WHY DON'T THEY GET LICENSED?
INVESTIGATING SUCCESS IN THE CALIFORNIA CLINICAL SOCIAL WORKER AND MARRIAGE AND FAMILY THERAPIST LICENSING PROCESS

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A Thesis

by

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Abstract

of

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Statement of Problem

Many counties in California face a drastic shortage of mental health professionals. This shortage is exacerbated by the high rates of attrition among qualifying degree holders who pursue either a Clinical Social Worker (CSW) or Marriage and Family Therapist (MFT) license. This study examines how an individual's prospects of earning a license depend on demographics, geography, education, work experience, and personal life challenges.

Data and Methodology

Using data collected from a survey of 11,985 individuals (598 responded) who graduated from a qualifying degree program and subsequently began pursuit of a license as either a CSW or MFT, I conducted binomial logit regression analyses to identify how each broad causal factor affected the dependent variable – attainment of a license as a CSW or MFT.

Conclusions and Implications

Each of the broad causal factors has some relation to the dependent variable. Specifically, the likelihood of attaining a license increases with education satisfaction, Bay Area employment settings, county contracted mental health employment settings, and years since graduation. The likelihood decreases with African American and Latino ethnicities, out-of-state degrees, non-mental health focused work settings, difficulty in finding supervision, and percent time spent completing requirements while raising a child. While the majority of these factors lie outside of the sphere of influence for a public agency, several have policy implications. For example, licensing agencies may wish to consider modifying current licensing requirements and enhancing the career development opportunities available in certain employment settings. Such reforms could lead more graduates of mental health degree programs to continue on to earning a CSW or MFT license.

_____ , Committee Chair
William Leach, PhD

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DEDICATION

I dedicate this thesis to my parents and grandparents who have provided me with the unconditional love and support one needs to succeed. Thank you for being my inspiration.

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Chapter 1

BACKGROUND

Recently, the California Board of Behavioral Sciences (BBS) reported only 17% of 2002-2004 qualifying degree holders who registered as an Associate Clinical Social Worker (ACSW) after graduating went on to receive the Clinical Social Worker (CSW) license as of 2008. Of Marriage and Family Therapist (MFT) 2002-2004 qualifying degree holders who registered as an MFT Intern after graduating, 31% earned their license. The data cited in the report represented a snapshot of the 2002-2004 graduate cohorts as of July 2008 (California Board of Behavioral Sciences, 2008b). Licensing requirements mandate two years of supervised work experience, so the low percentages of individuals completing the processes raises concern. Currently, 69,164 individuals in California are either fully licensed or pursuing a license as a CSW or MFT (California Board of Behavioral Sciences, 2010). The inability of graduates pursuing mental health professional licensure to earn their license in a timely manner creates several mental health workforce issues.

Individuals pursuing a license as a CSW or MFT require a pool of licensed mental health professionals to provide them with supervision to meet licensing requirements. For example, an ACSW needs weekly supervision from a licensed mental health professional in order to count work experience towards BBS licensing requirements. A low supervisor pool means a shortage of supervision, which creates problems for ACSW and MFT Intern registrants attempting to fulfill supervised experience requirements, creating a bottleneck effect in the workforce. Writing about

his experiences gaining the required supervised work experience towards his MFT license, Fagan (2002) mentioned a perceived surplus of MFT Interns as a possible reason why some of his colleagues accepted undesirable employment.

Fully licensed mental health professionals require fewer resources to do their jobs at mental health agencies. For example, a fully licensed mental health professional can practice independently without having a superior sign and review notes. Registrants, and other unlicensed mental health professionals, must have their notes reviewed and signed by superiors, creating a resource drain for short-staffed mental health agencies. The required supervision of unlicensed mental health professionals represents an opportunity cost for all mental health agencies, regardless of funding. In some cases, mental health agencies end up not providing the type of supervision necessary for an ACSW or MFT Intern to count his or her work experience towards licensing requirements, and the ACSW or MFT Intern pays out-of-pocket for supervision just to be able to count work experience towards licensing requirements. Feldman and Lee (2008) wrote:

> Too frequently, these requirements are unnecessarily restrictive and inhibit access for people who need help. Licensing and other practice regulations initially designed to protect the public from unqualified practitioners have instead all too frequently become a safeguard for the prerogatives of mental health professionals and the organizations to which they belong, to the detriment of good more easily accessible care.

Feldman and Lee's assertion that licensing requirements initially created to protect consumers actually limit consumers' access to care is a serious one. If the policies of a regulatory agency are in fact keeping competent mental health

professionals from obtaining a license, this is a problem. However, licensing requirements are not the only potential factor in answering the question of why, at the point of July 2008, only 17% of graduates pursuing a license as a CSW and only 31% of graduates pursuing license as an MFT from the sample cohort successfully completed the licensing process. Education, location, and demographics, among other factors, also play a role. The challenges and demands of a career as a mental health professional may be an additional factor in the attrition in the mental health professional licensing process. McRee et al (2003) wrote, “Mental and behavioral health care workers provide care within a complex and changing environment” (pg. iii). Furthermore, some individuals who intend to gain the license and work in a clinical practice setting after receiving a qualifying master’s degree may find mental health treatment is not truly what they want to do in their career. Individuals who earn a master’s of social work degree, which is the qualifying master’s degree to earn a license as a CSW, often pursue social justice policy-related work which does not require professional license. Also, the California Business and Professions Code exempts employees from licensure who perform psychotherapeutic services in specific employment settings. Employees in a school, college or university, governmental entity, or an organization that is both non-profit and charitable can perform services of a psychotherapeutic nature without holding a license as a mental health professional (State of California, 2009a; State of California, 2009b). Some of these employment settings, although exempted in the California Business and Professions Code, end up

requiring employees pursue mental health licensure as a result of insurance reimbursement requirements.

Mental Health Licensing Requirements

The mission of the California BBS is to "Protect Californians by promoting consumer awareness, advocating for improved mental health services, and setting, communicating, and enforcing standards" (California Board of Behavioral Sciences, 2007a). The enforcement of licensing requirements is one method through which the organization protects consumers. Licensing requirements ensure licensed CSWs and MFTs possess a minimum competency base to practice psychotherapy services independently. The BBS licensing requirements for CSWs and MFTs are distinct, but they do share two general similarities. Potential CSWs and MFTs have to gain two years of supervised work experience and pass two licensing examinations before earning a license as a CSW or MFT (California Board of Behavioral Sciences, 2009a; California Board of Behavioral Sciences, 2009b). Beyond those two broad similarities, the licensing requirements for CSWs and MFTs contain several distinctions which may result in individuals pursuing one license to have an easier licensure path when compared to the other.

Individuals pursuing a license as an MFT are required to gain at least 3,000 hours of supervised work experience and obtain 104 weeks of supervision. They must gain this supervised work experience under the supervision of an appropriately licensed mental health professional, which includes licensed MFTs, licensed CSWs, licensed psychologists, or physicians certified in psychiatry through the American Board of

Psychiatry and Neurology. Individuals begin earning hours of work experience while still enrolled in a qualifying degree program. In order to count a week towards the 104 weeks of supervision, or count any work experience in a given week towards the required 3,000 hours of work experience, an individual needs to meet with his or her supervisor for one hour of individual supervision or two hours of group supervision in that week. If an individual cannot meet for one hour of individual supervision or two hours of group supervision in a week, the work experience gained in that work week cannot count towards BBS licensing requirements. MFT license pursuers must also obtain at least 500 hours of work experience providing psychotherapy services to couples, families, or children. This requirement could present a challenge to an individual working in an employment setting that does not cater to this client base. Beginning January 1, 2010, up to 150 hours of work experience spent providing conjoint couples or family therapy (i.e. providing psychotherapeutic services simultaneously to a couple or two family members) can be double-counted towards work experience requirements, which may allow individuals to meet the minimum 500 hours of work experience with couples, families, and children more easily (California Board of Behavioral Sciences, 2009b).

Individuals pursuing a license as a CSW in California must gain at least 3,200 hours of supervised work experience and obtain 104 weeks of supervision. Unlike their colleagues pursuing an MFT license, future licensed CSWs must obtain all of their work experience after they have completed their master's in social work degree. Many master's of social work degree programs require students to complete internships, but

this internship experience cannot be counted towards licensing requirements. Like those pursuing the MFT license, the appropriate supervisors for individuals pursuing a CSW license include licensed CSWs, licensed MFTs, licensed psychologists, and licensed physicians certified in psychiatry by the American Board of Psychiatry and Neurology. Weekly supervision is mandatory in order to count experience and supervision towards licensing requirements. The licensing requirements for CSWs require at least 750 hours of experience providing face-to-face individual or group psychotherapy. Similar to the challenge of 500 hours of couples, family, and child therapy for MFT license pursuers, CSWs will struggle to meet this requirement if they are working in an employment setting that does not provide direct psychotherapy or counseling services. Another distinction between CSW and MFT licensing requirements is the cap on work experience a person can gain under a supervisor who does not hold a license as a CSW. Those pursuing a license as a CSW must obtain at least 1,700 of the required 3,200 hours of work experience under the supervision of a licensed CSW. If a person pursuing a CSW license happens to work in an employment setting short on licensed CSWs, he or she will face major challenges in meeting this requirement. One solution to this problem is for the person pursuing the CSW license to find a licensed CSW outside of the employment setting to provide the supervision, but licensees typically do not give their time away for free, which means the license pursuer ends up paying out-of-pocket to meet supervision requirements.

California's Mental Health Services Act

In November 2004, California voters passed Proposition 63, also referred to as the Mental Health Services Act, which allows the State of California to tax one percent of the income of anyone making in excess of one million dollars annually and allocates those funds to provide better community-based mental health services. Implementation of the Mental Health Services Act requires the California Department of Mental Health to address workforce development issues because many California counties face a drastic shortage of qualified and trained mental health professionals (California Department of Mental Health, 2009). The California Mental Health Planning Council, an office under the Department of Mental Health, maintains a Human Resources Committee, which has identified "the shortage of human resources needs at all levels as one of the most urgent issues facing the mental health system" (California Department of Mental Health, 2010). Licensed CSWs and MFTs, along with those pursuing each license, make up a substantial portion of the public mental health workforce.

Rural counties face the biggest challenges in recruiting and retaining mental health professionals, and health care professionals. Ivey et al. (1998) identified an aggregate increase in mental health professionals nationally over time, but observed significant regional variation in the distribution of mental health professionals, particularly in rural county settings. Some stipend and loan repayment programs financed through the Mental Health Services Act and different public and private organizations offer incentives for new graduates to work in mental health service

shortage areas. Still, McRee et al (2003) wrote, “Recruiting any health care providers, including mental health care workers, to rural areas is a major problem due to professional isolation, lower salaries, and limited job opportunities for spouses” (p. 29). Academic research into the determinants of successful completion of the CSW and MFT licensing process can assist work settings in rural counties, and all counties for that matter, in developing strategic upward mobility career programs to better recruit and retain mental health workers interested in obtaining their professional license.

Aside from the mal-distribution of the mental health workforce, workforce diversity is another significant issue. In summarizing the findings of a demographic survey of licensees in 2007, the BBS reported 72% and 82% of licensed CSWs and MFTs, respectively, responding to the survey, respectively, indicated an ethnicity of non-Hispanic white (California Board of Behavioral Sciences, 2007b). California’s general population is only 44% non-Hispanic white (California Department of Finance, 2007). The BBS survey results also indicate the percentage of licensed CSWs and MFTs (13% and 8%) capable of speaking Spanish falls below that of the general California population (26%) (California Board of Behavioral Sciences, 2007b).

The Research Gap in Mental Health Licensing Work Force Studies

A research gap exists for the study of attrition in mental health professional licensing processes. Due to the lack of literature on this topic, any statistical study focused on this issue would add value because so little presently exists. Given the recent interest in mental health workforce trends as a result of the workforce training and development funding available through the Mental Health Services Act, this thesis

addresses a timely issue and a current research gap. Several articles and reports specific to the California mental health workforce exist, but a search of academic and periodical research databases yielded no previous statistical regression analysis specific to CSWs and MFTs in the California mental health workforce.

State licensing regulatory agencies are uniquely suited to compile, distribute, and analyze trends in the mental health workforce. Because of application and renewal requirements, licensing agencies have frequent contact with current and future mental health professionals. In recognizing the potential for licensing and regulatory agencies to help address the current lack of data on mental health workforce issues, McRee et al (2003) wrote, “State regulatory agencies should work both to collect workforce data that would be useful to policy makers and to facilitate the development of a robust and skilled mental and behavioral health workforce” (xii). The sample population for this thesis is derived from the licensing population of the California BBS, which is the licensing agency for CSWs and MFTs, in addition to Licensed Educational Psychologists and Licensed Professional Clinical Counselors.

Chapter 2

LITERATURE REVIEW

Upon searching a number of article databases and "Google Scholar," I found no previously published research explicitly on the identified research question: what factors influence success in the California BBS CSW and MFT licensing process? Without such prior published research, I looked to other aspects of the general healthcare workforce that relate to my research question. My focus was on regression-based academic articles that focus on retention and attrition in health care profession's workforce and education programs. Statistical regression analysis helps identify how certain causal factors affect an identified dependent variable, so using the results of a regression analysis, a researcher can make predictions about the degrees of positive and negative impacts identified casual factors have on a dependent variable. Because of the limited amount of regression research specific to my chosen mental health professions (CSWs and MFTs), I supplemented the regression articles with several recent publications providing descriptive statistical information on CSWs and MFTs. The literature review of regression-based and descriptive statistical articles suggests a theoretical framework for my research, which will be discussed in the conclusion of this literature review.

The organization of the regression-based literature follows three themes: predictors of success in health care professional education, early career attrition in the health care workforce, and mid-late career attrition in the health care workforce. While the focus of my research is on the process of pursuing a mental health license *after* a

person earns a qualifying master's degree, the explanatory variables investigated in education attrition studies are similar to the variables to be used in my regression model. My choice of the remaining two themes, early career attrition and mid-late career attrition, naturally flows from my background research on the chosen population – individuals pursuing a license as a CSW or MFT. In a recent anonymous demographic survey of its licensees and registrants, the California BBS (2007b) found the median age for a registered MFT Intern and ACSW to be 40 and 34, respectively. Considering registration as an MFT Intern or ACSW represents the first step towards obtaining a mental health license after completion of a qualifying master's degree program, the older median age suggests the mental health profession appeals to people considering a second career or career change. Consequently, a review of studies related to both early career attrition *and* mid-late career attrition are relevant.

The focus in the discussion of reviewed articles will be on elements applicable to the chosen topic area; thus, not every explanatory variable in the reviewed literature merits discussion. Table 1 at the conclusion of this chapter provides a summarized version of the regression-based literature review findings.

Predictors of Success in Health Care Professional Education

The process of pursuing a license as a CSW or MFT in California represents a two to three year commitment of time in which the individual will be receiving significant supervision from a fully licensed mental health professional (California Board of Behavioral Sciences, 2009a; California Board of Behavioral Sciences 2009b). While the demands of a post-graduate "apprenticeship-like" experience are notably

different than an undergraduate or graduate education in a health care profession, the interaction of explanatory variables in predictive models focused on this subject matter area provides insight into what variables to include in my regression model.

A review of three separate studies that analyzed predictors or characteristics of success in health care profession education yielded some conflicting yet useful insight into the way demographic characteristics such as age and gender play a role in predicting academic success in an education program relating to health care professions. Houglum et al. (2005) studied predictors of success in a professional pharmacy program at South Dakota State University. The authors investigated two dependent variables: placement on academic probation and GPA in the student's first year. Explanatory variables in the study focused on demographic characteristics and academic measures. Using two separate regression equations (one for each dependent variable), the authors found gender to be the only statistically significant demographic predictor of whether or not the university placed an individual on academic probation. In the study, holding all other factors constant, being female decreased a person's odds of being on academic probation in the program by 74%. The linear regression model using GPA as the dependent variable did not indicate gender as a predictor of success. The authors found two characteristics, attainment of a prior degree and year of entry to the program, had positive relationships to the dependent variable GPA. Holding all other factors constant, holding a prior degree predicted a 0.2 rise in the dependent variable, GPA. One major missing element from the explanatory variables used in this study was age, but the positive relationship between the dependent variable GPA and

"prior degree" might imply higher success rates for older students since older students are more likely to hold multiple degrees.

Mullhollond et al (2008) also found educational background in addition to age to be significant predictors of academic success at a nursing college in the United Kingdom. The authors used a binary dependent variable based on successful completion of the nursing program. In this study, the observed affect of age was particularly linear when it came to predicting success, indicating an older student stood a greater chance of completing the program than a younger colleague. Neither age, educational background, nor gender proved statistically significant in the failure model.

Using similar variables as the two previously discussed articles but measuring student achievement in a mental health nursing topic area, Blackman (2001) used latent variable partial least square analysis to identify predictors in his model. He examined four broad areas: student demographics, previous success with undergraduate nursing topics, attitudes towards mental health nursing and mental illness causation, and relationship between learning environment and achievement. The author used two measures to quantify mental health achievement in a sample of 183 undergraduate nursing students: a 20-item self-assessment of confidence to undertake different mental health related nursing tasks and a 50-question multiple-choice test. The study found age alone to be an unreliable predictor of achievement; instead, the author found achievement of a prior degree and a medical understanding of mental illness causation to be the two most significant predictive factors. While the correlation between success and possession of a prior degree follows the trend set forth in the previous two articles,

the results of this study are suspect due to the small sample size and questionable instruments used to quantify mental health achievement. A self-assessment of how one believes he or she *might* perform when given a certain task (like helping a person suffering from a severe mental illness) is far less reliable than actual human behavior.

A review of these three regression-based studies of potential relationships between demographic and academic variables and success in health care education programs suggests several explanatory variables suitable for inclusion in my regression model, most notably education, age, and gender.

Early Career Attrition in the Health Care Workforce

A review of regression-based articles relating to early career attrition in the health care professions provides additional insight into possible causal factors influencing attainment of a license as a CSW or MFT in California.

Robinson et al. (2005) designed a longitudinal study of newly graduated mental health nurses in the United Kingdom to determine the likelihood they will remain in the nursing field at different periods in the future (e.g. 18 months, three years, five years, and ten years from filling out the questionnaire measurement instrument). Despite the longitudinal design, the authors only analyzed information based on the questionnaire distributed six months after the representative sample graduated and began working in the field. The dependent variable in this study was whether the respondent planned to stay in the nursing profession. Using binomial logistic regression, the authors explored the effect of gender, age, ethnicity, educational group, having a spouse/partner, having children living at home, job satisfaction, and time in

first nursing post on the dependent variable. Depending on the period referenced in the survey question, different factors were associated and statistically significant with intention to leave. Gender and being of white British or Irish descent predicted intention of remaining in nursing for at least five years. In this timeframe, being female meant a 75% increase in the odd of leaving when compared to males, and being of white British or Irish descent meant a 91% increase in the odds of leaving when compared to all other ethnicities. If the respondent was a female of white British or Irish descent, the odds of *staying* increased dramatically to 479%. At the ten-year level, respondents with ages between 20-29 with children had a 191% increase in the odds of intention to stay in nursing than members of the same age group without children. Again, at the ten-year level, data indicated increased odds of the white ethnic group (170%) remaining in the mental health nursing field when compared to all other ethnicities.

Wermeling (2006) also utilized a survey instrument in determining social worker attrition rates in the southern United States. Wermeling surveyed master's in social work alumni from three different schools accredited by the Council on Social Work Education. The survey investigated five possible independent variables: workforce, finances, caretaking, social work education, and the effectiveness and value of the profession. The dependent variable was departure from the profession. Using binomial logistic regression, Wermeling found respondents who rated salary compensation as suitable were more likely to remain in the profession (90% increases in odds), while family caretaking, dissatisfaction with education, and negative

perception of the value of the profession increased the odds of departure from the workforce. Holding all other variables in the model constant, a one unit increase in the caretaking or dissatisfaction scales of the survey, the predicted odds of leaving the profession increased by 8.3% and 12%, respectively.

The results and types of variables measured in the previous two studies suggest a necessity to measure demographic variables such as ethnicity and family caretaking responsibilities in addition to perceptions about the value of the workforce.

Blankertz and Robinson (1997) used binomial logistic regression to measure intention to leave the profession of psychosocial rehabilitation. Using demographic and education variables, in addition to several measures of burnout and personal value of the profession, the authors found:

> Thus, according to this model, being older and more strongly agreeing with statements that their job is an important step in their career and life would be less fulfilling without their work and working with clients with co-occuring physical disabilities and AIDS would increase the likelihood that a worker intended to stay in the field. Attaining a master's degree; having held a previous job in PSR; and having a high Emotional Exhaustion score would increase the likelihood that a worker intended to leave. (p. 526)

Mid-Late Career Health Care Workforce Attrition

Rittenhouse et al. (2004) set out to prove the lack of predictive value in physicians' proclamation of a desire to leave practice and actual departure from practice. One component of this research yielded a multivariate regression analysis identifying predictive factors associated with physicians' departure from practice. Based on data obtained from the California Medical Board, the study found being over 55, and especially being over 65, as statistically significant predictors of departure

from practice. Being over 55 increased the odds of departure from practice by 158%, while being over 65 increased the odds of departure from practice by 890%. This makes logical sense since this is the traditional age of retirement for most professions.

Sibbald et al (2003) used two large national surveys of general physicians in England from 1999 and 2001 to measure characteristics associated with an intention to leave practice. The author's dependent variable was "intention to quit" measured on a 1-5 scale (higher values denoted a stronger desire to quit). Explanatory variables in the study included practice location, age, number of children under 18, job satisfaction, practice hours per week, and ethnicity. Using logit regression models, the authors found statistically significant predictors of intention to leave practice to be advanced age, job dissatisfaction, no children under the age of 18, and ethnic minority status. The authors cite high job satisfaction as the factor with the most magnitude on the regression result, but the authors do not clearly describe the scale used to measure job satisfaction, making the regression results a challenge to interpret meaningfully. Also, recall that this article does not measure actual departure from practice, just intention. Rittenhouse et al. (2004) criticized this measure in their article.

Characteristics of CSWs and MFTs in California

The previously discussed regression-based articles inspire the inclusion of variables measuring education, demographics, and professional work history in my study. However, to develop an adequate theory behind attrition in the California CSW and MFT licensing process, a review of articles specifically targeting this licensing population is necessary. Despite the lack of regression-based study on professional

attrition for this licensing population, articles focused on other workforce issues will inform a theoretical orientation for my research.

In interviews with a variety of key stakeholders, Lok et al (2009) identified a number of concerns related to the mental health workforce, which includes CSWs and MFTs along with several other professions. The authors raised two concerns particularly relevant to my study: workforce distribution issues and a disconnect between the subject matter taught in education programs and the skills required on the job. Lok et al (2009) wrote, "Some key informants attributed current shortages to low enrollment in graduate-level mental health educational programs, while others posited that regional shortages are caused by poor workforce distribution." The authors later describe a "cluster" of mental health professionals in urban areas like Los Angeles and the Bay Area, while more rural county settings struggle to maintain an adequate mental health workforce to meet needs. Also, the authors noted increasing funding towards recovery-oriented practice at community and county mental health programs. According to some of the interviewees for the article, education programs are not adequately preparing their students to engage in this type of practice.

McRee et al (2003) reinforce the problems with mal-distribution of the mental health workforce: "In 2001, there were approximately 23,000 licensed MFTs in California. Nearly 33 percent worked in the Bay Area region and 26 percent in Los Angeles…Geographically [CSWs] are more proportionally represented than other mental health professions, but their numbers are still quite low in rural areas." The authors suggest professional isolation, lower salaries, and limited job opportunities for

spouses are reasons for the low numbers of MFTs and CSWs who take jobs in rural county settings. Furthermore, the authors note an under representation of some racial and ethnic groups in the mental health workforce. Data from the California BBS released in 2007 related to the demographics of its licensing population confirms these authors' observation (California Board of Behavioral Sciences, 2007b).

Conclusions

As previously mentioned, a significant research gap exists for the study of attrition in mental health professional licensing processes. Given the lack of literature on this topic, any statistical study focused on this issue, particularly one using a regression-based methodology, would add value because so little presently exists. In reviewing the literature relating to attrition in health care professionals and two descriptive studies focused on California's mental health workforce, the causal factors and concerns relating to CSW and MFT workforce issues seem to fall outside of the influence of a licensing agency. For example, a licensing agency can set policy about mandatory education, experience, and examinations, but a licensing agency cannot directly influence the demographics of its licensing population. Depending on the political history with stakeholders, a licensing agency might be able to engage in dialogues with academic programs to better prepare potential licensees for the workplace, but the literature suggests the most significant factors in determining workforce attrition in health care professions are outside of the sphere of influence of a government agency.

Certain related explanatory variables consistent throughout the literature inspired the model presented in chapter three. Basic demographic variables such as age and gender are present in nearly every study reviewed. Additional demographic variables related to ethnicity are present in some of the literature (Houghlom et al, 2005; Mullholland et al, 2008; Robinson et al, 2005; Rittenhouse et al, 2004; and Sibbald et al, 2003). Variables related to education are also well represented in the literature (Houghlom et al, 2005; Mullholland et al, 2008; Blackmon, 2001; Blankertz and Robinson, 1997; Robinson et al, 2005; and Wermerling, 2006). Variables related to personal life challenges such as sole wage earner status and responsibility for a dependent child are not as well represented in the literature as other variables (Robinson et al, 2005; Wermeling, 2006; and Sibbald et al, 2003), but because the target population for my study is predominantly female (California Board of Behavioral Sciences, 2007b), such variables are important to include in my research model. Finally, two studies (Rittenhouse et al, 2004; and Sibbald et al, 2003) included practice type as key explanatory variables. Considering the identified patterns in the reviewed literature, a research model explaining workforce attrition in healthcare professions should include variables measuring basic demographics (e.g. age, gender, ethnicity), education, personal life challenges, and practice type.

Table 1. Summary of Literature Review

Researcher (s)	N	Research Method	Dependent Variable(s)	Key Explanatory Variable(s)	Summarized Findings*
Houglum et al. (2005)	309	Binary logistic	Placement on academic probation (1 = yes)	Gender, higher organic chemistry grades, ACT scores, year of program entrance	Females were less likely to be on academic probation (OR=.26; -74%); Limitation: Study did not include a variable for age.
Mullhollond et al (2008)	1808	Binary logistic	Completion of program (1 = yes)	Gender, country of birth, ethnicity, age, educational qualifications, visa status, application route, and absence rates	Age had a linear affect across three categorical groupings. 21 to < 26: (OR= 1.18; 18%) 26 to < 33: (OR= 1.65; 65%) 33 and over: (OR= 2.05, 105%) Birth in an English speaking country other than UK also had a positive effect. Zimbabwe: (OR =2.35, 135%) Other English Speaking Country: (OR =2.69, 169%)
Blackmon (2001)	183	Latent Variable Partial Least Square Analysis**	Achievement in mental health nursing topic area	student demographics, previous success with undergrad nursing topics, attitudes towards mental health nursing and mental illness, and relationship between learning environment and achievement	Factors influencing dependent variable: second year nursing grades (r=.47), age (r=-.16), orientation (r=.29), prior education (r=-.15), and post-clinical affect (r=1)
Blankertz and Robinson (1997)	848	Binary logistic	Intent to stay (1= yes)	Age, education, previous job in the field, client base, burnout scale score	Predictors of intention to stay in the field of psychosocial rehabilitation: age (OR = -.056; -105.6%);

					master's degree (OR = .6315; -36.9%); client base of mental health and AIDS clients (OR=.2603; -74%); emotional exhaustion score (OR = .0445; -95.6%); belief of job as important step in career (OR = -.3417; -134.2%); and belief life would be less fulfilling without this job (OR= -.3167; -131.7%).
Robinson et al. (2005)	431	Binary logistic	Intention to stay in nursing (1 = yes)	Gender, age, ethnicity, educational group, having a spouse/partner, having children living at home, job satisfaction, and time in first nursing post	Predictors of intention to stay in nursing after five years: female (OR= .247; -75.3%) and white British or Irish (OR= .0834; -91.66%); female and white British or Irish (OR = 5.786; 478%) Predictors of intention to stay in nursing after ten years: age20-29 and children under 18 (OR = 2.911; 191%)
Wermeling (2006)	785	Binary logistic	Departure from profession (1 = yes)	Workforce, finances, caretaking, social work education, and the effectiveness and value of the profession	Predictors of departure from the profession: caretaking (OR=1.083; 8.3%), education (OR= .122; -88%) Questions were asked about each category along a scale, so a one unit increase results in the above change in the OR.
Rittenhouse et al. (2004)	68	Binary logistic	Departure from Practice (1 = yes))	Gender, age, race/ethinicity, type of specialty, board certified, practice setting, income, job satisfaction.	Predictors of departure from practice: Age – (55-64, OR=2.58; 158%) (65+, OR=9.9; 890%) Criticism – Rather small sample size.
Sibbald et al (2003)	790 and 1159	Binary logistic	Intention to leave practice (1 = yes)	Job satisfaction, practice size, practice location, patient type, gender,	Predictors of intention to leave: N=790 group: job satisfaction(-), aged 41-

				ethnicity, age, children under 18, average weekly hours worked	45(+), aged 51-55(+), aged 60-65(+), num. of children <18(-) N=1159 group: job satisfaction(-), aged 41-45(+), aged 51-55(+), aged 60-65(+), num. of children <18(-), non-white(+)
*All variables in this column of significance at least p<.05 unless otherwise noted. **This method of analysis seemed to only provide value in attributing negative or positive affects to the dependent variable as the author did not do an adequate job in explaining terms in the article. Formula used to convert OR to percent: (OR – 1)*100					

Chapter 3

METHODOLOGY

In this chapter, I will outline the methodology used to conduct my analysis of factors influencing success in the licensing process for CSWs and MFTs in California. The first two sections describe the process through which I acquired and coded data. The third section outlines my research model, and the final section includes a brief discussion of the most appropriate forms of statistical analysis given my model.

Survey Implementation

Because the California BBS is interested in analyzing the factors influencing outcomes in its licensing process, the Executive Officer of the BBS agreed to sponsor this research and cover the costs of survey implementation (California Board of Behavioral Sciences, 2008a). The BBS provided a data file including the current names and addresses for all individuals with qualifying graduate degrees completed from 2002 to 2005 who subsequently registered with the BBS after graduation to begin the professional licensing process and have California addresses of record. Under California law, addresses of record with the BBS are public information. The data file included the names and addresses of 11,985 individuals. This sample is suitable because it is comparable to the population analyzed in the previously mentioned BBS report on attrition in its licensing process (California Board of Behavioral Sciences, 2008b).

In November 2009, I mailed a one-page letter inviting individuals to participate in an online survey, which I administered through SurveyMonkey.com. The deadline to

participate in the survey was January 10, 2010. The California BBS, the research sponsor, covered the cost of paper, ink, envelopes, and postage for the mail-out of the invitation letter to all 11,985 addresses.

On January 11, 2010, I downloaded the 598 responses to the survey, representing a response rate of approximately 5%. Despite the low response rate, the total number of useable responses is similar to that of research mentioned in my literature review section. Furthermore, I compared some of the basic demographic variables in my study against a demographic survey the California BBS conducted in 2007 and found my sample to be comparable.

Table 2. Comparison of Sample Dataset to BBS Demographic Survey Dataset

Demographic Category	**Sample Dataset**	**BBS Demographic Survey**[1]
Percent Female	76%	74%
Percent Fluent in Spanish	15%	12%
Percent African-American	5%	4%
Percent American Indian/Alaska Native	1%	1%
Percent Asian	7%	5%
Percent Latino	11%	8%
Percent Non-Hispanic White	69%	74%
Percent Pacific Islander	1%	1%
Percent Other	5%	6%

[1] California Board of Behavioral Sciences (2007). Demographic Report on Licensees and Registrants. Retrieved May 12, 2009 from http://www.bbs.ca.gov/pdf/publications/demo_survey_2007.pdf

Data

The downloaded data required significant cleanup to make it suitable for a use in regression analysis. I used a combination of Microsoft Excel and SPSS to code and

compute numerous variables. To compute the dependent variable ('Completion of the California CSW or MFT Licensing Process'), I created a dummy variable in Microsoft Excel equal to '1' if the responder indicated he or she was licensed as a CSW or MFT at the time of survey completion. I also computed a variable for age at the time of graduation from a qualifying degree program ('Age at the Time of Degree Completion') by calculating the difference in years between the indicated year of birth and year of completion of qualifying degree requirements. Since my survey responses included individuals who graduated in different years (2002 – 2005), I computed a variable for the difference in years between completion of degree requirements and the present (2010). This variable ('Years Between Completion of Degree and 2010') is important to include in the statistical model because it will control for the multiple graduation years represented in the various responses.

One question asked the participant to indicate his or her gender. Using the responses to this question, I created a variable ('Female') which represents identification with the female gender. Several questions on my survey were yes-no questions, which were easily computed in to dummy variables in Microsoft Excel. I computed the following variables by coding them as '1' if the response was affirmative to a yes-no question and '0' if negative: 'Sole Wage Earner,' 'Pay For Supervision,' 'Supplement Income,' 'Volunteer Hours,' 'Multiple Employment Settings,' and 'Out-of-State Degree.'

Originally, I had intended to create dummy variables for all counties in which the responder worked while completing his or her license requirements. This posed two

problems because multiple counties did not appear in the dataset, and adding 50-plus variables to a dataset with fewer than 600 observations raises concerns about degrees of freedom. Rather than creating a dummy variable for each county, I created 10 regional variables (see Table 3 for a listing of variables). I modeled my grouping of counties in these regional variables after the grouping used in Lok et al (2009). If the survey responder indicated he or she worked in one of the counties in a given group, the variable would indicate '1.' Numerous responses indicated working in multiple regions; thus, the variables are not mutually exclusive and require no reference category.

Similar to the regional variables and the previously mentioned yes-no survey questions, I created dummy variables for the race/ ethnicity question in the survey. I used the same seven race/ethnicity categories presented in the California BBS' *Demographic Report on Licensees and Registrants* (2007b): American Indian or Alaskan Native, Asian, African American, Hispanic/Latino, Pacific Islander, Non-Hispanic White, and Other. I created a variable for each race/ethnicity category and coded it as '1' if the person identified the category as his or her race/ethnicity. Because these race/ethnicity categories are mutually exclusive, one reference category must be omitted from the final analysis. The variable 'Non-Hispanic White' will be left out of the final analysis.

In the survey, I asked the responder to identify languages other than English in which he or she possesses fluency. The survey included the following options for response: Spanish, Chinese, Korean, Tagalog, Vietnamese, Farsi, French, Russian, and Other. Because of a low response rate in any categories other than Spanish, I chose only

to include a dummy variable indicating Spanish language fluency (‘Spanish Fluency’) in the model.

Individuals pursuing a license as a CSW or MFT can obtain required supervised work experience in a variety of settings. One question on the survey asked the responder to indicate all work settings in which he or she worked while completing required supervised work experience. The possible work setting options were Non-Profit, State Governmental Entity, Private Hospital, Public Hospital, School (K-12), County Contracted Mental Health Agency, For Profit-Non County Contracted Mental Health Agency, Private Practice, College/University, County Mental Health Agency, County Agency (non-mental health focused), and Other. I created dummy variables for each of these categories and coded them as ‘1’ if the person indicated working in the respective setting. Unlike the race/ethnicity grouping of variables, these categories are not mutually exclusive, and many responses indicated working in a variety of work settings.

The survey also included several questions asking the responder to indicate satisfaction, difficulty, or proportion along a 0 – 100 scale. These responses generated ordinal data to be used in the statistical model. One questions asked the responder to rate their satisfaction with his or her qualifying degree program along a 0 – 100 scale (‘Satisfaction with Education’). Similarly, I asked the responder to rate potential challenges encountered during the licensing process along a 0 – 100 scale. These questions related to challenges specific to licensing requirements (e.g. finding the right type of work experience; finding appropriate supervision) and challenges in a person’s

personal life (e.g. juggling demands of personal responsibilities with work; supporting oneself on income as a mental health professional). The final 0 – 100 scale question asked the responder to represent as a percentage the amount of required supervised work experience gained while supporting a child.

The survey also included several questions whose answers did not fit into my research model or were not consistent enough to include in the analysis. These included questions to measure the hours worked per week towards experience requirements, yearly income, and the percentage of work experience gained while caring for a dependent other than a child. I included no data gained from these questions in the final analysis. Furthermore, I intended to have a dummy variable for all the qualifying degree programs identified in survey responses, however, due to the low survey response, I had to drop these variables due to concerns over degrees of freedom. Finally, I also asked licensed individuals participating in the survey how many attempts it took them to complete each licensure examination. The responses to these questions would not be relevant to the study because not all individuals participating in the survey had reached the point in the licensing process at which they complete the licensing examinations.

Table 3. Description of Variables

Variable	**Description**
Completion of the California CSW or MFT Licensing Process	Dummy Variable; 1 = responder licensed as a CSW or MFT
Age at the Time of Degree Completion	Continuous Variable; responders age in years at the time of completion of qualifying degree holder
Female	Dummy Variable; 1 = responder is female

Spanish Fluency	Dummy Variable; 1 = responder is fluent in Spanish,
African American	Dummy Variable; 1 = responder indicated race/ethnicity is African American
American Indian/Alaska Native	Dummy Variable; 1 = responder indicated race/ethnicity is American Indian/Alaska Native
Asian	Dummy Variable; 1 = responder indicated race/ethnicity is Asian
Latino	Dummy Variable; 1 = responder indicated race/ethnicity is Latino
Non-Hispanic White	Dummy Variable; 1 = responder indicated race/ethnicity is Non-Hispanic White
Pacific Islander	Dummy Variable; 1 = responder indicated race/ethnicity is Pacific Islander
Race/Ethnicity Other	Dummy Variable; 1 = responder indicated race/ethnicity is Other
Satisfaction with Education	Ordinal Variable; 0 – 100; higher ratings indicate satisfaction
Out-of-State Degree	Dummy Variable; 1 = responder earned a degree at a qualifying degree program outside of California
Bay Area	Dummy Variable; 1 = responder earned supervised work experience working in Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma, or Santa Cruz county
Central Coast	Dummy Variable; 1 = responder earned supervised work experience working in Monterey, San Benito, San Luis Obispo, Santa Barbara, or Ventura county
Central Valley/Sierra	Dummy Variable; 1 = responder earned supervised work experience working in Alpine, Amador, Calaveras, San Joaquin, Stanislaus, or Tuolomne county
Inland Empire	Dummy Variable; 1 = responder earned supervised work experience working in Inyo, Mono, Riverside, or San Bernardino county
North Counties	Dummy Variable; 1 = responder earned supervised work experience working in Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, or Trinity county
North Valley/Sierra	Dummy Variable; 1 = responder earned supervised work experience working in El Dorado, Nevada,

	Placer, Sacramento, Sierra, Sutter, Yolo, or Yuba county
Orange County	Dummy Variable; 1 = responder earned supervised work experience working in Orange county
San Diego	Dummy Variable; 1 = responder earned supervised work experience working in Imperial or San Diego county
Los Angeles	Dummy Variable; 1 = responder earned supervised work experience working in Los Angeles county
South Valley	Dummy Variable; 1 = responder earned supervised work experience working in Merced, Fresno, Kern, Kings, Madera, Mariposa, or Tulare county
County Contracted Mental Health Agency	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a county contracted mental health agency
College/University	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a college/ university
County Mental Health	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a county mental health agency
For-Profit Mental Health	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a for-profit mental health agency
School (K-12)	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a school (K-12)
Non-Mental Health Focused County Setting	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a non-mental health focused county setting
Non Profit	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a non profit setting
Private Hospital	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a private hospital
Private Practice	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a private practice

Public Hospital	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a public hospital
State Government	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a state governmental entity
Other Setting	Dummy Variable; 1 = responder indicated earning a portion of supervised work experience while employed in a setting of 'other'
Off-Site Supervision	Dummy Variable; 1 = responder indicated he or she obtained supervision from an individual outside of the responder's work setting
Pay For Supervision	Dummy Variable; 1 = responder indicated he or she paid for supervision out of his or her own pocket
Supplement Income	Dummy Variable; 1 = responder indicated he or she supplemented his or her income with work in a non-mental health field
Volunteer Hours	Dummy Variable; 1 = responder indicated he or she volunteered to gain hours of supervised work experience
Difficulty in Completing Experience Requirements	Ordinal Variable; 0 – 100; higher ratings indicate difficulty in finding a job with the right type of experience to meet experience requirements
Difficulty in Finding Supervision	Ordinal Variable; 0 – 100; higher ratings indicate difficulty in finding supervision to complete BBS experience requirements
Difficulty in Finding Direct Psychotherapy Work Experience	Ordinal Variable; 0 – 100; higher ratings indicate difficulty in completing direct psychotherapy work experience requirement
Multiple Employment Settings	Dummy Variable; 1 = responder worked in multiple employment settings simultaneously while gaining supervised work experience
Years Between Completion of Degree and 2010	Continuous Variable; length of time in years between completion of degree requirements and 2010
Percent Time Spent Completing Experience Requirements While Raising a Child	Ordinal Variable; 0 – 100; number estimates percentage of work experience gained while raising a child
Sole Wage Earner	Dummy Variable; 1 = responder was the sole wage earner in the household while gaining hours of work experience

Difficulty in Supporting Oneself on Income as a Mental Health Professional	Ordinal Variable; 0 – 100; higher ratings indicate difficulty in supporting oneself on income as a mental health professional
Difficulty in Juggling Demands of Personal Life with Career as a Mental Health Professional	Ordinal Variable; 0 – 100; higher ratings indicate difficulty in juggling demands of personal life with career as a mental health professional

Model

Upon completion of coding and data cleanup, the model for explaining successful completion of the BBS licensing process, represented by dependent variable (Completion of the California CSW or MFT Licensing Process), includes the broad causal factors of demographics, geographic region, education, work experience, and personal life challenges. The model represented as an equation, with proxies and expectations of the direction of effect on the dependent variable, follows:

Completion of the California CSW or MFT Licensing Process = f{Demographics, Geographic Region, Education, Work Experience, and Personal Life Challenges} where,

Demographics = f{Age at the Time of Degree Completion (-), Female (+), Spanish Fluency (+), Non-Hispanic White (+), African American (-), American Indian/Alaska Native (-), Asian (-), Latino (-), Pacific Islander (-) and Race/Ethnicity Other (-)}

Geographic Region = f{Bay Area (+), Central Coast (-), Central Valley/Sierra (-), Inland Empire (-), North Counties (-), North Valley/Sierra (-), Orange County (+), San Diego (+), Los Angeles (+), and South Valley (-)}

Education = f{Satisfaction with Education (+), Out-of-State Degree (-)}

Work Experience = f{County Contracted Mental Health Agency (+), College/University (-), County Mental Health (+), For-Profit Mental Health (+), School (K-12) (-), Non-Mental Health Focused County Setting (-), Non Profit (-), Private Hospital (-), Private Practice (+), Public Hospital (-), State Government (+), Other Setting (-), Off-Site Supervision (-), Pay for Supervision (-), Supplement Income (-), Volunteer Hours (-), Difficulty in Completing Experience Requirements (-), Difficulty in Finding Supervision (-), Difficulty in Finding Direct Psychotherapy Work Experience (-), Multiple Employment Settings (+), and Years Between Completion of Degree and 2010 (+)}

Personal Life Challenges = f{Percent Time Spent Completing Requirements While Raising a Child (-), Sole Wage Earner (-), Difficulty in Supporting Oneself on Income as a Mental Health Professional (-), Difficulty in Juggling Demands of Personal Life with Career as a Mental Health Professional (-).

Hypothesis

In the model above I predicted the expected direction of the effect of each of the independent variables on the dependent variable, but absent from the predictions above is any indication on which independent variables will have significant effects on the dependent variable. Based on my literature review, I expect ‘Age at the Time of Degree Completion,’ ‘Percent Time Spent Completing Requirements While Raising a Child,’ and ‘Difficulty in Supporting Oneself on Income as a Mental Health Professional’ to have

significant negative effects on the dependent variable. Multiple articles from my literature review identified older health care professionals as more likely to depart from the profession as age increases. In her study of professional attrition amongst social workers, Wermeling (2006) found perceptions of unfair compensation and responsibilities for caring for dependents as predictors of departure from the profession.

Wermeling (2006) also found satisfaction with education indicated a likelihood of remaining in the social work profession. In my study, I expect 'Satisfaction with Education' to have a significant positive relationship with the dependent variable. The observations of the mal-distribution of the mental health workforce from Lok et al (2009) and McRee et al (2003) inspire my prediction that the more populous regions (e.g. 'Bay Area,' 'Orange County,' 'San Diego,' and 'Los Angeles') will have a positive effect on the dependent variable.

Method of Analysis

Because my dependent variable is a dummy variable, ordinary least squares regression analysis is not appropriate. A binomial logit analysis is the most appropriate method for my study. Binomial logit regression fits an S-curve to the data rather than a straight line. This S-curve ensures predicted values will not exceed 1 or be less than 0. Furthermore, when using a binomial logit regression, SPSS provides you with a percentage of the actual data that the model predicted correctly, giving the researcher a sense of how well the model fit the actual data. In addition to the binomial logit analysis, I ran descriptive statistics on all variables to determine central tendencies and variation.

Chapter 4

RESULTS

I conducted a binomial logit regression analysis to determine factors influencing success in the California licensing process for CSWs and MFTs, which is defined in this study as attainment of the CSW or MFT license. In addition to running the binomial logit regression analysis, I conducted several basic descriptive analyses to characterize the dataset and ran several analyses to check for multicollinearity among the variables. The first section of this chapter provides a narrative description of the major findings of the descriptive statistical analysis. The second section discusses the results of the binomial logit regression analysis. The final section discusses the method through which I checked for correlations and multicollinearity among the variables.

Descriptive Statistics

The descriptive statistical analysis revealed several notable characteristics in the dataset. Table 4 displays basic descriptive statistics for each variable in the study. First, the vast majority of participants in the survey are female (76%). While such a skewed gender distribution may raise concern for other types of studies, prior demographic research on the professions represented in the study suggest a female-dominated profession (California Board of Behavioral Sciences, 2007b). The average for ‘Age at the Time of Degree Completion’ completion is 35.37, with a modal range of 25-29 years old (Figure 1). Approximately 69% of the sample has a race/ethnicity of non-Hispanic white.

Latinos were the second largest race/ethnicity represented in the sample at 11% (Figure 2).

Like the gender and race/ethnicity variables, the distribution of the variables measuring geographic regions is uneven (Figure 3). The 'Los Angeles' and 'Bay Area' regions are by far the most well represented in the sample with 34% and 27% of survey participants, respectively, indicating they worked in those regions while gaining their hours of required supervised work experience.

'Non-Profit' employment settings were by far the most prevalent environments where respondents earned their supervised work experience. Two-thirds of respondents indicated working in a non-profit setting at some point while earning their required hours of supervised work experience. 'County Contracted Mental Health Agency' was the next highest setting with 23% of participants indicating they had worked in such a setting. Twenty-eight percent of participants reported working another job outside of mental health services in order to supplement their income, and 35% indicated they volunteered at a setting in order to gain hours of supervised work experience towards licensure requirements.

One variable measures the percent of time the participant spent gaining hours of work experience while raising a child. The average response to this question was 28%. Another set of variables measure common challenges in the BBS licensing process. Survey participants rated on a 0 – 100 scale (0 representing extreme ease; 100 representing extreme difficulty) the difficulty of completing work experience

requirements, balancing one's personal life with the demands of a mental health career, obtaining supervision, earning direct psychotherapy work experience, and supporting oneself on the income earned from a career in mental health. Of the five ratings-based variables, only 'Difficulty in Supporting Oneself on Income as a Mental Health Professional' and 'Difficulty in Juggling Demands of Personal Life with Career as a Mental Health Professional' had an average ranking above 50 on the scale. The average rating of these two variables is 58 and 62, respectively.

Table 4. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Completion of the California CSW or MFT Licensing Process	579	0	1	.53	.5
Age at the Time of Degree Completion	557	22	67	35.37	10.63
Female	579	0	1	.76	.43
Bay Area	579	0	1	.27	.45
Central Coast	579	0	1	.06	.24
Central Valley/Sierra	579	0	1	.03	.17
Inland Empire	579	0	1	.09	.28
North Counties	579	0	1	.04	.19
North Valley/Sierra	579	0	1	.09	.28
Orange County	579	0	1	.07	.25
San Diego	579	0	1	.1	.3
South Valley	579	0	1	.03	.16
Los Angeles	579	0	1	.34	.47
Spanish Fluency	579	0	1	.15	.36

Years Between Completion of Degree and 2010	576	2.00	11.00	6.41	1.28
Percent Time Spent Completing Experience Requirements While Raising a Child	553	0	100	27.58	42.78
Sole Wage Earner	579	0	1	.48	.5
African American	579	0	1	.04	.21
American Indian/Alaska Native	579	0	1	.01	.1
Asian	579	0	1	.07	.25
Latino	579	0	1	.11	.31
Non-Hispanic White	579	0	1	.69	.46
Race/Ethnicity Other	579	0	1	.05	.22
Pacific Islander	579	0	1	0	.04
Out-of-State Degree	579	0	1	.11	.32
Satisfaction with Education	577	0	100	81.18	17.57
County Contracted Mental Health Agency	579	0	1	.23	.42
College/University	579	0	1	.04	.2
County Mental Health	579	0	1	.17	.37
For-Profit Mental Health	579	0	1	.08	.27
School (K-12)	579	0	1	.19	.39
Non-Mental Health Focused County Setting	579	0	1	.08	.27
Non Profit	579	0	1	.66	.47
Private Hospital	579	0	1	.10	.3
Private Practice	579	0	1	.16	.36
Public Hospital	579	0	1	.04	.2
Other Setting	579	0	1	.07	.26
State Government	579	0	1	.06	.25
Off-Site Supervision	579	0	1	.18	.38

Pay For Supervision	579	0	1	.17	.38
Supplement Income	579	0	1	.28	.45
Volunteer Hours	579	0	1	.35	.48
Difficulty in Completing Experience Requirements	557	0	100	27.71	31.61
Difficulty in Supporting Oneself on Income as a Mental Health Professional	555	0	100	58.81	34.38
Multiple Employment Settings	579	0	1	.37	.48
Difficulty in Juggling Demands of Personal Life with Career as a Mental Health Professional	560	0	100	62.39	29.49
Difficulty in Finding Direct Psychotherapy Work Experience	559	0	100	30.56	32.16
Difficulty in Finding Supervision	556	0	100	28.78	32.15

Binomial Logit Regression Results

I conducted two binomial logit regression analyses. The first included 45 variables, excluding 'Non-Hispanic White' as a reference variable. 'Pacific Islander' is also excluded because the one response indicating this race/ethnicity did not complete all the questions of the survey; thus, it does not qualify for the analysis. The second analysis included only the variables with statistical significance ($p<0.10$) in the first analysis.

Of the 45 independent variables included in the first binomial logit regression model, ten variables have statistical significance exceeding $p<0.10$. A summary of the results are presented in Table 5. Each of the five broad causal factors present in the model (Demographics, Geographic Region, Education, Work Experience, and Personal Life Challenges) is represented by at least one statistically significant independent variable.

The overall fit of the model is respectable with a Cox & Snell r-square value of .251, a Nagelkerke r-square value of .335, and a predicted percentage of correct results of 72.6%.

The degree of impact an independent variable has on a dependent variable is represented as an 'odds-ratio' in a binomial logit regression. However, a more intuitive method of representing an independent variable's effect on a dependent variable is to express it as a percentage change in the odds. Table 5 displays the odds ratio, standard error, the percentage change in the odds, and the lower and upper bound for the percentage change in the odds using a 95% confidence interval.

Of the ten variables with statistical significance of $p<0.10$, four had a positive effect on the dependent variable and six had a negative effect. Those with a positive effect include 'Bay Area,' 'Years Between Completion of Degree and 2010,' 'Satisfaction with Education,' and 'County Contracted Agency.' Holding all other variables constant, working in the 'Bay Area' at any point while obtaining the required hours of supervised work experience increased the odds of a person obtaining a CSW or MFT license by 143%. Typically, the results for a categorical dummy variable like 'Bay Area' would be interpreted as the effect on the dependent variable as compared to one variable within a category left out of the equation as a reference category. Because many survey participants indicated working in multiple regions during the period in which they earned their hours of supervised work experience, the categorical variables within the broad causal factor 'Geographic Region' do not have mutual exclusivity. Thus, working

in the Bay Area at any point during the period in which a person is gaining hours towards work experience requirements creates a 143% increase in the odds.

The categorical variables for the employment settings where an individual earned their hours were also not mutually exclusive, so the 86.3% increase in the odds attributed to working in a county contracted mental health agency means an individual who worked in a county contracted mental health agency during some point in the required supervised work experience, no matter the duration, has an 86.3% increase in the odds of earning a CSW or MFT license.

Two of the variables with positive effects on the dependent variable were not dummy variables. 'Years Between Completion of Degree and 2010' represented the number of years between the time a person earned their qualifying degree and the present (2010). Adding one additional year between the year in which a person earned a qualifying degree and the present increases a person's odds of earning a license by 63%. 'Satisfaction with Education' had a positive effect on the dependent variable – for a one-unit increase on a 0 – 100 scale measuring satisfaction with education, the percentage change in the odds increases 1%.

The dummy variables with statistically significant negative effects on the dependent variable include 'African American,' 'Latino,' 'Out-of-State Degree,' and 'Non-Mental Health Focused County Setting.' Individuals who identified African American or Latino as their race/ethnicity have a 75.3% and 60.6% decrease in the odds, respectively, of having a CSW or MFT license when compared to Non-Hispanic Whites,

the reference category. Holding an out-of-state degree and working at any point in a non-mental health focused county setting decreased the odds by 48.4% and 66.5%, respectively.

The variables 'Percent Time Spent Completing Experience Requirements While Raising a Child' and 'Difficulty in Finding Supervision' also had negative effects on the dependent variable. A one percent increase in a person's supervised work-experience earned while raising a child decreases the odds of achieving a CSW or MFT license by 1%. 'Difficulty in Finding Supervision' had a negative effect on the odds of 0.9% for a one-unit change along a 0 – 100 rating scale.

Table 5. Binomial Logit Results with All Variables

Model Summary	**Value**
Cox & Snell R-Square	0.251
Nagelkerke R-Square	0.335
Predicted Percentage Correct	72.6%

Variable	**Odds Ratio**	**Standard Error**	**% Change in Odds**	**95% C.I. Lower**	**95% C.I. Upper**
Broad Causal Factor: Demographics					
Age at the Time of Degree Completion	.984	.011	-1.6	-3.7	0.6
Female	.950	.264	-5.0	-43.4	59.4
Spanish Fluency	.762	.349	-23.8	-61.5	50.9
African American	.247**	.537	-75.3	-91.4	-29.2
American	.261	1.194	-73.9	-97.5	171.0

Indian/Alaska Native					
Asian	.811	.426	-18.9	-64.8	87.1
Latino	.394**	.415	-60.6	-82.5	-11.1
Race/Ethnicity Other	1.044	.497	4.4	-60.6	176.6
Broad Causal Factor: Geographic Region					
Bay Area	2.430**	.379	143.0	15.4	410.2
Central Coast	1.404	.467	40.4	-43.8	250.7
Central Valley/Sierra	1.029	.632	2.9	-70.2	255.5
Inland Empire	1.327	.416	32.7	-41.3	199.9
North Counties	.498	.648	-50.2	-86.0	77.7
North Valley/Sierra	1.305	.453	30.5	-46.3	217.1
Orange County	.852	.443	-14.8	-64.2	102.8
San Diego	.780	.433	-22.0	-66.6	82.2
Los Angeles	1.097	.345	9.7	-44.2	115.9
South Valley	1.938	.773	93.8	-57.4	782.2
Broad Causal Factor: Education					
Satisfaction with Education	1.010*	.006	1.0	-0.1	2.2
Out-of-State Degree	.516*	.344	-48.4	-73.7	1.3
Broad Causal Factor: Work Experience					
County Contracted Mental Health Agency	1.863**	.264	86.3	11.0	212.9
College/University	.843	.541	-15.7	-70.8	143.2
County Mental Health	1.286	.285	28.6	-26.3	124.7
For-Profit Mental Health	1.354	.409	35.4	-39.3	202.0
School (K-12)	.730	.283	-27.0	-58.1	27.2
Non-Mental Health Focused County Setting	.335**	.427	-66.5	-85.5	-22.8
Non Profit	.915	.259	-8.5	-44.9	52.0
Private Hospital	.938	.348	-6.2	-52.6	85.7
State Government	.505	.422	-49.5	-77.9	15.5
Public Hospital	1.554	.568	55.4	-49.0	373.1

Private Practice	.812	.325	-18.8	-57.1	53.6
Other Setting	.602	.412	-39.8	-73.1	35.0
Off-Site Supervision	.651	.325	-34.9	-65.6	23.0
Pay for Supervision	1.195	.327	19.5	-37.0	126.9
Supplement Income	1.066	.262	6.6	-36.3	78.2
Volunteer Hours	1.191	.276	19.1	-30.6	104.4
Difficulty in Completing Experience Requirements	.995	.005	-0.5	-1.4	0.4
Difficulty in Finding Supervision	.991**	.004	-0.9	-1.7	-0.1
Difficulty in Finding Direct Psychotherapy Work Experience	.994	.004	-0.6	-1.5	0.2
Multiple Employment Settings	1.358	.259	35.8	-18.3	125.7
Years Between Completion of Degree and 2010	1.630***	.089	63.0	36.6	93.6
Broad Causal Factor: Personal Life Challenges					
Percent Time Spent Completing Requirements While Raising a Child	.990**	.003	-1.0	-1.3	-0.3
Sole Wage Earner	.814	.219	-18.6	-47.0	25.0
Difficulty in Supporting Oneself on Income as a Mental Health Professional	.996	.004	-0.4	-1.2	0.3
Difficulty in Juggling Demands of Personal Life	.997	.004	-0.3	-1.1	0.5

with Career as a Mental Health Professional					

N=540

* p<0.1, ** p<0.05, *** p<0.001

95% Confidence Interval (C.I.) for Lower and Upper Bound for Exp(B) converted into % change in odds

% Change in Odds = (Exp(B) – 1)*100

In the second analysis I only included the independent variables with statistical significance (p<0.10) from the first analysis; thus, I eliminated any effect the statistically insignificant variables had on my model. Only the variable 'Satisfaction with Education' was not statistically significant in the second model. All other variables retained their statistical significance, but the degrees of each variable's effect on the dependent variable changed slightly. The direction of the effects of independent variables on the dependent variable remained consistent between the two models for all statistically significant variables. With the exception of 'Difficulty in Finding Supervision' and 'Percent Time Spent Completing Experience Requirements While Raising a Child,' the effects of the independent variables on the dependent variable become less-pronounced. In other words, the percentage changes in the odds move closer to zero.

In comparing the measures of fit between the two models, the first model proves to be a better fit for the data. The Cox & Snell r-square, Nagelkerke r-square, and the predicted percentage correct decreased by.051, .067, and 3.9 respectively.

These decreases are expected after dropping 35 variables in the second model. The slight decrease (3.9) in the predicted percentage correct suggests the second model still retains respectable predictive value. One potential concern for the second model is omitted variable bias. In eliminating all the statistically insignificant variables, the model no longer controls for them. What is gained in parsimony could be at the cost of omitted variable bias.

Table 6. Binomial Logit Results Only with Significant Variables

Model Summary	**Value**				
Cox & Snell R-Square	.200				
Nagelkerke R-Square	.268				
Predicted Percentage Correct	68.7%				
Variable	**Odds Ratio**	**Standard Error**	**% Change in Odds**	**95% C.I. Lower**	**95% C.I. Upper**
Broad Causal Factor: Demographics					
African American	.329**	.495	-67.1	-87.5	-13.1
Latino	.436**	.315	-56.4	-76.4	-19.2
Broad Causal Factor: Geographic Region					
Bay Area	2.039**	.225	103.9	31.2	217.0
Broad Causal Factor: Education					
Out-of-State Degree	.531**	.306	-46.9	-70.8	-3.3
Satisfaction with Education	1.006	.006	.6	-.5	1.7
Broad Causal Factor: Work Experience					
County Contracted Mental Health Agency	1.772**	.236	77.2	11.6	181.5
Non-Mental Health Focused	.417**	.369	-58.3	-79.8	-14

County Setting					
Difficulty in Finding Supervision	.983***	.003	-1.7	-2.3	-1.1
Years Between Completion of Degree and 2010	1.553***	.081	55.3	32.4	82.1
Broad Causal Factor: Personal Life Challenges					
Percent Time Spent Completing Experience Requirements While Raising a Child	.992***	.002	-.8	-1.3	-.4
N=546 * p<0.1, ** p<0.05, *** p<0.001 95% Confidence Interval (C.I.) for Lower and Upper Bound for Exp(B) converted into % change in odds % Change in Odds = (Exp(B) – 1)*100					

Multicollinearity

To test for multicollinearity in the regression model, I conducted a test for bivariate correlation and ran the model through a traditional ordinary-least-squares regression to check for high variance-inflation factors (VIF). In conducting both of these tests, I found no cause for concern relating to multicollinearity. The highest observed Pearson's coefficient had an absolute value of .508 for the variables 'Difficulty in Completing Experience Requirements' and 'Difficulty in Finding Direct Psychotherapy Work Experience. The highest observed VIF score was 2.669 for 'Los Angeles.' Recall that the independent variable 'Non Hispanic White' was left out of the

model as a reference category. Had the variable been included, multicollinearity among the dummy variables measuring race/ethnicity would have presented an issue.

Figure 1. Frequency Distribution of Age at the Time of Degree Completion

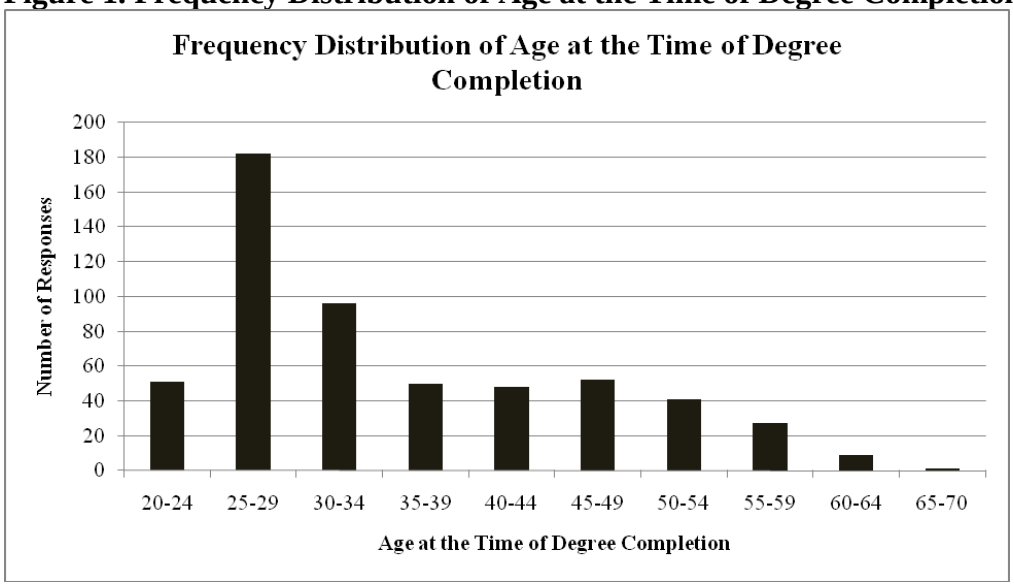


Figure 2. Frequency Distribution of Race/Ethnicity

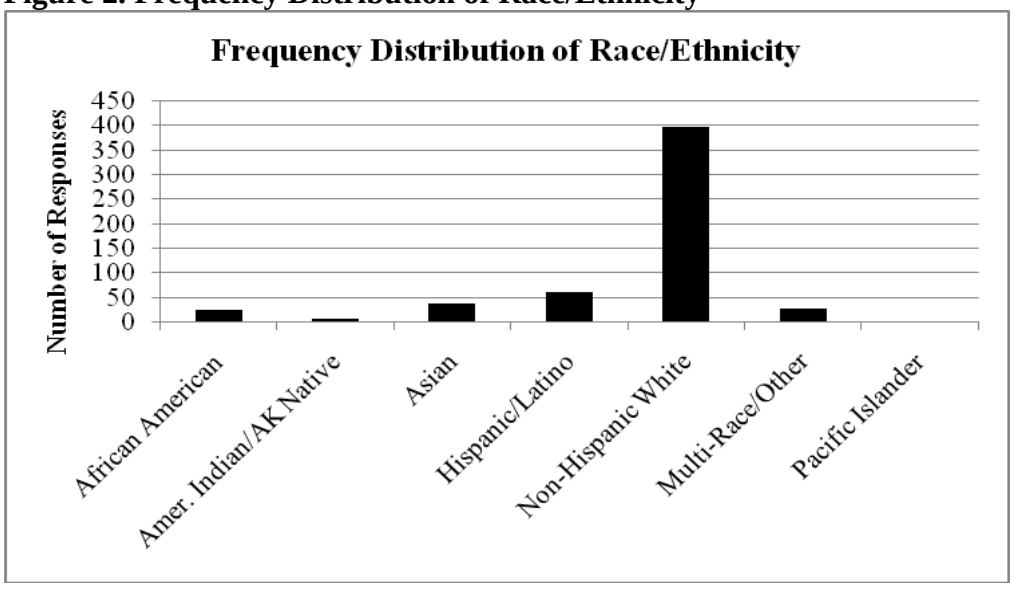
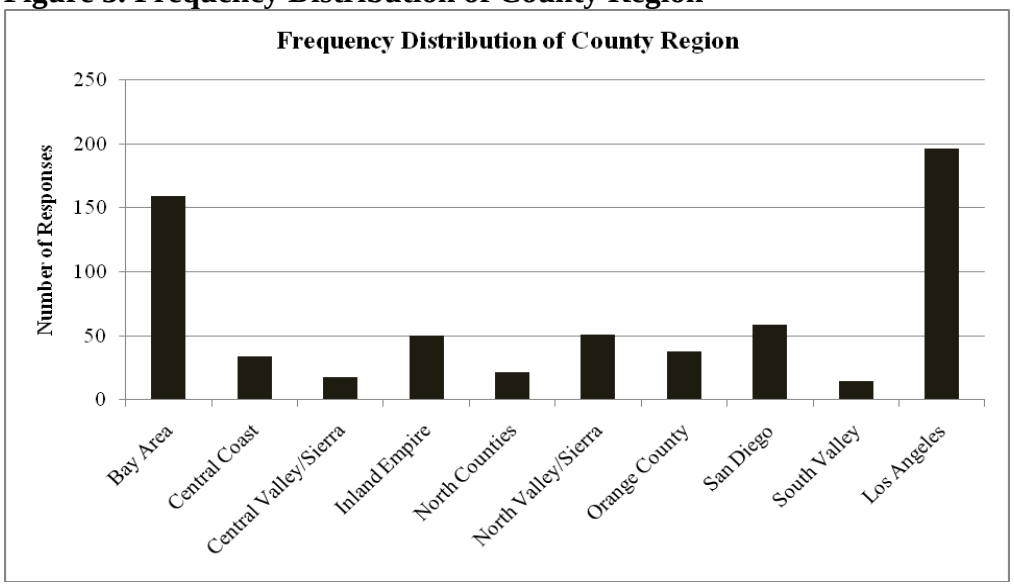


Figure 3. Frequency Distribution of County Region



Chapter 5

CONCLUSION

A review of literature investigating educational and workforce attrition in professions similar to mental health suggested the factors influencing success in the California CSW and MFT licensing process, as defined as attainment of a professional license, would fall outside of the direct policy influence of a mental health-focused public agency. Many research articles identified demographics (e.g. age, gender, race/ethnicity, etc.), education (e.g. satisfaction with education, education level, etc.), and personal life challenges (e.g. caring for a dependent child or family member) as the key causal factors influencing attrition in healthcare professions. Considering the findings of the literature review, a mental health-focused agency interested in improving policies to ensure a sustainable workforce will face challenges because the most predominant factors influencing attrition are outside of the direct policy influence of the agency.

If the conclusions drawn from the literature review discourage the decision maker or policy analyst searching for a means to address mental health workforce issues through direct policy interventions, the results of the two binomial logit regression analyses I conducted offers some hope. While independent variables within the broad causal factors relating to demographics, education, personal life challenges, and geographic region all held some significance in predicting an individual's attainment of a CSW or MFT license, several variables in the broad causal factor of

work experience suggest public agencies can influence success in the California CSW and MFT licensing process.

Policy Implications

One of the variables decreasing the odds of a person obtaining a license as a CSW or MFT was 'Difficulty in Finding Supervision.' While the magnitude of the percentage change in the odds is relatively small (-.9% and -1.7%) in both models, the degree of impact represents a one-unit increase in a 0-100 scale holding all other variables constant. If a person were to indicate a difficulty above one or close to the mean response of 28.78, the affect on the percentage change in the odds is likely to be much higher. This suggests, quite logically, the ability of a potential licensee to obtain the appropriate type of supervision plays a key role in the ability of the individual to successfully obtain a mental health license. The California BBS faces a unique challenge in mandating enough supervision to ensure adequate professional oversight while not creating a clog in the career pipeline for future mental health professionals. Recently, the California BBS sponsored Senate Bill 33 (Correa), which took effect as law on January 1, 2010. Among other changes, this law decreased the total amount of supervision an individual needs in order to obtain an MFT license. This change will likely improve the probability of future mental health professionals completing the licensing requirements considering the findings of my analyses.

The changes enacted as a result of Senate Bill 33, however, only address one of the two professions included in my study. Under current law, individuals pursuing the

CSW license must obtain 1,700 hours of supervised work experience under the supervision of a licensed CSW. Those pursuing the MFT license do not face such a prescriptive requirement towards the supervisor's mental health license. The results of my analyses justify a fresh look at any requirements with the potential of increasing a person's difficulty in obtaining supervision. Requirements such as the 1,700 hour-rule are the type of requirements Feldman and Lee (2008) criticize as unnecessarily restrictive.

My analyses suggest employment in a county contracted mental health agency increases the odds of an individual obtaining a license as a CSW or MFT by 86.3% and 77.2% in the two models. The results of my study cannot identify what components of a county contracted mental health agency are conducive to an individual earning a CSW or MFT license. However, if the California Department of Mental Health seeks to address shortages in the number of licensed mental health professionals; then, some investigation into what county contracted mental health agencies are doing to assist employees in obtaining a license might be one place to start.

Knowledge of the type of employment setting(s) most beneficial to those individuals pursuing a mental health license also greatly assists graduate schools because they can, in turn, advise graduates who are just beginning careers in the mental health workforce. Furthermore, my analyses identified one type of work setting (non-mental health focused county setting) that decreased an individual's odds of obtaining

a license as a CSW or MFT. Information on what settings are not particularly conducive to licensure is just as important as information on those that are.

The positive relationship between the variable 'Years Between Completion of Degree and 2010' suggests, holding all other variables in my models constant, an additional year of one's life spent after graduation increases the odds of an individual earning a CSW or MFT license by 63% and 55.3% in the two models. Considering the low percentages of individuals who had successfully earned their license in a timely manner in previously conducted research (California Board of Behavioral Sciences, 2008b), this finding makes sense. Just as important as actually earning the license is the *time* it takes the average individual to earn the license. Strict licensing requirements requiring significant time investments over-and-above the minimum two-year supervised work experience requirements will likely dissuade individuals from pursuing a license as a CSW or MFT. Here, again, the California BBS faces a unique challenge in setting requirements to ensure licensed practitioners meet minimum competency standards while avoiding the creation of an unnecessarily burdensome licensing process.

Issues Outside of Direct Policy Influence

Causal factors relating to race/ethnicity and their relationship to attrition represent a consistency between my findings and the literature. Compared to the omitted reference variable 'Non Hispanic White,' individuals in the sample population identified as African American or Latin had decreased odds of attaining a license as a

CSW or MFT. Both variables had percentage decreases in the odds in excess of 50%. Data currently available from the California BBS indicates relatively low racial and ethnic diversity among current licensees (California Board of Behavioral Sciences, 2007b). If select races/ethnicities are licensed at a lower rate than others, diversity will continue to be elusive going forward. While neither the California BBS nor the California Department of Mental Health can directly address this issue through policy means, this should nonetheless cause concern for any public entity interested in promoting diversity in the mental health workforce.

The negative relationship between holding an out-of-state degree and attainment of the CSW or MFT license, -48.4% and -46.9% in each model, illustrates an issue in need of further investigation. A person holding an out-of-state degree is likely not a California native and did not benefit from attending a California school. Students attending schools in California and continuing on after graduation to pursue a mental health license experience benefits from completing mandatory internship requirements while enrolled in graduate school. Indeed, an individual who completes a degree program in California essentially has a jump-start on the post-degree job market compared to an out-of-state degree holder who relocates to California and starts fresh. Before more concrete conclusions can be drawn relating to this population, additional research must be conducted. Ideally, a broad causal factor directly addressing this population with several proxies would be present in any future study specifically targeting this population.

Individuals who worked for a portion of their required supervised work experience in the Bay Area experienced a significant increase in the odds (143% and 103.9%) of holding a CSW or MFT license in the sample population. This suggests the Bay Area is an environment conducive to a person earning his or her license. While a number of factors could explain why those who work in the Bay Area experience such success, some observations in the literature hint at one factor in particular. Lok et al (2009) and McRee et al (2003) identified a poor distribution of licensed mental health professionals in the State of California. Specifically, both authors identified the Bay Area as having disproportionately more licensed mental health professionals when compared to other regions. Since individuals pursuing a CSW or MFT license depend on current license holders to provide required supervision, the high number of license holders in the Bay Area region is a likely contributor to the increased success of those individuals who are pursuing a license while working in the region.

Wermeling (2006) represented the study most similar to mine in the literature review, and the effect of my variables 'Satisfaction with Education' and 'Percent Time Spent Completing Experience Requirements While Raising a Child' compared to the findings of her analysis of attrition in the social work profession. Wermeling (2006) found dissatisfaction with education and family caretaking responsibilities to be predictors of departure from the social work profession. In my study, one model identified satisfaction with education to be a predictor of success in the licensing process. Both binomial logit models identified time spent completing work experience

requirements while raising a child to decrease the odds of a person holding the CSW or MFT license.

Considering the predictive value of age and gender in multiple studies included in the literature review, one would expect these variables to have statistical significance in my study; however, neither did. While this may raise concern, my model did include a number of variables relating specifically to work experience requirements and personal life challenges not referenced in the studies included in the literature review. The existence of these additional variables in my model likely accounted for factors not included in the other studies. In short, by including additional variables, my model pulls out the influence of a factor such as the burden of raising a dependent child, which may have been hidden in a variable measuring gender in other studies. Furthermore, because the studies included in the literature review focused on different healthcare professions and had different research questions, the subtle differences in findings are to be expected.

Suggestions for Future Research

As mentioned throughout this document, regression-based research on attrition in the mental health workforce is sorely lacking. With substantial funding going towards mental health workforce development as a result of the Mental Health Services Act, much more research is needed. Because the California BBS is uniquely positioned as the licensing entity for a substantial portion of the mental health workforce, a few extra steps on the part of this public agency could pay significant dividends for

research relating to the mental health workforce. Specifically, the California BBS could implement anonymous and voluntary ongoing surveys of its licensing population. Such efforts could be as simple as creating a Web-based survey similar to the one used in this study and including an invitation to participate with an individual's license or registration renewal.

The ongoing and frequent contact the California BBS has with its licensing population means it can potentially compile valuable longitudinal datasets. In the absence of any staff available to conduct the advanced forms of statistical analysis used in this study, the organization could partner with local colleges and universities and give graduate students the opportunity to analyze the datasets as a part of class projects or thesis-based research.

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