Hendin, H., & Mann, J. J. (2003). Suicide in college students. *American Behavioral Scientist, 46*(9), 1224-1240. doi:10.1177/0002764202250666
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hayes, A. F. (2016). The PROCESS macro for SPSS and SAS. Retrieved from <http://www.processmacro.org>
- Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *The Journal of Experimental Education, 33*(3), 201-215.
<http://www.jstor.org.libproxy.clemson.edu/stable/20156766>
- Hilton, S. C., Fellingham, G. W., & Lyon, J. L. (2002). Suicide rates and religious commitment in young adult males in Utah. *American journal of epidemiology, 155*(5), 413-419. <https://doi.org/10.1093/aje/155.5.413>

- Hingson, R., Heeren, T., Winter, M., Wechsler, H. (2005). Magnitude of alcohol-related mortality and morbidity among US college students ages 18-24: Changes from 1998 to 2001. *Annual Review of Public Health*, 26. 259- 279.
doi:10.1146/annurev.publhealth.26.021304.144652
- Ishitani, T. T., & McKittrick, S. A. (2010). After transfer: The engagement of community college students at a four-year collegiate institution. *Community College Journal of Research and Practice*, 34(7), 576-594. doi:10.1080/10668920701831522
- Jain, D., Herrera, A., Bernal, S., & Solorzano, D. (2011). Critical race theory and the transfer function: Introducing a transfer receptive culture. *Community College Journal of Research and Practice*, 35(3), 252-266.
doi:10.1080/10668926.2011.526525
- Jenkins, D., & Fink, J. (2015). *What we know about transfer*. New York, NY: Columbia University, Teachers College, Community College Research Center. Retrieved from <http://ccrc.tc.columbia.edu/media/k2/attachments/what-we-know-about-transfer.pdf>
- Kerr, D., Ding, K., Burke, A., & Ott-Walter, K. (2015). An alcohol, tobacco, and other drug use comparison of lesbian, bisexual, and heterosexual undergraduate women. *Substance Use & Misuse*, 50(3), 340-349. doi:10.3109/10826084.2014.980954
- Kisch, J., Leino, E. V., & Silverman, M. M. (2005). Aspects of suicidal behavior, depression, and treatment in college students: Results from the spring 2000 national college health assessment survey. *Suicide and Life-Threatening Behavior*, 35(1), 3-13. doi:10.1521/suli.35.1.3.59263

- Laanan, F. S. (1996). Making the transition: Understanding the adjustment process of community college transfer students. *Community College Review*, 23(4), 69-84.
- Lederman, D. (2013). Community college counseling gains. Inside Higher Ed. Retrieved from <https://www.insidehighered.com/news/2013/06/18/survey-shows-growth-counseling-services-2-year-colleges>
- Lee, D., Olson, E. A., Locke, B., Michelson, S. T., & Odes, E. (2009). The effects of college counseling services on academic performance and retention. *Journal of College Student Development*, 50(3), 305-319. <https://doi.org/10.1353/csd.0.0071>
- Lester, J., Brown Leonard, J., & Mathias, D. (2013). Transfer student engagement: Blurring of social and academic engagement. *Community College Review*, 41(3), 202-222.
- Mazza, J. J. (2000). The relationship between posttraumatic stress symptomatology and suicidal behavior in school-based adolescents. *Suicide and Life-Threatening Behavior*, 30(2), 91-103.
- McLean, J., Maxwell, M., Platt, S., Harris, F., and Jepson, R. (2008). *Risk and protective factors for suicide and suicidal behaviour: A literature review*. Edinburgh: Scottish Government Social Research. Retrieved from <http://www.gov.scot/Publications/2008/11/28141444/0>
- Mehr, K. E., & Daltry, R. (2016). Examining mental health differences between transfer and nontransfer university students seeking counseling services. *Journal of College Student Psychotherapy*, 30(2), 146-155.
doi:10.1080/87568225.2016.1140996

Miller, N. S., Mahler, J. C., & Gold, M. S. (1991). Suicide risk associated with drug and alcohol dependence. *Journal of addictive diseases, 10*(3), 49-61.

http://dx.doi.org/10.1300/J069v10n03_06

National Alliance on Mental Illness. (2012). *College students speak: A survey report on mental health*. Retrieved from https://www.nami.org/getattachment/About-NAMI/Publications-Reports/Survey-Reports/College-Students-Speak_A-Survey-Report-on-Mental-Health-NAMI-2012.pdf

National Center for Education Statistics. (2016a). *Fast facts: Enrollment*. Retrieved from <http://nces.ed.gov/fastfacts/display.asp?id=98>

National Center for Education Statistics. (2016b). *Table 105.20. Enrollment in elementary, secondary, and degree-granting postsecondary institutions, by level and control of institution, enrollment level, and attendance status and sex of student: Selected years, fall 1990 through fall 2025*. Retrieved from http://nces.ed.gov/programs/digest/d15/tables/dt15_105.20.asp?current=yes

National Center for Education Statistics. (2016c). *Undergraduate enrollment*. Retrieved from http://nces.ed.gov/programs/coe/indicator_cha.asp

National Center for Education Statistics. (2015). Total fall enrollment in degree-granting postsecondary institutions, by level and control of institution and race/ethnicity of student: Selected years, 1976 through 2014 [Table 306.20]. Retrieved from https://nces.ed.gov/programs/digest/d15/tables/dt15_306.20.asp

- National Student Clearinghouse Research Center. (2015). *Snapshot report: Degree pathways*. Retrieved from https://nscresearchcenter.org/wp-content/uploads/SnapshotReport19_DegreePathways.pdf
- Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., Lee, S. (2008). Suicide and suicidal behavior. *Epidemiological Review*, 30(1), 133-154. doi: 10.1093/epirev/mxn002
- Núñez, A., & Yoshimi, J. (2017). A phenomenology of transfer: Students' experiences at a receiving institution. *Innovations in Higher Education*, 42, 173-187. doi:10.1007/s10755-016-9374-7
- Ornelas, A., & Solórzano, D. (2004). The transfer condition of Latina/o community college students in California: Policy recommendations and solutions. *Community College Journal of Research and Practice*, 28, 233-248
- Patel, V. (2015). Community colleges seek low-cost ways to support students' mental health. *The Chronicle of Higher Education*, A45-A47.
- Primack, B. A., Kim, K. H., Shensa, A., Sidani, J. E., Barnett, T. E., & Switzer, G. E. (2012). Tobacco, marijuana, and alcohol use in university students: A cluster analysis. *Journal of American College Health*, 60(5), 374-386. doi: 10.1080/07448481.2012.663840
- Redden, E. (2008). Among the uninsured: 1.7 million college students. *Inside Higher Education*. Retrieved from <https://www.insidehighered.com/news/2008/03/31/insurance>

- Reetz, D. R., Krylowicz, B., Bershad, C., Lawrence, B. M., & Mistler, B. (2015). *The association for university and college counseling center directors annual survey*. The Association for University and College Counseling Center Directors.
- Rhine, T. J., Milligan, D. M., & Nelson, L. R. (2000). Alleviating transfer shock: Creating an environment for more successful transfer students. *Community College Journal of Research and Practice*, 24(6), 443-453. doi: 10.1080/10668920050137228
- Schwartz, A. J. (2011). Rate, relative risk, and method of suicide by students at 4-year colleges and universities in the United States, 2004–2005 through 2008–2009. *Suicide and Life-Threatening Behavior*, 41(4), 353-371. doi:10.1111/j.1943-278X.2011.00034.x
- Shaffer, D., Gould, M. S., Fisher, P., Trautman, P., Moreau, D., Kleinman, M., & Flory, M. (1996). Psychiatric diagnosis in child and adolescent suicide. *Archives of general psychiatry*, 53(4), 339-348. doi:10.1001/archpsyc.1996.01830040075012
- Shapiro, D., Dundar, A., Wakhungu, P. K., Yuan, X., & Harrell, A. (2015). *Transfer and mobility: A national view of student movement in postsecondary institutions, fall 2008 cohort*. (No. Signature Report No. 9). Herndon, VA: National Student Clearinghouse Research Center.
- Silverman, M. M., Berman, A. L., Sanddal, N. D., O'Carroll, P., & Joiner, T. E. (2007). Rebuilding the tower of babel: A revised nomenclature for the study of suicide and suicidal behaviors. Part 1: Background, rationale, and methodology. *Suicide and Life-Threatening Behavior*, 37(3), 248-263.

- Strempel, E. (2013). Fostering a transfer student receptive ecosystem. *Planning for Higher Education Journal*, 41(4), 12-17.
- Suicide Prevention Resource Center. (2004). *Promoting mental health and preventing suicide in college and university settings*. Newton, MA: Education Development Center, Inc. Retrieved from http://www.sprc.org/sites/default/files/migrate/library/college_sp_whitepaper.pdf
- Suicide Prevention Resource Center. (2014). *Suicide among college and university students in the United States*. Waltham, MA: Education Development Center, Inc. Retrieved from <http://www.sprc.org/sites/default/files/migrate/library/SuicideAmongCollegeStudentsInUS.pdf>
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago, IL: University of Chicago Press.
- Townsend, B. K., (2008). "Feeling like a freshman again": The transfer student transition. *New Directions for Higher Education*, 144, 69-77. doi:10.1002/he.327
- Townsend, B. K., & Wilson, K. (2006). "A hand hold for A little bit": Factors facilitating the success of community college transfer students to a large research university. *Journal of College Student Development*, 47(4), 439-456.
- Townsend, B. K., & Wilson, K. B. (2009). The academic and social integration of persisting community college transfer students. *Journal of College Student Retention: Research, Theory & Practice*, 10(4), 405-423.