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Demographic, Legal, and Clinical Predictors of Long-Term Trial Competency Restoration

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**DEMOGRAPHIC, LEGAL, AND CLINICAL PREDICTORS OF
LONG-TERM TRIAL COMPETENCY RESTORATION**

by

Jonathan Shook

A Dissertation Presented to the School of Psychology
of Nova Southeastern University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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Dissertation Approval Sheet

This Dissertation was submitted by Jonathan Shook under the direction of the Chairperson of the Dissertation committee listed below. It was submitted to the School of Psychology and approved in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Clinical Psychology at Nova Southeastern University.

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ABSTRACT

Trial competency is the foremost context in which forensic evaluators interact with criminal courts in the United States, and court-ordered restoration to competency (RTC) substantially contributes to hospitalization via the criminal justice system. Predictors of restoration to competency (RTC) have been extensively studied to date, yet few studies have been conducted with RTC patients in a long-term setting. The present study aimed to examine predictors of successful restoration for defendants who underwent RTC from a long-term inpatient facility in Texas from 2012 to 2017. Patients ($N = 261$) were compared across retrospective demographic, clinical, and criminogenic factors via binary logistic regression analysis at one and two years of treatment. At one year of treatment or less, age at admission and ethnicity significantly predicted restoration outcomes, while diagnosis type (schizophrenia vs. schizoaffective disorder) trended towards having greater odds of restoring for patients with a schizoaffective disorder diagnosis. At two years of treatment or less, age at admission, ethnicity, and diagnosis type significantly predicted restoration success. Level of felony degree accusation did not predict restoration success at either time period, nor did diagnosis moderate the relationship between age at admission and restoration. Findings suggest that this long-term restoration sample differs from typical restoration populations regarding the relationships that ethnicity and psychotic disorder diagnosis type share with restoration outcomes. Additional long-term restoration studies are needed to examine if significant predictors from the current study predict outcomes in other populations.

Keywords: trial competency; restoration to competency, long-term treatment, in-patient hospitalization, restoration predictors

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Chapter 1: Introduction to Trial Competency

Trial competency, the ability of a defendant to understand and participate in legal proceedings, has long been considered an essential requirement of a fair and just legal process within the United States. Common judicial practice requires defendants of criminal proceedings to be competent to stand trial before and during legal proceedings, and if related abilities are sufficiently impaired, proceedings cannot continue. Although trial competency provisions can apply to variety of disabilities and legal contexts, it is commonly applied to criminal proceedings in which a defendant is suspected or known to have mental illness; if an individual has a mental illness that distorts either his or her understanding of basic legal processes or of specifics related to their own trial, courts are required to ensure that symptomatology is not negatively interfering with legal decision making. If the defendant's trial competency is deemed impaired, court proceedings are typically postponed until the defendant regains trial competency.

Although the exact origins of trial competence are unclear, its implementation in English common law seems to date back to the 14th century (Roesch & Golding, 1980). At that time, English courts were observed addressing the need for special provisions for defendants with disability impinging upon their competence, and by the mid-17th century, English courts empaneled juries to determine if defendants, instead of entering a Guilty or Not Guilty plea, stood mute as the result of obstinance or “dumb *ex visitation Dei* (by visitation of God; Blackstone, W., 2016, p.210 [original work published 1765]).” Through his overview of English common law, Blackstone elaborated on limitations for defendants with mental illness in criminal court, stating that a defendant who has gone “mad” after an accused offense should not be arraigned since “he is not able to plead to it with the advice and caution that he ought (p. 15-16).” This practice of requiring mental

fitness to withstand the rigors of trial was widely incorporated into the English judicial system under the term *fitness to plead*, and universal criteria for fitness within English courts were later defined by *R v Pritchard* (1836).

American law began following suit in the late 19th century when the Sixth Circuit Federal Court reversed the conviction of Thomas Youtsey based upon findings of “present insanity” impeding his defense (*Youtsey v. United States*, 1899). In summation of the reversal, the Sixth Circuit cited Sir Matthew Hale’s *The History of the Pleas of the Crown* (1847 [original work published in 1736]), a treatise on English criminal law, stating that if a defendant is incapacitated as the result of “present insanity,” they should “be remitted to prison until that incapacity be removed (p. 34)” in order to retain due process of the law. This decision helped lay the groundwork for future American law, as the need for protecting disabled defendants during the trial process later became widely adopted by U.S. courts. In essence, it ushered in new practices in which American courts needed to consider not only the mental state of a defendant at the time of the offense (a question of sanity) but also their present mental capacity to attend to trial.

Since these nascent days of trial competency case law, it has become an everyday consideration for criminal cases in the United States, as landmark U.S. Supreme Court decisions have ensured that defendants’ right of due process is protected when cognitive disability impinges upon their defense. The U.S. Supreme Court decision in *Drope v. Missouri* (1975) dictated that it is fundamentally wrong to subject incompetent defendants to trial, ensuring that competency-related disability be fully addressed by criminal courts at any point during the legal process. Supreme Court mandate from *Pate v. Robinson* (1966) also ruled that presiding courts, and not just the defense, are

responsible for ensuring that an inquiry into a defendant's competency be made when evidence suggests potential cognitive impairment. In essence, these rulings increased the importance of having requisite cognitive abilities to withstand the rigors of trial, as they abolished the practice of prosecuting incompetent defendants who did not raise competency concerns as part of their defense, instead making all court personnel responsible for ensuring defendants be competent to stand trial. As a result, although there is some variance in how states proceed with competency-related concerns, all 50 states require criminal defendants to be competent to stand trial, and specific federal guidelines have been implemented nationwide to ensure uniform consideration of defendants' trial competency.

Guidelines of Competency to Stand Trial Evaluations

When the issue of trial competency is raised in court, mental health professionals are often those that are relied upon to conduct an evaluation with that defendant. Such evaluations are quite common, as they are the most frequently conducted evaluations requested by courts, and over 60,000 competency evaluations are completed each year (Bonnie & Grisso, 2000).

Prior to the 1960's, guidelines for evaluations of competency to stand trial were not specified by American courts; however, this changed, as mandated by United States Supreme Court in *Dusky v. United States* (1960). Milton Richard Dusky was arrested in relation to charges of unlawful transportation and rape, and prior to trial, two psychiatric reports were produced; one report proffered a schizophrenic reaction diagnosis, and the other opined that he was unable to assist his counsel due to beliefs of being framed (Mossman et al., 2007). He was deemed competent to stand trial, however, with the basis

of this decision based upon him being deemed oriented and able to recall some of the events surrounding his arrest. He was found guilty and sentenced, but this was later overturned by the U.S. Supreme Court; the consensus of justices asserted that the threshold for determining his trial competency was not met. Instead, they ruled that a defendant must have “sufficient present ability to consult with his lawyer with a reasonable degree of rational understanding and ... (have) a rational as well as a factual understanding of the proceedings against him (p. 402). For Mr. Dusky, this resulted in his case being remanded to trial court. More importantly, though, this federal mandate ushered in a new standard for evaluating adjudicative competence, often termed the *Dusky* Standard, which has remained the contemporary legal standard across courts in the United States.

Although statutes vary across states and legal contexts, two prongs of the *Dusky* Standard are universal: a defendant must understand the charges that he or she faces and must be able to assist his or her attorney in his or her defense. If a defendant is deficient in either of these areas as the result of disability, then proceedings are to be postponed until competence is restored. Important to note, though, *Dusky* does not expound upon what constitutes a “disability,” thus leaving interpretation to each state. As a result, some states have additional requirements that incompetency has to be the result of a mental disease or defect, while others allow for other sorts of disability (i.e. cultural factors) to be considered. Even so, it is a rare exception for non-mental health related factors to influence trial competency determinations and so nearly all determinations are completed by mental health professions who are able to assess defendants’ cognitive abilities and relate to the court how cognitive impairment does or does not impede a defendant’s

defense.

Restoration of Defendants Found Incompetent to Stand Trial

When a defendant is found incompetent to stand trial, the next legal step is typically dependent on the severity of the offense for which the defendant is accused, although this has not always been the case. Historically, misdemeanants and felony-accused defendants alike could be ordered to indefinite treatment until restoration was attained, but with federal mandate this practice has changed. Contemporary practices now typically provide different paths, as misdemeanants are often ordered to shorter periods of restoration before charges get dropped or a plea bargain without imprisonment is reached; this approach is typically taken in order to avoid undue punishment (e.g. hospitalizing someone for a period of time that would likely exceed prison time if found guilty of the offense) and for cost-effectiveness. For more severe offenses, however, defendants are typically involuntarily psychiatrically hospitalized for restoration to competence (RTC) and face longer periods of treatment before further legal course is taken. In fact, pretrial defendants are most often committed to psychiatric hospitals for RTC treatment and comprise nearly one-third of all admissions of criminal offenders to mental health facilities (Pinals, 2005; Melton, Petrila, Poythress, & Slobogin, 2007).

RTC programs across the United States typically include a combination of both psychiatric treatment and psycholegal training aimed at treating the underlying mental illness and increasing understanding and comfort with criminal law proceedings (Noffsinger, 2001). To achieve these goals, RTC programs, at the minimum, provide psychotropic medication and educational classes; however, many programs include additional components in order to make treatment more efficacious. Some successful

RTC programs that have shared programming structure through published literature incorporate full competency assessments upon admission, individual psychotherapy, access to social and occupational classes, and the use of multiple modalities for improving patient psycholegal education (Schwalbe & Medalia, 2007). Though despite the willingness of RTC programs to incorporate unique components into treatment, very few RTC treatment efficacy studies have been completed (Danzer, Wheeler, Alexander, & Wasser, 2019). Resultingly, RTC programming can be highly varied from hospital to hospital, with few guidelines garnering effective means of treatment.

Despite the variability between programs, research has shown that RTC treatment is almost always effective, no matter the modality; patients tend to restore, so long as some form of treatment is provided. Base rates of unsuccessful restoration typically range from 5.3 to 25.5 percent, with an average of only 10 percent of defendants in RTC not restoring (Colwell & Giancesini, 2011). However, these figures should be viewed cautiously, as most decisions on trial competency are often made solely off of the concluding statement in forensic mental health reports, despite evidence suggesting that evaluators' opinions on trial competency can be influenced by personal biases (Perlin, 1993). Evaluator opinions can sometimes have the best interest of their agency in mind when providing an opinion on competency, and these biases could go unchecked by presiding courts. In certain circumstances, measures have been implemented to avoid bias and increase objectivity (e.g. *Dusky* Standard broken down into specific evaluative criteria in some states), yet their effectiveness remains uninvestigated. Additionally, the figures do not fully incorporate details related to decompensation post-evaluation or differing opinions on defendant competency by multiple evaluators. These are

unfortunate drawbacks to CST research since it is difficult to ascertain the quality of the opinions being provided by evaluators.

Despite the nature and quality of opinions given, however, restoration treatment tends to result with the patient restoring within a relatively reasonable time period before there are any concerns about ineffective treatment or undue punishment. Questions regarding the length of restoration treatment when a defendant does not restore thus infrequently arise.

Restoration to Competency Length

Until the 1970's, incompetent defendants could remain hospitalized indefinitely when RTC did not successfully restore their trial competency. For some defendants, including felony offenders and misdemeanants alike, this meant lengthy commitments to psychiatric hospitals that extended beyond the sentence they would have received if found guilty of the offense. However, in *Jackson v. Indiana* (1972), the U.S. Supreme Court justices ruled this to be a violation of due process and ushered in new practices for involuntary hospitalization. In 1968, Theon Jackson was charged with two counts of robbery (Parker, 2011). He was deaf and mute, leading to severe communication difficulties, and after being evaluated, he was also found to have had intelligence deficits extending beyond his communication difficulties. It was opined that his combined disability would impair his ability to understand the nature of the charges against him and participate in his defense. Mr. Jackson was subsequently found incompetent to stand trial and committed to an Indiana psychiatric hospital for treatment, despite testimony suggesting that Indiana did not have a rehabilitation services available to suit Mr. Jackson's needs and that he was unlikely to restore trial competency at any point. The

defense appealed for a new trial, arguing that Mr. Jackson's commitment was a violation of due process since his condition was unlikely to improve, with no provision in place for his release at any time if he remained incompetent to stand trial. When appeals reached the U.S. Supreme Court, Mr. Jackson's commitment was overturned, with the consensus of Justices agreeing that an indefinite hospitalization due to trial incompetency violated due process. Specifically, the Justices rule that:

Such a defendant cannot be held more than the reasonable period of time necessary to determine whether there is a substantial probability that he will attain competency in the foreseeable future. If it is determined that he will not, the State must either institute civil proceedings applicable to the commitment of those not charged with a crime, or release the defendant (p. 738).

This mandate intended to restrict the time of commitment an incompetent (and unconvicted) defendant in the United States could be confined to RTC treatment, so as to prevent excessive punishment, and as a measure of its success, nearly every state revised its competency restoration statutes soon after the mandate was issued. Unfortunately, the U.S. Supreme Court's ruling was vaguely worded and did not comment on procedures for dropping charges once commitment was deemed ineffective. This allowed states to make their own interpretation of *Jackson*, resulting in statutes that did not fully comply with the intentions of the mandate. Twenty years after *Jackson*, 13 states and the District of Columbia allowed indeterminate commitment, while only 22 states seemed to have acted in good faith towards *Jackson*; 18 states restricted treatment to a maximum of 18 months or less, and four states did not commit incompetent defendants (only committed civilly, if

at all; Morris & Meloy, 1993). Furthermore, 30 years post *Jackson*, 21 states had no effective limit on hospitalization commitment length for competency restoration, with this figure improving to 15 states by 2007 (Miller, 2003; Kaufman, Way, & Suardi, 2012). This latest review that utilized data from 2007 found that of the 35 states that were not indeterminate towards *Jackson*, 14 states had a maximum of one year or less of treatment ten set their maximum from one to ten years, and 11 were proportional to the duration of the sentence.

For the majority of defendants, the ruling from *Jackson* has little impact on their trial; defendants are very rarely found incompetent to stand trial and if found incompetent, restoration is often quickly achieved. Approximately 80% of all individuals referred for a competency evaluation are found competent to stand trial, and of the individuals that are required to engage in some form of restoration treatment, approximately 75-90% restore within a six-month period (Mossman, 2007; Pinals, 2005; Zapf & Roesch, 2011). Again, these figures need to be considered in the context of evaluator biases, differing opinions on competency between multiple evaluators, and possible decompensation considerations.

For those defendants that undergo treatment and do not restore, state adherence to *Jackson* does have a profound impact on their legal outcome; for some states, additional treatment can be ordered but only for a certain period of time (i.e. up to a total of 12 months of treatment), and if restoration is still not achieved after a year of treatment, subsequent legal procedures can lead to charges being dropped. For other states with less adherence to *Jackson*, hospitalization may have no effective time limit and may continue indefinitely. Therefore, state statute, rather than federal mandate, tends to determine the

length of RTC treatment for patients that do not quickly attain trial competency.

Chapter 2: Review of Trial Competency Literature

Mental health professionals play an important role in the trial competency process, primarily in two facets; conducting evaluations of defendants' trial competency for courts and treating defendants that have been found incompetent to stand trial and deemed in need of restorative services, each of which are strongly informed by mandates from *Dusky* and *Jackson*, respectively. Hence, forensic psychological research has aimed to better understand the characteristics of defendants with trial competency-related issues in order to better inform courts and to improve restoration treatment.

Competency Research from Initial Evaluations

Although it has been investigated from multiple angles, the bulk of competency research has primarily focused on pre-treatment differences between competent and incompetent defendants. These studies typically utilize data gathered during the initial competency inquiry phase of legal proceedings, and the motive of this research lies in better understanding factors that influence evaluator opinions or court judgments on defendant trial competency. Factors used for analysis are often of a demographic, diagnostic, or legal nature, are often gathered from competency evaluations and legal databases, and then are correlated to either opinions or rulings on trial competency (Note: researchers tend to treat evaluator opinions and court rulings on competence as one in the same, as studies have consistently demonstrated that courts rarely disagree with evaluators' opinions on defendant competency, and therefore there is very little difference between the two [Zapf, Hubbard, Cooper, Wheelles, & Ronan, 2004]).

Of these pre-treatment studies, clinical and diagnostic factors have been shown to best predict expert opinions and court outcomes, yet a variety of other factors have been

shown to impact outcomes as well. Of the early studies, Blashfield, Robbins, & Barnard (1994) found that cognitive status, presence of psychosis, defendant statements about courtroom behavior, and understanding of the adversarial process best predicted expert opinions, although insignificant predictors from previous studies, such as relationship with one's lawyer, alcohol and drug use history, and criminal history, also significantly related to decisions. Warren, Fitch, Dietz, and Rosenfeld (1991), similarly found that evaluator-assigned diagnosis significantly related to evaluators' competency opinions about 773 defendants, while the type of offenses defendants faced also related to opinions. Hart and Hare (1992) similarly found that, among 80 male defendants remanded for a court-ordered evaluation of trial fitness (the Canadian equivalent to trial competency) in British Columbia, diagnostic status was most associated with fitness determinations.

Early studies were also mixed regarding the link between demographic characteristics of defendants and competency outcomes. While Rogers, Gillis, McMain, and Dickens (1988) found that, among a group of defendants ($N = 470$) evaluated for trial fitness in Toronto, sociodemographic variables predicted trial fitness recommendations to an equivalent extent as clinical variables. Nicholson and Johnson (1991) contrarily found that demographic variables (i.e. age, gender, race) did not relate to competency judgments when other clinical, psycholegal, and offense type variables were controlled, and Hart and Hare (1992) found, aside from juvenile criminal record, criminal and demographic variables were not related to evaluation recommendations.

A more recent study by Hubbard, Zapf, and Ronan (2003) that analyzed evaluative differences between competent and incompetent defendants found that

diagnostic, demographic, and criminological variables all differentiated the two competent and incompetent defendants. Using a sample of data on defendants ($N = 468$) evaluated for trial competence, the authors found a greater proportion of the incompetent defendants to be diagnosed with a psychotic disorder, African American, single, unemployed, and older in age, while defendants found competent for trial were more likely to have a nonpsychotic major disorder diagnosis and to be charged with more violent offenses than incompetent defendants.

Although findings across studies have varied, it is apparent that clinical factors tend to best predict competency opinions and judgments, while other factors' relationship to trial competency fluctuates across populations. Additionally, although clinical factors tend to best differentiate competent from incompetent defendants, this relationship is not always replicated across all competency populations, making it difficult to assert wide sweeping conclusions about particular factors and their effect on defendant competency. These studies also rarely seem to account for multiple opinions from different evaluators or occasions when defendants later decompensate after the evaluative process, further diminishing the ability to make strong conclusions about competency correlates from this literature base.

Adding clarity to the mixed findings, two well-constructed meta-analyses have compiled data on pre-trial competency correlates and shown general trends across studies. The first meta-analysis conducted by Nicholson and Kugler (1991) included responses from 8,170 participants across 30 studies from 1967 to 1989, and when defendants were compared across demographic, legal, and clinical variables, they found that psychiatric diagnoses most correlated to findings of incompetence, particularly that

defendants diagnosed with a psychotic disorder had an increased likelihood of being found incompetent. Of defendants with a psychotic disorder diagnosis, one out of every two was found incompetent, while only one of ten patients with a non-psychotic disorder diagnosis were found incompetent. Additionally, those that had previous psychiatric hospitalizations, greater measured psychopathology (i.e. higher disorientation, delusions, hallucinations, impaired memory, and disturbed behavior) during the evaluation phase, and lower intellectual functioning had an increased chance of being found incompetent. Demographic characteristics had much less of an impact on competency, as modest correlation was detected for age, sex, and minority status, while educational achievement and employment status were not significantly correlated to competency findings. Regarding legal variables, the type of offense (nonviolent vs violent) was not significantly correlated with legal status, but previous legal involvement and previous hospitalization did correlate.

The second meta-analytic study by Pirelli, Gottdiener, and Zapf (2011) analyzed results from 68 studies published between 1967 and 2008, which included data from 26,139 participants on categorical variables of both a demographic (i.e. gender, sex, marital status, and ethnicity) and clinical or criminogenic nature (i.e. employment history, psychiatric hospitalizations, marital status, presence of psychosis, competency evaluation history, and violent criminal charge). They found that most factors aside from those of a clinical nature did not significantly differentiate incompetent and competent defendants, but incompetent defendants were over eight times more likely to be diagnosed with a psychotic disorder, twice as likely to have a previous psychiatric hospitalization, and more than twice as likely to be unemployed. Again, their findings were in line with

Nicholson and Kugler's (1991), as clinical characteristics of defendants, such as the presence of a psychotic disorder, were most related to findings of trial incompetency, while demographic and legal variables had much less impact on defendant competency.

These meta-analyses further confirmed that diagnostic characteristics of defendants relate to trial competency to a greater extent than demographic and legal factors, yet these relationships still tend to vary when looking at specific populations. Additionally, considering that defendants diagnosed with a psychotic disorder still tend to more often than not be found competent to stand trial, albeit at less successful rates than their diagnostic counterparts, conclusions based solely on basic diagnostic data is ill-advised. This supports the notion that a psychotic disorder diagnosis is not synonymous with trial incompetency; individualized interviews with collateral information are needed to ascertain not only what type of clinical impairment but also the extent to which impairment affects psycho-legal capacity (Skeem & Golding, 1998).

Competency Predictions and Resulting Research

As the American legal landscape has evolved, so too have the requirements of forensic evaluators and the research conducted on their behalf. With the changes ushered along by *Jackson*, states soon began requiring court evaluators to not only provide an opinion about a defendant's competency but to also predict an incompetent defendant's likelihood to restore their trial competency at a future date, a practice found in most states to this day (Nicholson, Barnard, Robbins, & Hankins, 1994; Pinals, 2005). In order to give more reliable predictions to courts and to inform treatment for those found incompetent, researchers have since put considerable effort towards understanding not only the correlates to trial competency during the pre-treatment phase but also correlates

of those that restore and those that do not restore to competence with specific RTC treatment.

Unfortunately, to this date, research has demonstrated that evaluators cannot accurately categorize those that restore and those that do not restore with RTC based upon initial impressions of a defendant's trial competency, and the reasoning is two-fold: as discussed earlier, studying those that do not restore with RTC is difficult due to the low base-rates of defendants that do not restore, and research has not led to a clear consensus about which factors best predict unsuccessful RTC (Mossman, 2007; Pinals, 2005; Zapf & Roesch, 2011). Soon after the U.S. Supreme Court issued their mandate from *Jackson*, Roesch and Golding (1980) exclaimed that the low base rates of unrestored defendants made it difficult to offer accurate and reliable predictions on defendant restorability, and studies since have verified this notion (Lamb, 1987; Rodenhauser & Khamis, 1988; Noffsinger, 2001). Even more concerning, a study conducted in Illinois found that clinicians were incorrect 85% of the time when offering an opinion about a defendant who later did not restore, and another study found very few differences between restored and unrestored defendants (Cuneo & Brelje, 1984; Hubbard, Zapf, & Ronan, 2003). Even studies that have demonstrated significant correlates to RTC have urged evaluators to take a cautionary stance when issuing a recommendation on a defendant's restorability (Nicholson, Barnard, Robbins, & Hankins, 1994).

This stance was further confirmed by early findings from RTC studies. Rodenhauser and Khamis (1988) found that patients not diagnosed with a psychotic disorder had a reduced likelihood of successful restoration if they had a history of incarceration, while medication refusal tended to increase restoration chances. However,

they found no significant differences between defendants diagnosed with or without a psychotic disorder regarding restoration outcomes. Soon after, Bennett and Kish (1990) found that, of a sample of over 1,000 male defendants that received RTC in Florida, length of treatment was not influenced by race, education, or marital status, with no interaction between these variables, nor did Carbonell, Heilbrun, and Friedman (1992) find any factors that predicted RTC outcomes among a sample of 135 Florida defendants.

Despite these findings, other studies that followed did find differences between restored and unrestored defendants. For instance, Nicholson, et al. (1994) also found a link between both clinical and criminological characteristics of defendants and RTC outcomes; using a sample of 133 defendants (119 of which restored by the study cut-off date), the authors looked at how characteristics of defendants gathered via the Computer-Assisted Determination of Competency to Proceed (CADCOMP) relate to both restoration treatment outcomes (restore vs. do not restore) and length of stay (usually longer for those that do not restore). Although they found no correlation between demographic characteristics and either outcome measure, they did find clinical and criminological correlates. Individuals who endorsed significant psychotic symptoms had less successful outcomes (less likely to restore and more likely to be hospitalized for longer periods of time), while those that endorsed alcohol use near the time of the accused offense and who reported aggressiveness towards others while in jail were more likely to restore. Additionally, defendants with more significant criminal history tended to have shorter hospitalization time. Overall, this study demonstrated that factors previously found to be unrelated to RTC outcomes could have profound impact on RTC outcomes for other samples.

Modern Era Restoration to Competence (RTC) Research. Findings from nascent days of competency restorability research were inconsistent, but contemporary research has shown fairly steady trends regarding factors that influence RTC success. Like pre-treatment competency studies, post-treatment studies have shown that psychiatric diagnosis best predicts competency restoration outcomes. Mossman (2007) comprehensively looked at the ability to predict defendant restorability by comparing data from inpatient pretrial defendants accused of felony offenses ($N = 268$) and found a regression equation with variables of age, psychotic disorder diagnosis, and intellectual disability diagnosis that significantly categorized restored and unrestored defendants. Of the 60 patients who had the highest probability to restore (56 of which restored), only seven were diagnosed with schizophrenia or schizoaffective disorder. Mossman therefore concluded that, aside from defendants with irremediable cognitive disorders, individuals with chronic psychosis tend to have well-below-average likelihood of restoring to competence with treatment. Morris and Parker (2008) had very similar findings to Mossman (2007), also showing that psychosis and an intellectual disability negatively related to restoration outcomes.

Morris and DeYoung (2012) also found a strong association between psychiatric diagnosis and competency restoration. Retrospective data was collected on defendants within an Indiana state psychiatric facility from 2001 to 2009 ($N = 455$). The factors most associated with unrestored trial competency were psychotic and intellectual disability diagnoses, while substance use and personality disorder diagnoses were most predictive of successful restoration. Having a history of prior state hospitalization also predicted decreased restoration likelihood, possibly indicating a more treatment-

refractory form of mental illness. In line with these findings, when looking at a sample of 71 male patients court ordered to undergo restorative services, Colwell and Giancesini (2011) found that non-restorable patients were more likely to be diagnosed with psychotic illness, had lower cognitive functioning, and received more psychiatric medication, leading the authors to conclude that incompetency is often the result of treatment-refractory mental illness or an untreated cognitive disorder.

One of the most recent RTC studies by Gay, Vitacco, and Ragatz (2017) used pre-treatment data to compare defendants who were found competent (and not in need of RTC), incompetent but later restored through RTC, or incompetent and did not restore through RTC. Similar to other studies, psychotic and cognitive symptomatology was shown to differentiate the three groups. The authors found that competent defendants were more likely to experience suicidal ideation and depressed mood, yet less likely to exhibit certain cognitive difficulties (i.e. distractibility, attentional problems, impaired executive functioning) and psychotic symptoms (i.e. tangential speech, thought derailment, delusions, perseveration, and impaired orientation). Defendants found incompetent to stand trial but later restored were less likely to exhibit a host of symptoms associated with psychotic illness and cognitive disruption (i.e. derailment, impaired executive functioning, motor hyperactivity, distractibility, perseveration, impaired orientation, visual hallucinations) when compared to those that did not restore with restorative treatment. Overall, a greater number of psychotic and manic symptoms, along with intellectual disability, tended to indicate a poorer competency course, while a greater number of depressive symptoms tended to indicate improved trial competency outcomes.

Trial competency research has thus found that clinical diagnoses, and psychotic

and intellectual disability disorders in particular, can have a profound impact on defendants' course of restoration treatment. This comes as no surprise, as trial competency is largely a cognitive construct that depends upon intact reasoning and planning skills, and psychotic and intellectual disability diagnoses tend to lead to long-term impairment to cognition. Intellectual disability has a clear influence on the trial competency process since it directly relates to an individual's cognitive skills, but psychosis has a less obvious impact on trial competency due to variations in its presentation. Generally, scholars explain incompetency to stand trial due to psychosis as the result of delusional thinking, as irrational beliefs tend to impair logical reasoning (Stafford, 2003). These errors in thinking can negatively affect a defendant's perception of proceedings, their ability to work with an attorney, and their ability to attend to their defense. However, other symptoms associated with psychotic disorders, such as hallucinations, thought disorder, and negative symptoms can also interfere with cognition and lead to poor functioning in a variety of settings, let alone high-pressure legal settings. This can also be further complicated by the course of treatment for psychotic illnesses, as delusions, hallucinations, and thought disorder all can be highly treatment resistant (Tarrrier et al.1993; Kane, Honigfeld, Singer, & Meltzer, 1988; Marengo & Harrow,1997).

Fortunately, a diagnosis of a psychotic disorder does not necessarily lead to poor hospital course. For instance, Mossman (2007) showed that many defendants diagnosed with a psychotic disorder still have a high probability of restoring; out of the 166 patients diagnosed with either schizophrenia or schizoaffective disorder, over 62% restored through treatment. Unrestored groups also consisted of defendants with a wide range of

primary diagnoses rather than solely psychotic disorders. Hubbard, Zapf, and Ronan (2003) also found a higher presence of psychosis among their unrestored sample compared to those that restored, yet only 33.7% of this unrestored group was diagnosed with a psychotic disorder. These studies show that, even though the presence of psychosis often is the best predictor of RTC outcomes, successful restoration is more often the result of multiple factors rather than solely a defendant's primary diagnosis.

Demographic and Criminological Correlates to Restoration Outcomes. Aside from the obvious impact that psychotic disorders have on trial competency, other significant correlates are less consistent seen across studies. This is especially true for demographic characteristics, as the age of the defendant is the only correlate that seems to routinely affect outcomes. Although Mossman (2007) did not find demographic information such as marital status, ethnicity, or sex to be related to restoration outcomes, age at treatment admission did significantly relate to outcomes. Along with presence of psychosis and presence of an intellectual disability, age was one of three variables included in their regression equation that had significant predictive ability. Morris and Parker (2008) also found age at hospital admission, along with psychosis and intellectual disability, to be associated with restoration outcomes. Gay, Vitacco, and Ragatz (2017) demonstrated a strong link between psychiatric symptomatology and competency outcomes but also found that, although demographic characteristics of ethnicity, gender, years of education, and hospitalization history did not significantly predict treatment outcomes, age of defendants at hospital admission did predict outcomes. Morris and DeYoung (2012) did not find ethnicity or age at admission to relate to competency outcomes at both outcome periods used for analysis (three-months and six-months), but a

second study by Morris and DeYoung (2014) that compared restored and unrestored defendants involved in longer-term restoration services found those that were older at admission were less likely to restore.

As defendants age, their likelihood of having a disruption to their cognitive abilities therefore appears to increase, but the source of this impairment could come from a multitude of factors; a higher likelihood of developing neurocognitive disorder, a decline in physical health, and stressors associated with aging are some of the many contributors to increased cognitive impairment over time. Yet to this date, trial competency literature has yet to delve further into what aspects of aging affect the restorative process.

Findings on the relationship between age and restoration outcomes can certainly be partially attributed to age-related cognitive decline. Cognitive ability tends to decline with age, no matter the population, and numerous studies since the 1930's have routinely linked cognitive decline with aging (Salthouse, 2009). Neurobiological correlates to cognitive decline tend to appear as early as when adults are in their 20's, with decline in regional brain volume, myelin integrity, cortical thickness, serotonin receptor binding, striatal dopamine binding, accumulation of neurofibrillary tangles, and concentration of various brain metabolites all been linked to the onset of continuous cognitive decline in early adulthood. There is also some evidence, yet less conclusively demonstrated, that age-related cognitive decline increases in severity into older age. Notwithstanding, it is important to note that not all cognitive abilities are associated with age-related cognitive decline, as knowledge-based abilities such as vocabulary skill tend to improve through much of adulthood (Williams & Kemper, 2010). Additionally, other factors associated

with aging, such as general declines in health, medical disorders, and diet and lifestyle changes, have also been linked to age-related cognitive decline. Even so, processing speed, executive functioning, reasoning, and memory abilities have all been shown to decline with age, with much of this attributable to age-related cognitive decline, and the prevalence of many neurocognitive disorders also tend to exponentially increase with age (Deary et al., 2009; O'Hara, Derouesné, Fountoulakis, & Yesavage, 2001). Considering that these age-related deficits to cognition are also likely to apply to RTC populations, it should come as no surprise that age tends to predict restoration outcomes.

Disease course of certain types of mental illness, too, could contribute to older defendants having more difficulty restoring trial competency. As defendants age, it is possible that for some, their battle with mental illness takes a worsening course with time. Although the course of mental illness is highly variable depending on diagnosis, schizophrenia has been shown to typically have a lifelong course that for some progressively worsens with age (Kane et al., 1988; Harvey, 2005). This is supported by neurological evidence of a worsening course for chronic schizophrenia patients; Mathalon, Sullivan, Lim, and Pfefferbaum (2001) found greater frontotemporal grey matter decline and sulcal expansion among chronic schizophrenia patients when compared to a normal population, and this decline was associated with higher negative symptoms and longer hospitalization time. Another study found increased age-related cognitive decline of chronic schizophrenia patients beyond that experienced by both healthy individuals and patients with Alzheimer's disease (Friedman et al., 2001). However, other studies have found a more positive course associated with schizophrenia, as some populations have shown improvement in positive symptoms with age, while

patients diagnosed with other psychotic disorders, such as schizoaffective disorder, have been shown to have less impairment and better outcomes (Schultz et al., 1997). Overall though, per the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013) it is estimated that only approximately 20 percent of individuals with schizophrenia have a favorable course, while steady disability and sometimes deterioration is more commonly part of the aging process. Therefore, RTC success could be impeded by a worsening course of mental illness for some defendants.

Other factors could also have an effect on the relationship between age and restoration, but otherwise, findings are encouraging that other demographic factors tend to not relate to restoration outcomes; RTC treatment tends to have high efficacy no matter the demographic background of defendants ordered to restoration treatment.

Limitations of Restoration to Competency Research

As outlined above, psychological studies on defendant characteristics and their relationship to trial competency outcomes have been thoroughly studied from a both a pre- and post-treatment perspective. Pre-treatment studies have received the most attention, yet post-treatment studies have also recently saturated the competency literature landscape. As a result, in their update on the trial competency research landscape, Fogel, Schiffman, Mumley, Tillbrook, and Grisso (2013) proclaimed trial competency correlate research to be over-studied and a well-understood topic without much need for further study.

Despite this notion, there are gaps in the literature that warrant further analysis. First, given the low base rates of unrestored defendants, findings from RTC studies have

been difficult to apply to evaluator recommendations on restorability offered to courts. With few studies utilizing a population of defendants that have continued restorative services after previously failing to restore, a sample comprised almost solely of defendants from this low base-rate group would offer a unique perspective on restoration. Additionally, the majority of studies that compare restored and unrestored defendants typically use findings after four to six months of restorative services, with few studies looking at services provided for a 12-month period. In some states, 12 months of restoration services truly is the maximum allotted time before it is considered by the judicial system to be a due process violation. Considering that there has been a limited amount of RTC studies with defendants who have been hospitalized for over 6 months, let alone 12 months, there is more to be learned from a group of defendants who have had RTC treatment that has extended beyond these time periods.

Second, nearly all CST studies have grouped defendants with psychotic disorder diagnoses together and compared them to defendants with non-psychotic disorder diagnoses. Although this has distinguished psychosis as a preeminent predictor of RTC outcomes, the differences between symptomatology, presentation, and course of the various psychotic disorders has largely been uninvestigated. For instance, RTC outcomes for patients diagnosed with schizophrenia have rarely been compared to outcomes for patients diagnosed with schizoaffective disorder. Indeed, this is not only true of trial competency literature but of most psychological research.

In general, research tends to group patients with schizophrenia and schizoaffective disorder together. This approach is supported by scholars who argue that schizoaffective disorder is not a distinct diagnosis but rather falls somewhere in between

a spectrum shared between schizophrenia and bipolar disorder. Plenty of evidence supports this view, as findings from neuroimaging, family, and genetics studies have found more similarities between affective and psychotic illnesses rather than differences, leaving most researchers from these fields unwilling to recognize schizoaffective disorder as a distinct disorder (Malaspina et al., 2013). Schizoaffective disorder diagnoses have also historically been shown to be diagnostically unreliable and unstable over time when compared to bipolar and schizophrenia diagnoses, with significant symptom overlap between affective and psychotic illness partially contributing to poor schizoaffective disorder prognostication (Kempf, Hussain, & Potash, 2005).

Despite this contention, schizoaffective disorder has remained a key diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013), with diagnostic features that differentiate it from both schizophrenia and bipolar disorder. The most obvious difference lies in how mood disorder relates to psychosis; whereas mood symptomatology is persistent and pervasive in schizoaffective disorder, mood symptomatology in schizophrenia, if there is any, is only transient and not an ongoing source of clinical disability. Other differences also tend to speak to the severity of each disorder; whereas occupational or social impairment is necessary for a schizophrenia diagnosis, this is not required for a schizoaffective disorder diagnosis. Schizoaffective disorder is also associated with less severe and less pervasive negative symptoms, less deficits to insight, and not necessarily associated with a prodromal stage of illness, while some studies have found differences in formal thought disorder between schizophrenia and schizoaffective disorder, as well as certain patient groups diagnosed with schizoaffective disorder that tend to respond better to treatment

with less need for rehospitalization (Pini, Cassano, Dell'Osso, & Amador, 2001; Shenton et al., 1992 ; Robinson, Woerner, McMeniman, Mendelowitz, & Bilder, 2004).

Given these findings, it appears worthwhile to study the differences between RTC patients who are diagnosed with different psychotic disorders. Significant findings could lead to more comparison studies across various clinical populations, including pre- and post-treatment competency restoration patient groups, while insignificant findings could help further support the viewpoint that schizoaffective disorder has limited clinical utility and accuracy. Furthermore, implementing these comparisons in RTC research could increase understanding of the generalizability of findings from other clinical populations.

Lastly, there is a lack of research that takes a deeper look at restoration correlates outside of the direct relationship between individual factors and treatment outcomes. Aside from a few studies, competency literature has focused on correlates of competency but not on how correlates relate to each other. Pirelli et al. (2011) and Nicholson and Kugler (1991) looked at how moderators affect the relationships between competency status and demographic, clinical, and criminogenic variables, but both studies used method of recruitment, type of competency, and location of study as moderators. Researchers, however, have very rarely looked at how clinical variables moderate the relationship between demographic variables and competency status.

With of evidence from other treatment settings of differing hospital courses for patients diagnosed with schizophrenia and schizoaffective disorder, studying how diagnosis moderates the relationship between age and restorability could offer new insights. Specifically, with some evidence of course differences between schizophrenia and schizoaffective disorder, as well as evidence of a subtype of schizophrenia in which

afflicted patients have a worsening course with age, it is possible that the relationship between age and RTC success is moderated by psychotic disorder diagnosis type (Marengo & Harrow, 1997; Möller, Bottlender, Wegner, Wittmann, & Strauß, 2000; American Psychological Association, 2013). However, the relationship between diagnosis and age appears complicated, as other studies have shown very little difference in age-related cognitive decline for patients diagnosed with schizophrenia when compared to healthy peers (Eyler Zorilla et al., 2000). Studying how a differentiated aging process could impact outcomes through moderation analysis could shed further insight about the complicated relationship shared between diagnosis and aging, with the possibility of identifying a sub-group of patients within RTC settings that have less of a likelihood of restoring trial competency due to a poorer treatment response.

Chapter 3: Method

Purpose

The purpose of this study is to address each of the three limitations listed above, and does so via retrospective analysis with a sample of defendants undergoing RTC. On average, only 10 percent of patients in RTC studies do not restore with treatment, making it difficult to study unrestored defendant groups (Colwell & Giancesini, 2011). This study's sample differs greatly in this regard, as nearly the entire sample already received RTC elsewhere for a minimum of six months without restoring. Additionally, nearly all defendants in this sample have been diagnosed with a psychotic disorder. This sample is thus representative of a group of defendants that tend to be more resistant to restorative services than typical RTC patients, as this author is unaware of any other RTC studies that have as high proportions of defendants diagnosed with a psychotic disorder.

Similar to other RTC studies, this study first looks at how demographic, legal, and clinical characteristics differentiate restored and unrestored defendants, allowing for a brief comparison of this RTC sample to samples from other RTC studies. Next, novel design elements are implemented in order to look beyond simply at how the presence of a psychotic disorder predicts RTC outcomes and instead to see if differences between patients with specific psychotic disorder diagnoses affect RTC outcomes. Then, moderation analysis is used to observe how key RTC correlates interact. Specifically, the study analyzes how the relationship between age and restoration outcome is moderated by type of clinical diagnosis, namely schizophrenia versus schizoaffective disorder.

Sample and Treatment Information

Kerrville State Hospital (KSH) in Texas is a transitional forensic state hospital

that provides treatment for felony insanity acquittees and patients undergoing competency restoration. Its total occupancy from 2012 to 2017 has ranged from 192-202 patients, with 60-130 patients receiving competency restoration services at a time over this period. Prior to arrival at KSH, RTC patients are hospitalized elsewhere in Texas, needing to pass a dangerousness review before transfer to this facility. Additionally, competency restoration patients have all received a minimum of 6 months of restoration treatment prior to admission to KSH. In general, these patients tend to have a high incidence of refractory mental health issues that have contributed to unsuccessful restoration at previous facilities and could continue to pose problems towards future restoration.

According to the Texas Code of Criminal Procedure (Art.46B.0095[2007-2017]), Texas defendants facing felony offenses that are found incompetent to stand trial must receive restorative treatment which can last up to the maximum term of the offense(s) for which they are accused. Restoration patients thus can spend many years in treatment, depending on the severity of their charges and their response to treatment.

Treatment at KSH is multi-faceted and in line with contemporary treatment recommendations. Aside from being prescribed psychotropic medication when indicated, patients engage in a variety of activities that aim to reduce psychiatric symptomatology and improve understanding of the legal process. When patients are admitted to the hospital, they have two formal meetings with their unit treatment team (comprised of, at minimum, a licensed psychologist, licensed psychiatrist, licensed social worker, and a treatment team liaison) within the first week of arrival. Based on these initial meetings, staff observation, and other pertinent information gathered prior to arrival, treatment team

members and other psychology staff in charge of competency restoration programming decide on one of two possible psycholegal education groups in which to enroll the patient: a) group education focusing on teaching basic legal knowledge or, b) mock trial class that involves patient role play with individual feedback from teachers (typically assigned to a patient after completing the former class option). Patients also have the opportunity to engage in a variety of substance rehabilitation, recreational, and on-unit groups on a weekly basis, as well as monthly treatment team meetings to track psychiatric and psycholegal progress. Lastly, KSH occasionally provides individual psycholegal counseling offered by psychology departmental staff when treatment team staff believes a patient could benefit from such services.

Throughout the length of treatment at KSH, when clinical impressions suggest a patient has attained trial competence, a formal assessment of trial competency is undertaken, conducted by licensed psychology or psychiatry hospital staff not assigned to that patient's treatment team. This practice is undertaken to reduce treatment and agency bias, as evaluators have less vested interest in the efficacy of the treatment the patient received, nor does their opinion reflect on their clinical work outside the evaluation. An evaluation can be ordered at any point of treatment, and treatment team staff frequently receives inter-departmental feedback about patient progress when considering when to order an evaluation. If the evaluator concludes that a patient is competent to stand trial, a report is produced by the evaluator and shared with court personnel involved in the patient's case. At this point, arrangements are made for continuation of the legal process. However, if either the evaluator or the court concludes that competence still has not been attained, restoration treatment continues for that patient. Aside from evaluations of

competence when clinically indicated, KSH provides yearly updates on patient progress to presiding courts.

Design

Archival data from the Kerrville State Hospital quality assurance database for individuals involved in competency restoration treatment from 2012 to 2017 was used for analysis. Of note, both groups of defendants used for analysis (restored and unrestored defendants) include individuals that have received restoration services prior to their arrival at KSH but did not restore during that period. For many, these services were provided in a high-security forensic facility, and their transfer to KSH represented reaching a level of stability in which high-security surveillance became no longer necessary. As a result, this sample has received more RTC treatment than most other samples used in RTC research. Additionally, treatment at KSH can extend for multiple years, and since previous RTC research has rarely extended beyond a single year of RTC treatment, data from KSH allows for investigating long-term factors related to competency restoration success.

The analytic plan split the sample data into two groups: a) those that restored within the allotted period of time (at two different outcomes: one year of treatment and two years of treatment) since arrival at KSH and; b) those that did not restore within the allotted period of time or had their legal status changed due to suspected unrestorability within the allotted period of time at KSH. The one-year cut-off was chosen since states that have a specific and non-flexible limit to restorative services tend to use the one-year mark (or less) as the typical maximum RTC period before alternative legal action must be made. Comparing restored and unrestored patients from KSH at this one-year mark

intended to make findings from this study more generalizable to restoration groups from other studies with time limits to restoration treatment. A second analysis at two years of treatment was used in order to test for any differences between the groups when treatment is extended, since many studies do not incorporate patient data as far as two years into treatment.

Study Factors. This study examined the relationship that demographic, criminological, and clinical variables share with restoration outcomes. Demographic variables included ethnicity and age at admission to KSH. Offense severity (first, second, or third-degree levels) for most major offense served as the criminological factor. The clinical variable used in the study was type of diagnosis type (Schizophrenia, Schizoaffective disorder, or “Other” diagnosis). All of the demographic variables, as well as offense severity, were included in the study design so that the study could be compared to previous research on RTC. Additionally, as described in the literature review section of this paper, each of these variables has been shown at various times to relate to both pre-treatment and post-treatment competency outcomes.

The clinical variable, diagnosis type (schizophrenia vs. schizoaffective disorder) was included in the study for a different reason. As mentioned as a limitation in current research, no known RTC studies have divided psychotic disorders into separate factors, despite evidence suggesting differences between both groups regarding symptom severity, treatment response and outcomes outside of RTC settings. This study aimed to investigate if these differences extend to an RTC setting.

Age at admission and diagnosis type were included in the advanced aspects of analyses because they have not only been shown to correlate with restoration outcomes in

many similarly designed studies, but they were also expected to share a complex relationship with diagnostic characteristics. As reviewed above, not only are there differences in outcomes in general treatment settings for patients with schizophrenia when compared to patients with schizoaffective disorder, but each illness course has also been shown to differ. This study intended to investigate if these differences extended to RTC setting with a sample that likely had more severe symptomatology than the typical RTC sample.

Data Analytic Strategy

The data analysis was completed via the following steps: (1) examine the association between restoration (binary dependent variable) with key demographic, clinical, and criminogenic variables (see Table 1 for full list of independent variables) using a binary logistic regression model; (2) determine whether the association between restoration and age at admission is moderated by diagnosis type (schizophrenia vs. schizoaffective disorder) by incorporating an interaction term between these variables into the logistic regression model. Descriptive statistics were calculated for all of the variables of interest. All assumptions of the logistic regression model were examined. In addition, categorical predictors were included only if the number of observations in the cells formed by the dependent variable (restoration versus non-restoration) and the categorical predictor variables was at least 15. Furthermore, the total number of predictors did not exceed a 15:1 ratio of the min (number of restoration events, number of non-restoration events) to the number of predictors. All analyses were conducted using IBM SPSS 24.0 (IBM Corporation, 2016).

Predictions

As seen in previous comparisons of competent and incompetent defendants, demographic, clinical, and criminogenic factors were expected to predict restoration success at both one and two years of treatment. Though considering that the associations between competency status and predictor variables fluctuate across studies, not all predictor variables for this study were expected to significantly relate to competency status. Instead, diagnosis type and age at admission were expected to have the strongest relationships to competency status, while modest-to-little relation between competency status and ethnicity was expected. In summation, it was predicted that variables that tend to most predict RTC outcomes would continue to do so for this long-term RTC sample.

Table 1

Study Predictors of Restoration Status at Years One and Two

Variable Name	Variable Type	Data Type
Age at Admission	Demographical	Continuous
Ethnicity	Demographical	Nominal
Felony Degree	Criminological	Nominal
Diagnosis Type	Clinical	Nominal

Note: Ethnicity, Felony Degree, and Diagnosis Type had 3 levels: Ethnicity - Caucasian, African American, or Hispanic-Latino; Felony Degree - First, Second, or Third-degree; Diagnosis Type – Schizophrenia, Schizoaffective Disorder, or Other Diagnosis.

Regarding moderation analysis, it was predicted that age at admission would better predict restoration outcomes for patients diagnosed with schizophrenia than patients with a schizoaffective disorder diagnosis. Research has shown that patients with schizophrenia or schizoaffective disorder tend to have similar severity of symptomatology and response to treatment upon initial episodes of psychosis, and younger patients at KSH, regardless of psychotic diagnosis type, are expected to have similar responses to treatment (Robinson et al., 1999). However, as discussed in the literature review, schizophrenia diagnoses have stronger associations to negative

treatment outcomes over time when compared to schizoaffective disorder. Therefore, for patients at KSH, older age at admission was expected to have a stronger negative relationship to competency outcomes for patients with a schizophrenia diagnosis than patients with a schizoaffective disorder diagnosis.

Chapter 4: Results

Sample Characteristics

The original sample consisted of 294 inpatient defendants treated at KSH for restoration treatment. The sample was reduced to 261 patients after removing those who had less than a year of treatment prior to the cutoff date of 7/1/2017, which did not leave enough time to determine if the patient restored to competency within the allotted year-long period. Patients belonging to the “other” ethnicity group (aside from Caucasian, Hispanic-Latino, and African American ethnicity groups) were also removed from the sample due to this group being too small in magnitude to include in binary logistic regression. Similarly, this led to the removal of another seven patients’ data for analysis at year two, as seven patients with less than two years of treatment were still hospitalized at KSH on 7/1/2017. The final sample used for analysis was thus comprised of 261 patients at year one and 254 patients at year two.

See sample characteristics below (Tables 2 & 3). Diagnostically, patients were categorized as diagnosed with schizophrenia, schizoaffective disorder, or “other” diagnosis: of this “other” group, bipolar disorder, dementia, and delusional disorder were common primary diagnoses. Patients with psychotic disorders (primary or secondary diagnoses included) comprised 83.1% of the sample, while 59.8% of the sample had a mood disorder diagnosis (schizoaffective disorder included).

The unrestored group was of older average age, was less likely to be diagnosed with schizoaffective disorder, more likely to be diagnosed with schizophrenia, and more likely to be charged with a third-degree felony offense. Hispanic-Latino patients comprised the largest proportion of the total sample yet comprised the lowest proportion

of patients that restored by both year one and year two.

Table 2
Sample Characteristics at Year One

	<u>Restored</u> <i>n</i> = 77	<u>Unrestored</u> <i>n</i> = 184	<u>Total</u> <i>N</i> = 261
Gender			
Male	63 (81.8%)	157 (85.3%)	220 (84.3%)
Female	14 (18.2%)	27 (14.7%)	41 (15.7%)
Age at Admission	43.43 (13.53)	47.86 (13.36)	46.55 (13.54)
Ethnicity			
Caucasian	28 (36.4%)	44 (23.9%)	72 (27.6%)
African American	31 (40.3%)	54 (29.3%)	85 (32.6%)
Hispanic-Latino	18 (23.4%)	86 (46.7%)	104 (39.8%)
Diagnosis			
Schizophrenia	21 (27.3%)	62 (33.7%)	83 (31.8%)
Schizoaffective Disorder	38 (49.4%)	75 (40.8%)	113 (43.3%)
Other	18 (23.4%)	47 (25.5%)	65 (24.9%)
Felony Degree			
First	18 (23.4%)	42 (22.8%)	60 (23.0%)
Second	43 (55.8%)	88 (47.8%)	131 (50.2%)
Third	16 (20.8%)	54 (29.3%)	70 (26.8%)

Note: Mean and standard deviation values are shown for 'Age at Admission.'

Preliminary Analyses

Histograms and boxplots for age at admission at both year one and year two were reviewed for outliers. At year one, three outliers were observed (one outlier for the restored group and two outliers for the non-restored group), showing that the three oldest patients of the total sample were outside of the distribution. At year two, one outlier was observed. However, given that binary logistic regression analysis does not assume normally distributed data and that these outliers were not the result of a data entry error, they were included in further analysis. Analyses were conducted with and without these outliers, and no differences in statistical outcomes were obtained. Therefore, these outliers were included in all analyses.

Table 3
Sample Characteristics at Year Two

	<u>Restored</u> <i>n</i> = 102	<u>Unrestored</u> <i>n</i> = 152	<u>Total</u> <i>N</i> = 254
Gender			
Male	82 (80.4%)	132 (86.8%)	214 (84.3%)
Female	20 (19.6%)	20 (13.2%)	40 (15.7%)
Age at Admission	42.98 (13.25)	48.57 (12.90)	46.32 (13.30)
Ethnicity			
Caucasian	35 (34.3%)	36 (23.7 %)	71 (28.0%)
African American	37 (36.3%)	45 (29.6%)	82 (32.3%)
Hispanic-Latino	30 (29.4%)	71 (46.7%)	101 (39.8%)
Diagnosis			
Schizophrenia	24 (23.5%)	56 (36.8%)	80 (31.5%)
Schizoaffective Disorder	55 (53.9%)	55 (36.2%)	110 (43.3%)
Other	23 (22.5%)	41 (27.0%)	64 (25.2%)
Felony Degree			
First	23 (22.5%)	35 (23.0%)	58 (22.8%)
Second	55 (53.9%)	73 (48.0%)	128 (50.4%)
Third	24 (23.5%)	44 (28.9%)	68 (26.8%)

Note: Mean and standard deviation values are shown for 'Age at Admission.'

Correlational analyses between predictor variables at year one and year two were conducted to assess the assumption of the absence of multicollinearity (Table 4 & Table 5). As suggested by Midi, Sarkar, & Rana (2010), correlational values between predictor variables should be below 0.8. Correlational values between predictor variables were well below this cutoff, and only the relationship between diagnosis and age reached moderate correlation (Cohen, 1988). As such, the assumption of the absence of multicollinearity was met.

Lastly, binary logistic regression assumes linearity of continuous independent variables and log odds of the outcome. Pearson correlation between the logit of the outcome (at year one and year two) and 'Age at Admission' was significant, indicating this assumption of linearity was met.

Table 4
Correlation Between Predictor Variables at Year One

Predictor	1	2	3
1. Age at Admission	-		
2. Ethnicity	.09 (.331)	-	
3. Diagnosis Type	.30 (.000)**	.09 (.350)	-
4. Felony Degree	.10 (.291)	.14 (.038)*	.14 (.032)*

Note: The Cramer's V statistic and eta values are presented with p values in parentheses. ANOVA and chi-square test of independence were used to calculate appropriate p values.

*Significant association at the .05 level

**Significant association at the .00001 level

Table 5
Correlation Between Predictor Variables at Year Two

Predictor	1	2	3
1. Age at Admission	-		
2. Ethnicity	.08 (.445)	-	
3. Diagnosis Type	.31 (.000)**	.09 (.371)	-
4. Felony Degree	.11 (.244)	.15 (.023)*	.13 (.070)

Note: The Cramer's V statistic and eta values are presented with p values in parentheses. ANOVA and chi-square test of independence were used to calculate appropriate p values.

*Significant association at the .05 level

**Significant association at the .00001 level

Binary Logistic Regression Analyses

Binary logistic regression analyses were conducted to test all study hypotheses.

At both outcome periods (one year and two years of treatment), an initial regression model was used to investigate the predictive relationship of age at admission, ethnicity, felony degree level, and diagnosis type to restoration success. Next, the interaction term between age at admission and diagnosis type were added to the regression models.

Unstandardized regression coefficients and odds ratios for each predictor variable and the interaction term were obtained in order to determine which variables predicted successful restoration at years one and two (Tables 6 & 7).

Table 6
Results from Binary Logistic Regression Analyses at Year One of Treatment

Predictor	B	SE	Wald	DF	Sig.	Exp (B)
Age	-0.029	0.012	6.399	1	0.011	0.971
Felony Degree ^a						
2nd	0.203	0.359	0.318	1	0.573	1.225
3rd	-0.304	0.429	0.502	1	0.479	0.738
Ethnicity ^b						
African American	-0.036	0.345	0.011	1	0.916	0.964
Hispanic-Latino	-1.125	0.366	9.434	1	0.002	0.325
Diagnosis	0.509	0.338	2.277	1	0.131	1.664
Age/Diagnosis Interaction	-0.006	0.027	0.044	1	0.835	0.994

Note: Interaction term data was obtained via separate analyses.

^a First-degree felony was used as the reference category.

^b Caucasian ethnicity was used as the reference category.

Table 7
Results from Binary Logistic Regression Analyses at Year Two of Treatment

Predictor	B	SE	Wald	DF	Sig.	Exp (B)
Age	-0.037	0.011	10.974	1	0.001	0.963
Felony Degree ^a						
2nd	0.155	0.347	0.198	1	0.656	1.167
3rd	-0.26	0.404	0.415	1	0.52	0.771
Ethnicity ^b						
African American	-0.064	0.346	0.034	1	0.854	0.938
Hispanic-Latino	-0.863	0.341	6.422	1	0.011	0.422
Diagnosis	0.981	0.326	9.055	1	0.003	2.666
Age/Diagnosis Interaction	-0.023	0.027	0.711	1	0.399	0.977

Note: Interaction term data was obtained via separate analyses.

^a First-degree felony was used as the reference category.

^b Caucasian ethnicity was used as the reference category.

Age at Admission. At one year of treatment (Table 6), age at admission significantly predicted restoration success. An odds ratio of 0.971 was obtained, indicating that the odds of successfully restoration to competency decreases by approximately 3% as age of admission increases by a single year. At two years of treatment (Table 7) age at admission continued to significantly predict restoration success, with an odds ratio of 0.963, which indicated that restoration to competency

decreases by approximately 4% as age of admission increases by a single year. The relationship between age at admission and restoration success increased in magnitude when the sample was observed at two years of treatment ($p = 0.001$) compared to one year of treatment ($p = 0.011$).

Ethnicity. At one year of treatment, ethnicity significantly predicted restoration success. There were no differences in odds of restoring between Caucasian and African American patients, but Hispanic-Latino patients had significantly lower odds of restoring than Caucasian patients. The odds of Hispanic-Latino patients restoring were approximately 0.32 times the odds of Caucasian patients in one year. Said inversely, Hispanic-Latino patients had 3.08 times the odds of Caucasian patients of not restoring during the first year of treatment at KSH.

At two years of treatment, the magnitude of the relationship between ethnicity and restoration success decreased, but significance was still maintained. There was no difference in odds of restoring between Caucasian and African American patients, but Hispanic-Latino patients had significantly lower odds of restoring than Caucasian patients. The odds of Hispanic-Latino patients restoring trial competency by two years of treatment were approximately 0.42 times the odds of Caucasian patients, meaning that Hispanic-Latino patients had 2.37 times greater odds of not restoring within two years of treatment at KSH when compared to Caucasian patients.

Diagnosis Type. At one year of treatment, diagnosis type did not significantly predict restoration outcome. However, the relationship did approach significance, as patients diagnosed with schizoaffective disorder had approximately 1.66 times the odds of restoring when compared to patients with schizophrenia diagnoses. At year two,

diagnosis type significantly predicted restoration outcomes. Specifically, patients diagnosed with schizoaffective disorder had approximately 2.67 times the odds of patients diagnosed with schizophrenia of restoring trial competency within two years of treatment.

Other Predictors. The level of felony degree offense for which patients were accused did not significantly predict restoration success at either outcome period, and there was no significant difference between patients charged with third degree offenses when compared with both those charged with second- and first-degree offenses. Similarly, the interaction term between age at admission and diagnosis type did not predict restoration outcomes at either observation point.

Chapter 5: Discussion

The purpose of this study was to first conduct analysis that was similar to other RTC studies and then to explore the unique characteristics of the sample via novel design elements. The former was investigated by comparing demographic, criminological, and clinical characteristics of patients undergoing RTC treatment at KSH. The latter goal of the study arose due to unique sample characteristics; typical RTC samples have been infrequently studied past one year of treatment and often have less instances of psychotic disorder diagnoses. This author intended to explore these differences by observing the sample at two distinct time periods (one and two years of treatment), comparing patients diagnosed with schizophrenia to patients diagnosed with schizoaffective disorder, and incorporating a moderation term to see how diagnosis type moderated the relationship between age and outcome.

General findings of the study tend to coincide with those of other RTC studies, yet unique outcomes were also obtained. Similar to other RTC studies, certain demographic and clinical variables strongly predicted restoration success. Age at admission and type of psychotic disorder diagnosis predicted outcomes, just as contemporary RTC research has demonstrated time and again. Other findings were less expected and differentiated the study sample from other RTC populations. The most unexpected of these findings was that Hispanic-Latino patients had much lower odds of restoring trial competency when compared to Caucasian and African American peers. Overall, findings suggest that this long-term RTC sample shares commonalities with general RTC samples but differs in other ways.

As to novel study elements, some unique findings were obtained. Foremost,

unlike other RTC studies that typically only compare patients diagnosed with a psychotic disorder diagnosis to patients without, this study compared patients with different psychotic disorder diagnoses, namely those with a schizophrenia diagnosis to those with a schizoaffective disorder diagnosis. Through this comparison, it was found that type of psychotic disorder diagnosis predicted to restoration outcomes. Furthermore, by looking at outcomes from two separate outcome dates (one year and two years of treatment), this study was able to rudimentarily observe the relationships between predictors and outcomes and how these relationships might change based upon length of treatment. In this regard, we were able to observe that age had a stronger relationship to restoration outcomes at two year of treatment than at one year of treatment, while type of psychotic disorder diagnosis only related to restoration outcomes at two years of treatment but not at one year of treatment (i.e. patients with a schizophrenia diagnosis had lower odds of restoring than patients diagnosed with schizoaffective disorder, but only at two years of treatment and not one). Lastly, the study incorporated moderation analysis rarely seen in RTC studies and found that diagnosis type, despite being a predictor of restoration outcomes at two years of treatment, did not moderate the relationship between age and restoration outcomes.

Specific Factors, Theory, and Implications

It was first hypothesized that age at admission and type of psychotic disorder diagnosis would predict restoration outcomes, while felony degree level and ethnicity would have less of a relationship to restoration outcomes. Of all factors, age at admission and ethnicity were the only two that predicted restoration success at both observation points. Type of psychotic disorder diagnosis predicted restoration success at two years of

treatment and also approached significance at one year of treatment, while felony degree level for which patients were accused was the lone factor that did not predict restoration success at either time period. Thus, not all study predictions were accurate. Regarding specific factors, this author successfully predicted that age at admission and diagnosis type would predict restoration outcomes. Diagnosis type, however, only predicted outcomes at two years of treatment but not one year of treatment, making that prediction only partially correct. Findings were also contrary to predictions about ethnicity and its relationship to restoration outcomes. Even so, this study found a variety of factors to predict restoration outcomes at both one and two years of treatment for this long-term RTC sample. The explorative nature of this study accordingly produced findings that yield further discussion, and each individual factor has ramifications for treatment in long-term RTC settings.

Age at Admission. Age at admission predicted restoration success for this long-term RTC sample. At year one, an odds ratio of approximately 1.03 was obtained; when comparing patients one year apart in age, the odds are 1.03 times greater that the older patient will not restore during that first year of treatment. Although this is only a 3% difference in odds of restoring, these odds also indicate that a patient who is ten years older has approximately 1.34 times the odds of unsuccessful RTC, 20 years older 1.79 times the odds, and 30 years older 2.40 times the odds. This same trend was seen when looking at restoration at two years of treatment, as an odds ratio of approximately 1.04 was obtained, with odds of unsuccessful RTC being 1.45 greater at a ten-year increase in age, 2.11 times greater at a 20-year increase, and 3.07 times greater at a 30-year increase.

The ability of age at admission to predict restoration outcomes for this long-term

RTC sample follows RTC research trends. Although RTC research has mixed findings regarding demographic variables and restoration outcomes, age of RTC patients has been the demographic factor most linked to outcomes. Theory on aging, as discussed earlier, suggests that this is due to cognitive demands of trial, cognitive requirements of competency criteria, and how these tasks become more difficult with aging due to both age-related cognitive decline and a higher prevalence of neurocognitive disorders at late adulthood. Results from this study fall in line with general theories on aging and suggests that navigating the trial process becomes more difficult due to aging for this RTC sample.

The implications of this finding suggest that treatment teams in long-term RTC settings should be aware of possible barriers to attaining competency as the result of patient age. Older patients might be in greater need of training and treatment that focuses on cognitive improvement beyond that of the typical long-term RTC patient. For instance, enhanced group and individual training beyond that of routine RTC treatment could be additions to treatment that improve outcomes for older patients. Older patients at KSH could also face increased neurocognitive disability transposed on serious mental illness and be less responsive to treatment as a result. Treatment at KSH is geared towards working with aging patients, but older patients might be able to benefit from additional training focused on improving cognition. Many of the associated deficits that result from neurocognitive disorders, however, are often irreversible, and other deferred action aside from treatment at KSH might help improve clinical outcomes for patients in long-term RTC settings.

It is also possible that clinician biases on age impact restoration outcomes.

Clinicians in long-term RTC settings could be more likely to designate older patients as unrestored and suffering from more severe symptoms than younger patients, thus leading to inflated findings of unrestorability. Future research with data at KSH and with other samples could help with better understanding the relationship between age, neurocognitive disorder, and age bias towards restoration in a long-term RTC setting. Information related to the presence of neurocognitive disorder diagnoses for this sample and of their current cognitive functioning related to premorbid abilities could improve understanding of this study's findings.

An additional note on continuous predictors in binary logistic regression, analysis is limited in that it looks at relationships between factors and outcomes in a linear fashion, and results are interpreted as if odds ratios remain the same no matter the age that is being considered. Given that research has shown an acceleration of age-related cognitive decline and of neurocognitive disorder likelihood in late adulthood, coupled with increased fund of knowledge and language abilities until late adulthood, it is very likely that the relationship between age and restoration is not strictly linear but rather of a stronger negative relationship as age increases. Incorporation of ordinal age ranges in future competency restoration research could help identify certain age ranges in which age-related cognitive decline has a stronger relationship with restoration outcomes. In essence, this could be helpful towards better understanding if typical patterns of age-related cognitive decline apply to RTC patients.

Diagnosis Type. It was similarly predicted that patients diagnosed with schizophrenia and schizoaffective disorder would restore at different rates. The relationship between diagnosis type and restoration success approached significance at

year one and did reach significance at two years of treatment. At one year of treatment, patients diagnosed with schizoaffective disorder had 1.66 times greater odds of restoring than patients diagnosed with schizophrenia, and at two years of treatment, patients diagnosed with schizoaffective disorder had 2.67 times greater odds of restoring than patients diagnosed with schizophrenia. These findings suggest that patients with a schizophrenia diagnosis in this sort of long-term RTC setting are less likely to restore than their diagnostic counterpart and that this difference becomes more pronounced as treatment continues into year two.

This finding seems somewhat counterintuitive to *DSM-5* criteria comprising each diagnosis, as schizoaffective disorder is much like schizophrenia, except schizoaffective disorder also has a pattern of mood symptomatology transposed onto psychosis. However, these results, as well as results from other clinical populations, show that the symptomatology associated with each illness is not simply additive. Generally, study findings suggest that RTC patients diagnosed with schizoaffective disorder at KSH either have less severe psychiatric symptoms, have symptomatology that is more remediated with treatment, or both. This interpretation aligns with previously discussed findings of distinct differences between each diagnosis in course and in cognitive symptoms (e.g. thought disorder, insight), all being areas that have been found to be more severely impaired in schizophrenia. It is also possible that clinicians are more likely to diagnose schizophrenia when symptoms appear more acute and schizoaffective disorder when symptoms are perceived to be less severe. This theory seems to align more with *DSM-5* diagnostic considerations, as social or occupational impairment is required for schizophrenia diagnoses but not for schizoaffective diagnoses.

Whether it is more the former or the latter explanation, the current dataset cannot provide a well-informed answer. Instead, significant findings related to diagnostic differences serve more as starting point for further research on contributors to the differences between patients diagnosed with either disorder. More concrete understanding of these differences could be gained from research that looks at variability within each disorder. For instance, symptom severity measures and data on specific symptoms could provide some clarity as to why there are differences in restoration likelihood for each diagnostic group.

Ultimately, study findings on the differences between patients with schizophrenia and schizoaffective disorder diagnoses have implications for long-term RTC treatment. First, findings show that it is important to not only consider whether a patient has a psychotic disorder diagnosis but to also consider the functional impact that each psychotic disorder has on restoration. For patients with schizophrenia, for instance, it could be imperative to target patient insight and disorganized thinking more-so than patients diagnosed with schizoaffective disorder. It could also indicate that patients diagnosed with schizophrenia have more severe symptomatology that is less responsive to treatment, perhaps making long-term RTC less efficacious for that patient group. Overall, though, given these differences between diagnostic groups, RTC programming might benefit from implementation of differential treatment for patients with schizophrenia than patients with schizoaffective disorder, especially when treatment extends beyond one year.

Another consideration is whether or not it is appropriate to continue RTC treatment for patients with schizophrenia past the one-year mark of long-term restorative

treatment. This study does not provide definitive results, but it does hint at treatment in a long-term RTC setting being less effective for patients with schizophrenia when compared to patients with schizoaffective disorder. If RTC treatment is less beneficial for this group of patients, treatment that is focused solely on mental health rather than legal ability could be of better use to them and more in line with the *Jackson* mandate. However, there are many barriers to modifying treatment course for RTC patients, especially when state statutes allow for RTC treatment to last for the entire length of the patient's possible sentence, and other creative solutions possibly being more feasible.

Felony Degree. Although it was predicted (albeit with less certitude), that the level of felony degree for which patients were accused (first, second, or third-degree) would predict restoration success, felony degree did not predict outcomes at one or two years of treatment. RTC research has occasionally shown offense level and other legal factors to relate to restoration outcomes, but its ability to predict restoration outcomes across populations has been inconsistent, and many studies tend to compare misdemeanants to defendants accused of felony offenses rather than those accused of various levels felony degree offenses. The inclusion of this factor in analysis was due to a more exploratory nature, with less of an expectation that it would predict restoration outcomes.

Although felony degree level did not predict restoration outcomes, this finding is still noteworthy. First, it suggests that differences between felony and misdemeanor RTC patients from other studies does not extend to comparisons of felony RTC patients in a long-term setting accused of various felony offense levels. Considering that misdemeanor offenses are typically of a less violent nature, violent versus non-violent

offense accusation could be more of a distinguishing factor rather than offense level. There could also be less incentive for presiding courts to treat individuals differently based upon the severity of the offense for which they are accused once an offense reaches felony categorization; whereas for general RTC populations, it can be beneficial for the misdemeanor and courts alike to come to a conclusion of attained trial competency (e.g. deferred sentencing, receive needed treatment rather than unjust and extended punishment beyond length of potential sentence), there could be less of an incentive for presiding courts to grant such leniency with RTC patients accused of felony offenses, regardless of felony offense level; courts might be more wary of the consequences of dropping charges for felony RTC patients due to the more serious nature of felony offenses, and the consequences of leniency could result in more severe public consequences.

There also might truly be little clinical difference between those accused of various levels of offenses, with symptoms of mental illness contributing to an equal likelihood to be accused of first, second, or third-degree felony offenses. Findings also go to show that clinicians at KSH are likely approaching competency evaluations for all offense levels with similar thresholds for attaining competency, despite some beliefs that a higher threshold of competency should be applied to those accused of higher-level offense (Buchanan, 2006).

Ethnicity. The most surprising finding from the study is that ethnicity predicted restoration outcomes at both time periods. Although differences were not seen between Caucasian and African American patients at one or two years of treatment, Hispanic-Latino patients had 3.08 times worse odds of restoring trial competency than Caucasian

patients. At year two, the same trend continued, as Hispanic-Latino patients had 2.37 times worse odds of restoring than Caucasian patients. Considering that ethnicity has very rarely been linked to restoration in prior RTC research, this outcome was unexpected and counter to study hypotheses. These unexpected findings point to distinct differences between the study sample and the general North American RTC population. Explanations for this finding is beyond the scope of this study, but there are many possible factors that could influence this finding.

First, it is important to consider hospital-specific factors. It is possible that treatment at KSH is less efficacious for Hispanic-Latino patients, and specific changes could possibly improve outcomes. Bolstered programming and incorporating modifications to individual care, for instance, might be of great benefit for Hispanic-Latino patients. However, these lower restoration rates are likely due to factors outside of hospital control. KSH has extensive experience providing treatment for Hispanic-Latino patients, with an increased emphasis on providing efficacious treatment to both bilingual and limited English proficiency (LEP) patients. The hospital routinely provides Spanish-speaking floor staff and comprises treatment teams of Spanish-speaking staff, while general RTC programming and its guiding principles are delivered to this patient group with psychoeducation classes and individual therapy sessions, when appropriate, in Spanish. Treatment for Hispanic-Latino patients at KSH therefore certainly meets the standards from other hospitals that have completed similar research and found no significant relationship between ethnicity and restoration outcomes. Hence, it seems more likely that discrepancies in restoration success is the product of other factors.

Another possible contributor pertains to minority status in the United States.

Although there is no consensus on what contributes most to minorities not accessing mental health services, there are a multitude barrier that contribute to minority groups having difficulty attaining mental health care in their community (Snowden & Yamada, 2004). As outlined by a report presented by the Surgeon General at the Annual Convention of the American Psychological Association in 2001, “Minorities have less access to, and availability of, mental health services; minorities are less likely to receive needed mental health services; minorities in treatment often receive a poorer quality of mental health care (U.S. DHHS 2001, Executive Summary, p. 12).”

When looking at the minority status of patients at KSH, it is also important to consider that a substantial portion of the Hispanic-Latino patients at KSH have limited English proficiency, further complicating navigation of both living in the community with mental illness and of the legal system. Shi, Lebrun, and Tsai (2009), when using cross-sectional data from the 2006 National Health Interview Survey ($N = 29,868$), found that individuals with LEP were not only more likely to forgo medical care than their peers but also less likely to have a health care visit. Even when factors such as socioeconomic status and health status were controlled, the LEP group was less likely to utilize health care. Regarding navigation of the legal system with LEP, working with interpreters (when provided) can be complex, with the quality of interpretive services in legal contexts varying in quality and well-established academic training programs for interpreters lacking (Miller, Davis, Prestidge, & Eggington, 2011). Even in instances when interpreters are provided (often to the discretion of the presiding court), linguistic comprehension may be below English fluent counterparts. Given these findings, Hispanic-Latino patients at KSH could represent a population that has had less access to

mental health services in the community and had additional barriers navigating the legal system, contributing to more acute psychiatric impairment, lesser developed skills for managing this impairment, and less of an ability to aid in their own defense when compared to Caucasian and African American counterparts.

Lastly, acculturation factors could influence lower rates of restoration for Hispanic-Latino patients at KSH. Whereas other patient groups could be much more familiar with legal proceedings in the United States, some Hispanic-Latino patients at KSH could be recent immigrants to Texas with limited time spent towards learning about US legal procedures and terminology. Immigration has also been associated with reduced rates of crime, and Hispanic-Latino patients at KSH could thus have less of a criminal history and a resulting familiarity with the criminal justice system (MacDonald & Saunders, 2012).

Moderation. Final analyses of this study looked at the relationship between age and restoration success and how type of psychotic disorder diagnosis moderates this relationship. At both outcome periods, when diagnosis type did (year two) and did not (year one) predict restoration outcomes, it did not moderate the relationship between age at admission and restoration success.

This finding is quite interesting, considering that at two years of treatment, patients with schizophrenia diagnoses have worse outcomes compared to patients diagnosed with schizoaffective disorder. Overall, findings that diagnosis type did not moderate the relationship between age at admission and outcomes suggest that outcome differences between diagnostic groups from year one to year two of treatment is less attributable to differences in aging and more related to diagnostic-related factors.

Specifically, it suggests that the reason patients with schizophrenia tend to need longer periods of treatment is less the result of having a worsening course than patients diagnosed with schizoaffective disorder but more due to having less remediable symptoms. This finding further bolsters the notion that long-term RTC for patients diagnosed with schizophrenia that have been at KSH for over one year could be less likely to benefit from additional RTC.

Study Limitations

It is important to keep the results of this study in context. Although findings yielded new discoveries about long-term RTC samples, it is also important to note the limitations of these findings. First and foremost, this study was conducted with data from the KSH quality-assurance database, and the nature of this database for research purposes is only of a secondary nature. Considering its primary intention, less of an emphasis was placed on making sure that this data was research-ready; That is, during the data gathering process, less of an emphasis was placed on assuring that the data was up to research standards. For instance, multiple coders and multiple check-point processes were not used in developing this database. Instead, the database was maintained by a variety of hospital-wide staff, with staff adding data at different times throughout the year. Additionally, some data was gathered during intake procedures, where accuracy can sometimes take a back seat to expediency. Therefore, this data is better viewed as more of a snapshot of patient characteristics at KSH, with further attention to detail needed to make more definitive statements about each factor and to investigate patient characteristics at a deeper level. Also, due to this nature, the author made sure to offer speculative interpretation of findings with more rigorous research procedures

recommended for a more detailed understanding of RTC outcomes at KSH.

Another important limitation relates to the predictive ability of the findings. The overall predictive ability of the study only improved from chance predictions of 70.5% to 72.4% in year one and from 59.8% to 66.5% in year two when all factors were included in the study models. This only represents a slight increase in the ability to predict those that will restore with treatment in one- and two-years restoration treatment. Therefore, the utility of the study lies in better understanding groups of patients rather than individual patients, as a two percent increase in predicting restoration is meaningful to large groups of patients, whereas a two percent increase in the ability to predict a single patient's treatment course has much less meaning to the competency status of that individual. This author urges mental health professionals to rely upon rigorous clinical interview rather than the retrospective factors included in this study when making determinations about an individual's trial competency and treatment restorability.

This study is also limited by the breadth of factors included in analyses, as additional factors could help add context to findings. For instance, a look at secondary diagnoses and symptom severity could allow for more in-depth conclusions, while more detailed information about treatment prior to KSH could add more context to the long-term nature of the sample's course of mental illness. More context is also needed to better understand the relationship between ethnicity and restoration outcomes, as many different moderators could influence this relationship. Adding more treatment factors and social factors could greatly improve the ability to interpret ethnicity findings and to understand why Hispanic-Latino patients had more difficulty restoring to competency at both one and two years of treatment.

In line with this, it is also important to be mindful that this study is not a reliable treatment efficacy study. It does not show, nor attempt to show, that KSH provides a specific treatment that is effective beyond other RTC programs, and comparing treatment at KSH to other forms of treatment is beyond the scope of this study. Although KSH incorporates contemporary and well-accepted RTC treatment practices into hospital programming, while also tailoring treatment to the needs of the specific population at their facility, this study does not compare KSH's approach to other programs, nor incorporate control groups or treatment-as-usual-groups, elements often incorporated into Randomized Control Trial (RCT) studies that allow for reliable conclusions to be made about treatment efficacy or effectiveness.

Future Directions

Although numerous RTC studies have been conducted to this date, the lack of studies conducted with patients in long-term RTC settings adds to the importance of findings from this study. Now that we have demonstrated that a variety of factors predict restoration outcomes in a long-term setting, it is important to determine if these results are generalizable to other long-term samples. However, it is equally important to expand the scope of this study to see if other factors not included in this study relate to restoration outcomes for this sample and other samples alike.

As to future directions with the sample from KSH, research could be expanded in a variety of ways. More factors could be added to analyses to take a more in-depth look into why certain predictors related to restoration outcomes. For instance, although the current study looked at clinical prediction of restoration outcomes by comparing patients with schizophrenia to patients with schizoaffective disorder diagnoses, it would also be

useful to investigate what sorts of specific symptoms most relate to restoration outcomes. Looking only at diagnostic factors does not fully explain the clinical picture either, as compliance with treatment and symptom severity can certainly influence restoration outcomes. Including factors that measure resistance to treatment and symptom severity could add context to findings from this study in this regard, especially when looking at differences between those diagnosed with schizoaffective disorder and schizophrenia. As to findings about ethnicity and differing restoration success, factors could be added to better understand why Hispanic-Latino ethnicity predicted a lack of restoration success. Looking at sociodemographic variables (i.e. socioeconomic status, language barriers, access to treatment, and acculturation) and treatment factors (i.e. group attendance, symptom reduction) would allow for greater understanding of findings related to lower odds of restoring for Hispanic-Latino patients.

As to the generalizability of this study, more long-term RTC studies are needed. Just as many short-term RTC studies have allowed for fairly definitive statements about how the presence of psychosis and older age reduce the likelihood of restoring during initial attempts at restoration, many more studies with long-term RTC samples are needed to make similar sorts of definitive conclusions about long-term RTC predictors. Additionally, findings from this study might be confined only to the sample at hand or only indicative of predictors that were significant during the study's time period. Currently, more research in this area of RTC treatment is needed.

Future research with samples from other facilities could also allow for studying other predictors that were unavailable with the KSH sample. For instance, other samples might be larger, more able to break down the nuances of psychosis and restoration at an

even deeper level (e.g. include patients with delusional disorder diagnoses in diagnostic comparison analysis), or have greater access to historical data on patients. This additional information could lead to the discovery of other predictors of restoration success for long-term RTC populations.

Lastly, newly-introduced predictors of competence for this long-term RTC sample could be applied to research with short-term RTC populations. Although the presence of psychosis has been established as the preeminent predictor of restoration success, comparison of patients with schizophrenia to patients with schizoaffective disorder diagnoses have very rarely been conducted outside of this study. Given that this study found significant differences in restoration between the two diagnostic groups, it could be informative to test the differences between these patients in short-term RTC settings.

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