

AN ABSTRACT OF THE DISSERTATION OF

Carlos Obed Texidor Maldonado for the degree of Doctor of Philosophy in Counseling presented on December 7, 2023.

Title: The Treatment of Criminal Recidivism: Corpus-Based Analyses

Abstract approved:

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Cass Dykeman

The dehumanization of Black, Indigenous, people of color (BIPOC) and marginalized communities does not end once an individual is released from an institution. The dehumanization process is kept alive with ineffective community supervision and the stigma associated with an individual's incarnation history. Evidence of this continual dehumanization process is reflected in the tens of millions of annual arrests in the U.S. Mass incarceration and dehumanization impinge on civil rights and perpetuate ongoing disparity and recidivism by the criminal justice system, as evidenced in the disproportionate number of racial and ethnic groups compared to the general population. The findings of these studies have the potential to assist helping professionals in two ways: (a) by providing a greater understanding of language and culture in clinical practices for individuals involved with the criminal justice system and (b) by determining recommendations for future targeted areas of research to address recidivism more effectively. There are two studies. The first used a corpus linguistic design to analyze the keyness and collocation of two recidivism prevention program manuals: the *Cognitive Behavioral Interventions for Offenders Core Adult (CBI-CA)* and *Thinking for a Change (T4C)*.

The level of measure for keyness and collocation were continuous and nominal. The unit of analysis was single words. The words occurring with greater frequency in *CBI-CA* were “module” and “success,” and the words with less frequency were “lesson” and “supplement.” The word network of the strongest positive keyword “module” in *CBI-CA* were “session” and “worksheet.” The strongest collocates of the word stem “crim\*” in *CBI-CA* were “people” and “mental.” The strongest collocates of the word stem “crim\*” *T4C* were “systems” and “justice.”

The second study used Latent Dirichlet Allocation and topic modeling to identify the historical foci of the academic literature on recidivism. These topics were (a) legal framework and governance, (b) mental health and substance abuse interventions in correctional systems, (c) risk assessment and predictive factors in violent offenders, (d) gender disparities in the prison system, (e) criminal sentencing in sexual offense cases, and (f) behavioral experiments and interventions in correctional settings. The topics were grouped into half decades. A linear or quadratic regression model was selected depending on which best represented the trends by half decade. The selection between models was made with the use of the Bayesian information criterion BIC. The data identified trends and the increase and decrease of research topics. The study identified gaps in the literature and the need for additional multiculturalism and social justice efforts. The study also highlights the need for increased trauma-informed practices, consideration for the social determinants of health, and clinical therapeutic interventions in the criminal justice system.

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The Treatment of Criminal Recidivism: Corpus-Based Analyses

by  
Carlos Obed Texidor Maldonado

A DISSERTATION

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes the release of my thesis to any reader upon request.

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Carlos Obed Texidor Maldonado, Author

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## CONTRIBUTION OF AUTHORS

Cass Dykeman assisted with the development of research questions, methodology, research design, and statistical interpretations. He also contributed written portions to the methods sections for MS1 and MS2. Sae Kim conducted the data scraping and created figures and tables for MS1 and MS2. AI chatbots were used for brainstorming topics in explanatory parts of the discussion section.

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## **Chapter 1: A General Introduction**

When the prison gates slam behind an inmate, he does not lose his human quality; his mind does not become closed to ideas; his intellect does not cease to feed on a free and open interchange of opinions; his yearning for self-respect does not end; nor is his quest for self-realization concluded. If anything, the needs for identity and self-respect are more compelling in the dehumanizing prison environment.

Thurgood Marshall

The dehumanization of Black, Indigenous, people of color (BIPOC) does not end once the individual transitions from the institution: an “estimated 68% of persons released from prison were arrested within 3 years, 79% within 6 years, and 83% within 9 years” (U.S. Department of Justice, 2022). The dehumanization process is kept alive using ineffective community supervision (parole practices; Latessa & Schweitzer, 2020) and the stigma associated with an individual’s incarnation history (Tyler & Brockmann, 2017). Evidence of this continual dehumanization process is reflected in the 11 million arrests in local U.S. jails annually (Riley et al., 2018). Furthermore, Cox (2015) and Jeffers (2019) described how mass incarceration and dehumanization counter U.S. Civil Rights through their ongoing disparity of incarceration and recidivism by the criminal justice system in the disproportionate number of racial or ethnic groups compared to the general population.

An extensive body of research exists on criminal recidivism. Despite this plethora, topic modeling studies on criminal recidivism interventions remain limited. Studies have focused on the types of crimes committed, shifts in the terminology over the decades, and measuring some of the effectiveness of the therapeutic interventions targeted explicitly to reduce recidivism rates. However, the body of research has limited data capturing the overall content of the literature utilized to address recidivism. Furthermore, historical incarceration rates reflect racial disparities,



with individuals of color incarcerated at “five and a half times the rate of non-Hispanic White males” (Enders et al., 2018, p. 366). The incarceration and recidivism rates are a social justice imperative for clinicians and counselor educators that requires purposeful academic research and clinical practices (Chang et al., 2010). The present research effort aimed to disrupt current practice by looking for missing essential aspects of the training discourse on recidivism.

### **Literature Review**

The correctional system in the United States has been making strides in improving and reducing incarceration rates. One significant way to reduce incarceration rates is to decrease recidivism. The United States has put considerable effort into examining incarceration rates and identifying risk factors for recidivism (Drawbridge et al., 2019; Latessa & Reitler, 2015; Latessa & Schweitzer, 2020). Recidivism refers to the act of committing another criminal offense after being previously convicted of a crime (Klinge, 2019). An interchangeable term is “reoffending.” Thomas et al. (2018) defined *reoffending* as the act of committing antisocial and illegal behavior. Social justice advocates in the U.S. have acknowledged the alarming incarceration and recidivism rates and have put forth efforts to address this concern.

The Level of Service/Case Management Inventory (LS/CMI) is a tool that assesses the individual’s risk for reoffending based on criminogenic factors. These factors include criminal history, family/marital interactions, employment/education status, peer relations, alcohol/drug problems, leisure/recreation activities, antisocial personality/behavior patterns, and procriminal attitudes/orientations (Dyck et al., 2018). Alcohol/drug problems are identified as one of the criminogenic factors (LS/CMI) and a significant contributor to reducing recidivism (Andrews & Dowden, 2007; Campbell et al., 2015; Dyck et al., 2018). Latessa et al. (2013) reported that the LS/CMI is an effective tool for measuring the risk level of an individual’s substance use and

treatment needs.

## **Description of Research Manuscript 1**

### **Research Questions**

Four research questions guided this study:

RQ1: In comparing the *Cognitive Behavioral Interventions for Offenders Core Adult* recidivism prevention program manual (*CBI-CA*) to the *Thinking for a Change* (*T4C*) recidivism prevention program manual, what words were used with greater and lesser frequency?

RQ2: In the *CBI-CA* manual, what is the word network of the word with the strongest positive keyness in RQ1?

RQ3: What is the word network of the word stem crim\* in the *CBI-CA* manual?

RQ4: What is the word network of the word stem crim\* in the *T4C* manual?

### **Design**

This study employed a synchronic corpus linguistics design (Brezina, 2018). Four variables were used: manual, keyness, node word, and collocates of the node word. The corpuses were two recidivism prevention program manuals. The level of measure for keyness and collocation was continuous, and for manual and node words, it was nominal. The unit of analysis was single words (Bjekić et al., 2014).

### **Data Analysis**

For RQ1, the descriptive statistics include raw frequency count and normalized frequency count (count per 1,000 words). In terms of inferential analysis, differences between the corpuses were assessed using the log-likelihood ratio test ( $G^2$ ). This study presents statistics for the 10 words with the strongest keyness in each direction. The effect size metric employed was the log

ratio (LR). When a word is two times more common in A than in B, then the binary log of the ratio is 1 (Hardie, 2014). The alpha level was set at  $p < .001$ , and the analysis was completed using the R package “textstat\_keyness” (Benoit et al., 2018). Regarding RQs 2–4, the GraphColl module of #Lancsbox was used (Brezina et al., 2018). The GraphColl settings were as follows: (a) span: 5 left, 5 right; (b) statistics: 03-MI; (c) threshold: MI = 3, collocation frequency = 5; and (d) type = type; filter = stopwords. Complete keyness results are available at <https://osf.io/kngzx/>.

### **Target Journal**

For MS1, the *Journal of Addictions & Offender Counseling* was selected as the target journal. This journal is a scholarly publication for the International Association for Addictions and Offender Counselors and is affiliated with the American Counseling Association (ACA). Example articles that align with the methodology and content of MS1 include (a) “Substance Use Assessment Instruments: 13 Years Later,” by Laux et al. (2017) and (b) “A Pilot Study of a Trauma-Informed Yoga and Mindfulness Intervention with Young Women Incarcerated in the Juvenile Justice System,” by Nicotera and Viggiano (2021).

### **Preprint and Open Science Plan**

The preprint of the completed article manuscript will be deposited with PsyArXiv (<https://psyarxiv.com/>). The Sherpa/Romeo reports no information on preprint restrictions listed for the target journal (<https://v2.sherpa.ac.uk/romeo/>). Lastly, this manuscript will bear the following Open Science badges: Open Data and Open Materials (<https://www.cos.io/initiatives/badges>).

## **Description of Research Manuscript 2**

### **Statement Research Questions**

There were two research questions that guided the MS2 study:

RQ1: What is the topical structure of the academic discourse on recidivism?

RQ2: How does the presence of the topics differ by half decade?

## **Design**

This study utilized Latent Dirichlet Allocation (LDA). The LDA variables analyzed were as follows: number of words in a document ( $N$ ), number of documents ( $D$ ), number of topics ( $K$ ), the Dirichlet prior parameter for per topic word distribution ( $\beta$ ), the Dirichlet parameter for per-document topic distribution ( $\alpha$ ), word distribution for topic  $k$  ( $\phi_k$ ) document topic distribution for document  $d$  ( $\theta_d$ ), word topic assignment for  $W_{d,n}$  ( $Z_{d,n}$ ), observed word (the  $n^{\text{th}}$  word in the  $d^{\text{th}}$  document) ( $W_{d,n}$ ; Biel, 2012; Naushan, 2020).

## **Data Analysis**

In terms of RQ1, topic modeling was accomplished with the use of Latent Dirichlet Allocation. The  $k$  selected for modeling ranged from 2 to 15 and sought the model that represents the best mix of low log perplexity and high topic coherence. In terms of topic interpretation assistance via pyLDAvis, the relevance setting used was the one found as optimal by Sievert and Shirley (2014;  $\lambda = .6$ ). Regarding RQ2, a heatmap of the topics (x-axis) and half decade (y-axis) matrices are provided.

## **Target Journal**

For MS2, the *Journal of Quantitative Criminology* was selected as the target journal. The journal focuses on research advances in various fields, such as statistics, sociology, geography, political science, economics, and engineering. The journal publishes manuscripts that apply quantitative techniques, methodological practices, or research that evaluates concerns of significance to the criminological community. Example articles that align with the methodology

and content of MS2 include (a) “In pursuit of interpretable, fair and accurate machine learning for criminal recidivism prediction,” by Wang et al. (2023) and (b) “Chains of adversity: The time-varying consequences of paternal incarceration for adolescent behavior,” by Turney (2022).

### **Preprint and Open Science Plan**

The preprint of the completed article manuscript will be deposited with PsyArXiv (<https://psyarxiv.com/>). The Sherpa/Romeo reports no information on preprint restrictions listed for the target journal (<https://v2.sherpa.ac.uk/romeo/>). Lastly, this manuscript will bear the following Open Science badges: Open Data and Open Materials (<https://www.cos.io/initiatives/badges>).

### **Glossary of Terms**

*Latent Dirichlet Allocation (LDA)*: LDA is a mathematical method or a generative statistical model that provides a more profound observation of data and identifies correlations/distinctions within data. LDA is a method utilized in many fields of study; a popular application is topic discovery. For example, LDA has been used to predict substance use related crimes (Gamma et al., 2016).

*Recidivism*: The term recidivism refers to an individual's crime-related actions or outcomes after being released from prison. Actions associated with recidivism include returning to criminal behavior, rearrest, new convictions, reincarceration, or reimprisonment (Fazel & Wolf, 2015).

*Reoffending*: The term reoffending is similar to recidivism in that it describes the outcome of an individual who committed a crime and/or was reincarcerated after release (Barnett et al., 2018). Rose and Shem-Tov's (2021) study found that extended prison sentences increase the risks of inmates reoffending upon release.

*Topic modeling:* Topic modeling is a type of statistical method for discovering abstract topics that occur in a collection of documents and has been used to categorize and analyze criminology (Vander Beken et al., 2021).

*Treatment manuals:* Treatment manuals contain research-supported clinical activities referred to as evidence-based practices (EBP; Zettle, 2020). The American Psychological Association Presidential Task Force on Evidence-Based Practice (2006) implemented the Institute of Medicine's (2001) approach to EBP. Sackett et al. (2000) described EBP principles as follows:

- the best available research evidence for the impact of a psychotherapeutic approach
- the expertise of the therapist in delivering the treatment
- the characteristics of those receiving it (p. 649)

### **Thematic Linkage of the Manuscripts**

The two studies are linked both in terms of content and methodology. Concerning content, both focus on criminal recidivism and training (treatment manuals). The studies examined the discourse associated with recidivism in academia and clinical practice. The studies also analyze the content used to address recidivism. Regarding methodology, both studies used words as the unit of analysis. MS1 examined the most frequently used words and their collocates across two popular treatment manuals currently used to address recidivism. MS2 used topic modeling and LDA to categorize and analyze academic discourse on criminological topics.

### **Organization of the Dissertation**

The first chapter is an overview of the complete dissertation. Chapter 2 contains MS1, an empirical research study that analyzed the keyness and collocates of recidivism in treatment manuals. Chapter 3 is MS2, another empirical research study that explored the academic

discourse on recidivism using topic modeling and LDA. The fourth chapter includes the results of both studies and their contributions to the field.

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## **Chapter 2: A Research Manuscript**

## **Recidivism Treatment Manuals: A Corpus-Based Examination for Public Offender Counselors**

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### Abstract

Incarceration rates in the U.S. reflect racial disparities, with individuals of color incarcerated over five times the rate of non-Hispanic White males. From a behavioral health perspective, incarceration and recidivism rates are a social justice imperative for clinicians and counselor educators that require purposeful academic research and clinical practices (Chang et al., 2010). The study examined the literature on evidence-based treatment manuals targeting recidivism. The linguistic examination of the literature and therapeutic interventions is vital for the counseling field and for the members of our nation to remain incarceration-free. This study employed a synchronic corpus linguistics design (Brezina, 2018). The corpuses were two recidivism prevention program manuals. The level of measure for keyness and collocation were continuous and nominal. The unit of analysis was single words (Bjekić et al., 2014). Words occurring with greater frequency in *Cognitive Behavioral Interventions for Offenders Core Adult (CBI-CA)* were “module” and “success,” and those with less frequency were “lesson” and “supplement.” The word network of the strongest positive keyword “module” in *CBI-CA* were “session” and “worksheet.” The strongest collocates of the word stem “crim\*” in *CBI-CA* were “people” and “mental.” The strongest collocates of the word stem “crim\*” *Thinking for a Change (T4C)* were “systems” and “justice.” The study compared the words used with greater and lesser frequency in the *CBI-CA* manual to those in the *T4C* recidivism prevention program manual. The study also identified the word network with the strongest positive keyness in the *CBI-CA* manual and examined the word network of the word stem “crim\*” in *CBI-CA* and *T4C* manuals.

*Keywords:* offender counseling, recidivism, evidence-based practices, manualized treatment, corpus linguistics, GraphColl, collocation, keyness

**Recidivism Treatment Manuals:**  
**A Corpus-Based Examination for Public Offender Counselors**

*[Verse 1: Styles P]*

Locked up, they won't let me out  
 And I had a long day in court, shit stress me out  
 Won't give me a bail, they can't get me out  
 Now I'm heading to the County, gotta do a bid here  
 I used to living luxurious, I don't wanna live here  
 The walls is gray, the clothes is orange  
 The phones is broke, the food is garbage  
 Lotta niggas is living with these circumstances  
 S.P.'s the same, I still merk your mans-es  
 Drug money to rap money, work advances  
 Niggas ran and told, I should've merked to Kansas  
 Got popped for a murder attempt  
 Knock me on D-Block when I was burnin' the hemp  
 Had a brick in the stash  
 Hope they don't take it to a further extent  
 Locked up and they won't let me out  
 When I hit my cellblock, niggas know the dread be out

*[Hook: Akon]*

They won't let me out, they won't let me out  
 Oh! I'm locked up



They won't let me out, no, they won't let me out

My nigga I'm locked up, they won't let me out

They won't let me out

I'm locked up, they won't let me out

No, they won't let me out

Akon ft. Styles P

In this popular urban song, Akon and Styles P share the experience of many Blacks and African Americans by describing the despair of incarceration. Two of three individuals released from incarceration reoffend within a short time. The justice system has a revolving door; “an “estimated 68% of persons released from prison were arrested within 3 years, 79% within 6 years, and 83% within 9 years” (U.S. Department of Justice, 2022). Getting out is not the problem; the challenge is helping individuals to stay out. Latessa and Schweitzer (2020) stressed that the ineffectiveness of community supervision contributes to high incidences of recidivism. Incarceration rates reflect racial disparities, with individuals of color incarcerated at “five and a half times the rate of non-Hispanic White males” (Enders et al., 2018, p. 366). From a behavioral health perspective, incarceration and recidivism rates are a social justice imperative for clinicians and counselor educators that requires purposeful academic research and clinical practices (Chang et al., 2010). The therapeutic interventions presented by the recidivism counselor to the individual have the potential to help or hurt that person to remain free from incarceration. Thus, examining the linguistics within treatment interventions is critical for the clinical field and for members of society to stay out of the penal system.

There was a twofold purpose for the present study. First, it helps fill in gaps in the present literature on recidivism treatment—specifically, the nature of the discourse in widely used

treatment manuals. Second, it could disrupt current practice by identifying conceptual holes, cultural blind spots, and pejorative language that may be present in this discourse. As mentioned, BIPOC (Black, Indigenous, and people of color) men are incarcerated at five and a half times the rate of White men. Treatment manuals are not linguistically designed to address the needs of these cultural groups. Latessa et al. (2013) described the limited research examining the reduction of recidivism. For example, the binary definition of recidivism limits offenders' progression toward changing behaviors (Klinge, 2019). For example, recidivism often does not consider the precipitating risk factors that precede a rearrest, such as return to substance use and procrime peer association (Dyck et al., 2018). Furthermore, the literature may exclude the term "recidivism." As a result, professional counselors working in forensic settings could benefit from knowing the limitations present in these manuals so that they can make adjustments for the benefit of their clients.

### **Literature Background**

In the selection of variables for this study, the recidivism prevention literature was explored across multiple topics. These were (a) key definitions, (b) demographics of persons in recidivism treatment programs, (c) description of *Thinking for a Change (T4C)* recidivism prevention program, (d) the efficacy of *T4C*, (e) description of the *Cognitive Behavioral Interventions-Core Adult (CBI-CA)* recidivism prevention program, (f) the efficacy of CBI, (g) keyness and recidivism, and (h) word networks and recidivism. After these points are examined, the research questions are detailed.

### **Key Definitions**

In this area of research, there are essential technical definitions of widely used words—for example, recidivism. Within the context of criminology research, *recidivism* refers to the act

of committing another criminal offense after being previously convicted of a crime (Klinge, 2019). Another word that needs a technical definition is *reoffending*. Thomas et al. (2018) defined reoffending as the act of committing antisocial and illegal behavior. One focus of this study was *keyness*, which is a linguistics term concerning differences in word usage patterns (Scott, 2022b). A precise scientific definition of keyness is found in the measures subsection of this article. Another focus of the present study was *collocation*, which is a linguistics term for the nature of word networks (Scott, 2022a). Like with keyness, there is a scientific definition of collocation in the measure subsection of this article. The last term is *manualized treatment manuals*—more significantly, those that meet the standards of evidence-based practices (EBP; van Wormer & Davis, 2018). EBP treatment manuals are empirically supported for addressing addictions (Miller & Rollnick, 2013). Several EBP treatment manuals that address recidivism have been developed over the decades, including *CBI-CA* and *T4C*.

### **Demographics of Persons in Recidivism Treatment Programs**

The U.S. government statistical reports reveal racial and ethnic disproportionalities with incarceration (Carson, 2022). Granular details about these disproportionalities can be reviewed in Table 2.1, which details the race and ethnicity disparities when comparing U.S. prisoner population demographics (Carson, 2022) to U.S. Census Bureau (2023) data for the general population. There is a 30% decrease in the proportion of incarcerated Whites versus the proportion of Whites in the general population. Also noted is a 20% increase in the proportion of incarcerated Blacks versus the proportion of Blacks in the general population. These disproportionalities carry forward into recidivism treatment programs.

### **Thinking for a Change Manualized Treatment (T4C)**

One prominent recidivism prevention program is *T4C* 4.0, which aims to empower

individuals by utilizing positive behavior reinforcers. *T4C* was first produced in 1998 under the direction of the National Institute of Corrections. The program combines cognitive restructuring theories to help individuals gain control over their thinking. The fourth edition of the manual was released in 2016. *T4C* facilitators demonstrate how to effectively use cognitive self-change, social skills, and problem-solving skills (Bush et al., 2016). The *T4C* authors noted that each curriculum revision had made it more user-friendly (Bush et al., 2016).

### **Efficacy of T4C**

There exists sound research illustrating that *T4C* is an effective recidivism prevention program. Lowenkamp et al. (2009) indicated a significant statistical difference between individuals who participated in the *T4C* program and those in control groups. Lowenkamp et al. reported that 23% of the treatment group recidivated (i.e., were rearrested for new criminal behavior), whereas 36% of the comparison group recidivated ( $\chi^2 = 3.93; p = .047$ ). “Thus, the difference in the odds of recidivating between the control and treatment groups indicates that the control group was 1.57 (or 57%) more likely to be arrested during the follow-up” (Lowenkamp et al., 2009, pp. 142–143). Golden et al. (2006) identified a 33% reduction in the rate of new offenses among individuals in the *T4C* group compared to those who dropped out. *T4C* sustains its effectiveness through various methods of delivery.

When examining pre and posttest results, LaPlant et al. (2020) found that *T4C* is as effective at improving social problem-solving skills via video conference as when the curriculum is delivered in person. *T4C* has been provided for over two decades. LaPlant et al. continue to adjust the curriculum, which is now in its fourth edition. However, *T4C* is not the only treatment manual used to address criminal behavior.

### **Cognitive Behavioral Interventions-Core Adult Manualized Treatment (CBI-CA)**

Another program and treatment manual present in the recidivism prevention ecology is the *CBI-CA* program manual. *CBI-CA* is a multicomponent, cognitive-behavioral program that provides a specific intervention that targets criminogenic factors and needs. *CBI-CA* utilizes a cognitive-behavioral therapeutic approach to empower participants with coping and recovery strategies to manage risk factors (University of Cincinnati Corrections Institute [UCCI], 2021). *CBI-CA* focuses on developing skills to assist with cognitive, social, emotional, and coping skills. The curriculum provides modifications to allow offenders with mental illness to participate, though it is not dedicated exclusively to this population. The curriculum is designed to allow for flexibility across various service settings and intervention lengths using a modified closed group format with multiple entry points. The manual has nine modules: motivational engagement, introduction to cognitive behavioral interventions, cognitive restructuring, emotional regulation, understanding behavior patterns, choosing behavior responses, problem-solving, planning for the future, and success planning (UCCI, 2021). *CBI-CA* has designed specialized modules to address the needs of various offender populations.

### **Efficacy of CBI-CA**

There exists less evidence for *CBI-CA*'s effectiveness as a treatment manual. Rather than outcome studies, the *CBI-CA*'s developers have relied on the underlying outcome research from the cognitive behavioral therapy (CBT) components they selected for their program (UCCI, 2021). Three key components where the CBI developers cite underlying evidence are (a) challenging irrational beliefs, (b) engaging in healthy recovery activities, and (c) addressing criminogenic needs. Regarding the challenging irrational beliefs component, Vaske et al. (2011) found that CBT programs address irrational beliefs and provide participants with effective social skills, coping skills, and problem-solving skills. There is substantial evidence of the effectiveness

of CBT in addressing cognitive distortions.

In terms of engaging in healthy recovery activities, McMinn and Campbell (2017) described extratherapeutic factors, such as thinking and behaviors, that support change outside of the counseling setting. Extratherapeutic factors account for 40% of an individual's psychotherapy outcomes. With CBT, most of the growth from therapy for the individual will happen outside of counseling sessions. For example, Corey (2017) stated that the behavioral techniques in CBT include homework assignments, particularly assignments that are carried out in real-life situations. CBT also aims to provide individuals with self-therapy techniques to continue applying throughout their lives outside of counseling services (Corey, 2017). CBT provides individuals with skills and coping strategies to sustain their efforts to change outside of treatment services.

Dyck et al. (2018) listed criminogenic needs: criminal history, family/marital interactions, employment/education status, peer relations, alcohol/drug problems, leisure/recreation activities, antisocial personality/behavior patterns, and procriminal attitudes/orientations. Latessa and Schweitzer (2020) described how CBT can address individuals' criminogenic needs. They asserted that CBT assists individuals with restructuring their thinking, which, in turn, reduces the chances of reoffending.

### **Word Usage Patterns (Keyness) and Recidivism**

There is limited research on keyness and recidivism. Partch's (2019) study on linguistic composition points to the efficacy of text messages as therapeutic interventions, with one of the benefits being a decrease in recidivism rates. O'Hara (2019) described how language matters in addiction treatment. Their study was the first to compare the linguistic components of 12-step programs. These studies point to the relationship between the linguistic phenomenon in treatment

and recidivistic behaviors.

### **Word Networks (Collocation) and Recidivism**

The study of collocations is driven by Firth's (1957) idea that "You shall know a word by the company it keeps" (p. 11). However, no research exists on collocation and recidivism. There is research on collocations for another word in criminology: rape. Tranchese (2019) examined the collocation of the word rape in the media to better understand sexualized violence. The study focused on collocation and a concordance analysis of the words "rape" and "raped" in the corpus. The study examined the collocates of rape and raped in the concordance lines to identify contextual elements that would not be obvious through a collocation analysis alone. Tranchese confirmed the top 20 lexical collocates and six semantically related words, such as the word "victims." Blauenfeldt (2015) examined collocation patterns when comparing the discourse patterns between rapists and pedophiles. The study grouped keywords into four distinct categories and examined the concordance, wordlists, and collocation patterns, such as the category perpetrator (Blauenfeldt, 2015). These studies highlight the significance of performing a collocation analysis on corpuses to understand how a field uses a word. Conducting collocation analyses on treatment manuals can contribute to the literature on best practices in reducing recidivistic behaviors by understanding how words are structured within these manuals.

### **Statement of Research Questions**

Given the aforementioned, three research questions were created to direct this study:

RQ1: In comparing the *CBI-CA* recidivism prevention program manual to the *T4C* recidivism prevention program manual, what words were used with greater and lesser frequency?

RQ2: In the *CBI-CA* manual, what is the word network of the word with the strongest

positive keyness in RQ1?

RQ3: What is the word network of the word stem crim\* in the *CBI-CA* manual?

RQ4: What is the word network of the word stem crim\* in the *T4C* manual?

## **Method**

### **Design**

This study employed a synchronic corpus linguistics design (Brezina, 2018). There were four variables used: manual, keyness, node word, and collocates of the node word. The corpora were two recidivism prevention program manuals. The level of measure for keyness and collocation was continuous, and for the manual and the node word it was nominal. The unit of analysis was single words (Bjekić et al., 2014). Given the public and published nature of the data, human subjects review was not required. The minimum sample size required was assessed via an a priori power analysis employing G\*Power 3.1 (Faul et al., 2009). The analyses for this study included a chi-square derivative, so the Cohen's  $w$  was the effect size input. The average effect size ( $w = .32$ ) was secured from a recent forensics study (Elphick et al., 2021). The input parameters were (a) test family-  $\chi^2$  tests; (b) statistical test- goodness-of-fit tests: contingency tables; (c) type of power analysis- a priori: compute required sample size- given  $\alpha$ , power, and effect size; (d)  $w = 0.32$ ; (e) power ( $1-\beta$  error probability) = 0.80; (f)  $\alpha = .001$ ; and (g) degrees of freedom ( $Df$ ) = 1. The G\*Power 3.1 output suggested a sample size of 167 with an actual power of 0.80.

### **Corpora**

Three inclusion criteria were used to select the texts for the study and reference corpus. These were (a) theoretical approach, (b) manual pragmatics, and (c) assignment as a study or reference corpus.



Criteria 1: theoretical approach. Manual selection criteria for the corpuses were restricted to manuals with a CBT theoretical orientation. This restriction was used because within criminal justice, CBT reduces antisocial thinking and criminal behavior by targeting the offender's behaviors, such as anger issues, accountability for actions, and developing problem-solving and coping skills (Lipsey et al., 2001; Vaske et al., 2011). CBT meta-analyses demonstrate reduced recidivism in the incarcerated population (Aos et al., 2006; Butler et al., 2006; Ferrito & Moore, 2017; Harrison et al., 2020; Henwood et al., 2015; Lipsey et al., 2007). CBT is considered the gold standard of psychotherapy when working with individuals in the criminal justice system (Aos et al., 2006; Butler et al., 2006; David et al., 2018; Feucht & Holt, 2016). There are various manual-based CBT curricula. Criteria were created to narrow the selection of the treatment manuals for this study.

Criteria 2: manual pragmatics. Pragmatics concerns also guided manual selection criteria. In particular, the CBT manuals selected for inclusion needed to be (a) in use for over 5 years, (b) widely adopted, and (c) readily available in an electronic format that could be converted to plain text. These inclusion criteria were employed because of the significance of these manual-based CBT curricula for reentry and recidivism treatment programs and because of accessibility for this study. Application of these three criteria against the known universality of CBT recidivism manuals left two: the *CBI-CA* (UCCI, 2021) and *T4C* (Bush et al., 2016).

Criteria 3: the assignment as a study or reference corpus. The criteria for assignment as the study corpus or the references corpus comprised two corpuses. The first was *CBI-CA* as the study corpus. The rationale for this assignment was that *CBI-CA* is the more recent addition to the body of CBT curricula. Despite its increased popularity and use, little is known about how it differs from the gold standard of CBT recidivism curricula. The second was *T4C* as the reference

corpus. The rationale for this assignment was that *T4C*'s longevity, wide adoption, and body of research, including diverse delivery methods, made it the ideal reference against which to understand the changes present in the newest addition to the CBT recidivism treatment manual ecology.

### ***Study Corpus (CBI-CA)***

**Register, Scope, and Sources.** The register for this study was academic prose. The subregister was psychological treatment manuals. The scope and source were the *CBI-CA* recidivism prevention program manual (UCCI, 2021). In particular, the inclusion criteria were treatment approaches considered EBP and treatment manuals currently being utilized to address recidivism. The exclusion criteria were EPB approaches that did not have a treatment manual and EBP approaches with multiple treatment journals. Two treatment manuals were selected from the inclusion and exclusion criteria, one to be the study corpus and one to be the reference corpus. *T4C* met the inclusion and exclusion criteria and was selected because of its longevity and research substantiating its effectiveness since 1998 (Bush et al., 2016). *CBI-CA* met the inclusion and exclusion criteria and was selected because the UCCI (2023), the developers of the treatment manual, are considered subject matter experts on rehabilitative services for offenders (UCCI, 2023). The size of this corpus was 23,421 words and 2,311 different word types.

**Preprocessing.** The electronic files containing the manuals were converted into .txt files using AntFileConverter (Anthony, 2017). These .txt files were then cleaned for non-ASCII characters and diacritics. Stopwords are common words that have a grammatical function (e.g., the, of, an) but reveal nothing about the content (Wilbur & Sirotkin, 1992). These words were removed during preprocessing using a standard list of such words (Natural Language Toolkit [NLTK] stopwords; Bleier, 2010).

### ***Reference Corpus (T4C)***

**Register, Scope, and Sources.** The register and subregister were the same as for the study corpus. The scope and source were the *T4C* recidivism prevention program manual (Bush, 2016). The size of this corpus was 41,541 words and 2,911 different word types.

**Preprocessing.** Preprocessing was the same as for the study corpus.

### **Measures**

#### ***Keyness***

A keyness study reflects the words that are of importance within a corpus (Scott & Tribble, 2006). Words that frequently appear in one corpus may infrequently appear in another at a significant level. As such, a keyness study identifies the most prominent and frequent words in a corpus (Jensen, 2020).

**Positive Keywords.** A word that occurs more often than would be expected by chance when compared with the reference corpus.

**Negative Keywords.** A word that occurs less often than would be expected by chance when compared with the reference corpus.

#### ***Collocation***

Collocation examines the placement or position of a word, particularly in relation to the node word within a text (Brezina, 2015; Gablasova et al., 2017).

#### ***Node Word***

Brezina (2018) described a node as the word, phrase, or grammatical structure of interest. The node word is essential to understanding the frequency, word positioning, and the linguistic relationship between terms. Node words and their related lexical networks were selected from both treatment manuals.

## Data Analysis

For RQ1, the descriptive statistics reported include raw frequency count and normalized frequency count (count per 1,000 words). In terms of inferential analysis, differences between the corpora were assessed using the log-likelihood ratio test ( $G^2$ ). This study presents statistics for the 10 words with the strongest keyness in each direction. The effect size metric employed was the log ratio (LR). When a word is two times more common in A than in B, then the binary log of the ratio is 1 (Hardie, 2014). The alpha level was set at  $p < .001$ , and the analysis was completed using the R package “textstat\_keyness” (Benoit et al., 2018). Regarding RQs 2–4, the GraphColl module of #Lancsbox was used (Brezina et al., 2018). The GraphColl settings were (a) span: 5 left, 5 right; (b) statistics: 03-MI; (c) threshold: MI = 3, collocation frequency = 5; and (d) type = type; filter = stopwords. Complete keyness results are available at <https://osf.io/kngzx/>.

## Results

In terms of RQ1 (words occurring with greater and lesser frequency in the study corpus), the three words with the strongest positive keyness were “module,” “success,” and “worksheet.” The three words with the strongest negative keyness were “lesson,” “supplement,” and “handout.” A list of the top 10 keywords in both directions can be reviewed in Table 2.2. Regarding RQ2 (the word network of the strongest positive keyword), the most frequent term in the study corpus was “module.” This term was further analyzed to yield the strongest collocates: “session” and “worksheet.” A complete list of the strongest collocates for the keyword “module” can be found in Figure 2.1. Concerning RQ3 (the word network of the word stem *crim\** in the *CBI-CA* manual), the strongest collocates were “people” and “mental.” The complete word networks for the word stem *crim\** in the *CBI-CA* manual can be found in Figure 2.2. In reference

to RQ4 (the word network of the word stem “*crim\**” in the *T4C* manual), the strongest collocates were determined to be “systems” and “justice.” The complete word networks for the word stem *crim\** in the *T4C* manual can be found in Figure 2.3.

### **Discussion**

This study sought to explore the word usage of treatment manuals used by the criminal justice systems and treatment providers to reduce recidivism. The study compared the words used with greater and lesser frequency in the *CBI-CA* manual to those in the *T4C* recidivism prevention program manual. It identified the word network of the word with the strongest positive keyness in the *CBI-CA* manual. Lastly, the study examined the word network of the word stem *crim\** in *CBI-CA* and *T4C* manuals.

#### **Analysis of RQ1’s Results**

Concerning RQ1 (word usage differences between manuals), two probable reasons exist for the obtained results. One explanation is that the differences reflect minor differences in the CBT approach contained within each manual—for example, *CBI-CA*’s heightened discourse on self-efficacy (e.g., success). An alternative explanation is that *CBI-CA* has a more engaging approach to word usage that reflects a less pedantic stance (e.g., lesson, supplement) than the *T4C* curriculum. The latter is most likely between these two explanations because *CBI-CA* has woven in motivational interviewing, and the word usage reflects the use of motivation engagement techniques throughout the curriculum to focus on successes and to avoid power struggles with participants.

#### **Analysis of RQ2’s Results**

Regarding RQ2, the most frequent term in the study corpus was “module,” and the two strongest collocates were “session” and “worksheet.” Merriam-Webster (n.d.-a) defines a *module*

as “an educational unit which covers a single subject or topic,” a *session* as “a meeting or period devoted to a particular activity” (Merriam-Webster, n.d.-b), and a *worksheet* as “a sheet of paper on which are printed exercises and problems to be solved by a student” (Merriam-Webster, n.d.-c). There are two probable reasons for the obtained results. First, the use of these words reflects the psychoeducational inherent emphasis in any cognitive-behavioral interventions. Specifically, these words capture the *CBI-CA*’s guided approach to linking thoughts and behaviors, teaching individuals to identify risky thoughts, and implementing new thinking (UCCI, 2021). The goal of the treatment manual is to replace the risky thoughts, feelings, and beliefs (UCCI, 2021). Second, the instruction-tinged words reflect the demands by various recidivism treatment funding authorities for defined intervention outcomes. Between the first and the second reasons, the first is most likely because treatment theory is a more probable driver of recidivism interventionists than external funding mandates.

### **Analysis of RQ3’s Results**

RQ3 examined the word network of the word stem crim\* in the *CBI-CA* manual. The most collocated words to the stem word crim\* were “people” and “mental.” One explanation is that *CBI-CA* focuses on the therapeutic alliance and mental health needs to address the individual’s criminality. The following example illustrates *CBI-CA*’s focus on counselors addressing mental health concerns within correctional institutions:

The Council of State Governments (CSG) and Bureau of Justice Assistance (BJA) provided funding to the University of Cincinnati Corrections Institute (UCCI) to develop and implement an evidence-based, cognitive-behavioral program for people with mental illnesses involved with the criminal justice system. (UCCI, 2021, p. 2)

An alternative explanation is that *CBI-CA* uses person-centered and softer language to address

the criminogenic factors. Here is an example from the *CBI-CA* manual: “Mood is particularly transient for people living with mental illnesses involved in the criminal justice system” (UCCI, 2021, Pretreatment Session 2–3). The former is most likely between these two explanations. As mentioned earlier, *CBI-CA* uses motivational interviewing and motivational engagement techniques throughout the curriculum. These techniques assist the individual in recognizing their mental health and interpersonal barriers to wellness, sobriety, and a crime-free lifestyle.

### **Analysis of RQ4’s Results**

RQ4 assessed the word network of the word stem crim\* in the *T4C* manual. The most collocated words to the stem word crim\* were “systems” and “justice.” The first explanation is that *T4C* is utilized within correctional institutions. For example, Williams and Hanley (2005) emphasized that it is detrimental for clinicians to focus on criminal thinking errors. The second explanation is that *T4C* uses the term for the orientation of the facilitators and the participants when describing the curriculum to individuals involved with the criminal justice system. For example, Bush et al. (2016) stated, “The work of these individuals set the foundation and benchmarks for many of the programs and cognitive behavioral curricula currently developed and implemented, including those used throughout the criminal and juvenile justice systems” (p. vii). Between the first and the second, the second is most likely because of the foundational history of *T4C* and its inception within the National Institute of Corrections’ (NIC) cognitive approaches to changing offender behavior training seminar.

### **Limitations**

When considering the results of this study, two limitations should be kept in mind. The limitations revolve around corpus construction. The first concerns the number of treatment manuals available for the study. For proprietary reasons, many manual publishers severely

restrict access to their products. A second limitation was the availability of digital copies, where there were no direct proprietary barriers, but practical ones were encountered. For example, The Change Companies offers a multitude of evidence-based curricula for addressing criminality and reducing recidivism (<https://www.changecompanies.net/industry/jail-and-prison.php>). However, this extensive collection of curricula exists only in hard copies. As such, the massive Optical Character Recognition tasks required for adding these texts to the corpuses exceeded practical limitations.

### **Implications**

These are the clinical and research implications. First, the strict designs of EBP recidivism manuals restrict eclectic clinical practices for addressing recidivism treatment. In addition, as part of EBP, some developers require formal facilitator training before access to the treatment manuals is granted. For example, the *CBI-CA* curriculum requires over 20 hours of training, which includes several hours of live observation of group facilitation. *T4C* requires 32 hours of training. The requirement is to ensure fidelity to the curriculum. Completing multiple training for various treatment manuals is time-consuming. In addition, the training can cost thousands of dollars per group facilitator, which is not cost-effective for some clinicians or smaller treatment programs. Second, treatment manuals are unavailable for the study due to proprietary reasons and access to digital copies. These barriers obstruct advancements to EBP, treatment manuals, and future corpus linguistic and comparative analyses research projects because of the access needed for corpus construction. Finally, the treatment manuals do not reflect the cultures with the largest populations inside the correctional system. Future research may consider the demographics of individuals in recidivism treatment programs and the cross-cultural and linguistic attunement of the curriculum. For example, Caldwell (2016) described



how practitioners must maintain a basic framework for delivering culturally competent evidence-based treatment services and highlighted the responsibilities of clinicians and facilitators to recognize the client's motivation, readiness for change, strengths, resources, and struggles as they relate to the individual's social-cultural factors within the context of treatment and the meso/macro/chrono levels. The focus on cross-cultural and linguistic attunement is an ethical responsibility based on the statistical reports revealing racial and ethnic disproportionalities with incarceration rates. Although EBP yields more significant results in decreasing recidivism rates compared to treatment as usual, finetuning the cultural and linguistic components towards those disproportionately impacted by incarceration could enhance the facilitators' training and the curriculum's implementation.

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**Table 2.1***Demographics of U.S. Prisoner Population*

Race/Ethnicity	Prisoner Population		Total Population		Diff. in %
	Count	%	Count	%	
White	356000	31%	204,000,000	61%	-30%
Black	378000	32%	41,000,000	12%	20%
Hispanic	273800	24%	62,000,000	18%	5%
AI/AN	18700	2%	3,000,000	1%	1%
Asian	14700	1%	19,000,000	5%	-4%
Other	122400	11%	9,000,000	3%	8%

*Note.* The sources for this table were Carson (2022) and U.S. Census Bureau (2023). AI/AN =

American Indian/Alaska Native.

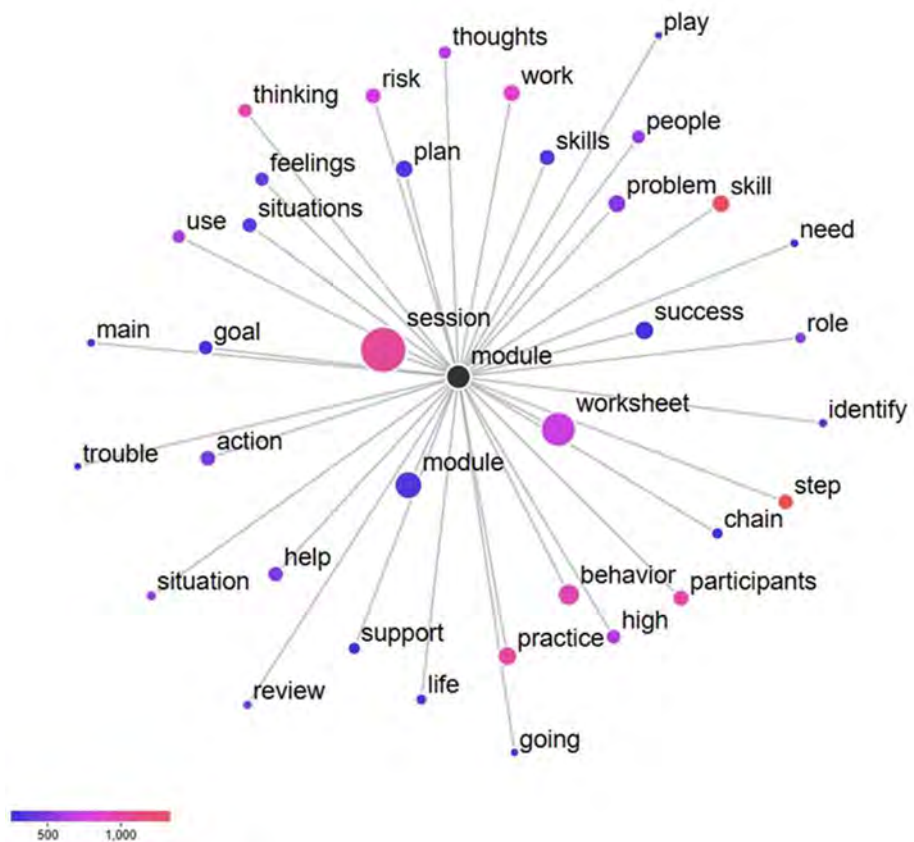
**Table 2.2***Keyness Results (RQ1)*

Direction	Word	<i>CBI-CA</i>	<i>T4C</i>	$G^2$	LR
Positive	module	342	0	315.098	8.645
	success	277	0	255.007	8.339
	chain	255	0	234.690	8.219
	managing	249	0	229.151	8.185
	pointer	231	0	212.539	8.076
	modified	201	0	184.868	7.875
	lifestyle	200	0	183.946	7.868
	worksheet	716	2	639.148	7.719
	coping	172	0	158.139	7.649
	treatment	168	0	154.454	7.615
Negative	supplement	0	192	385.188	-9.373
	lesson	3	789	1,562.022	-8.850
	handout	0	120	240.454	-8.692
	denoted	0	80	160.196	-8.106
	bender	0	75	150.171	-8.012
	sherry	0	67	134.135	-7.849
	shewan	0	67	134.135	-7.849
	appendix	0	61	122.111	-7.714
	slides	0	60	120.107	-7.690
	solver	0	60	120.107	-7.690

*Note.* Normalized frequency is count per million. The study corpus was the *CBI-CA* manual, and the reference corpus was the *T4C* manual. The critical value for  $G^2$  at  $p < .001$  is 10.83.

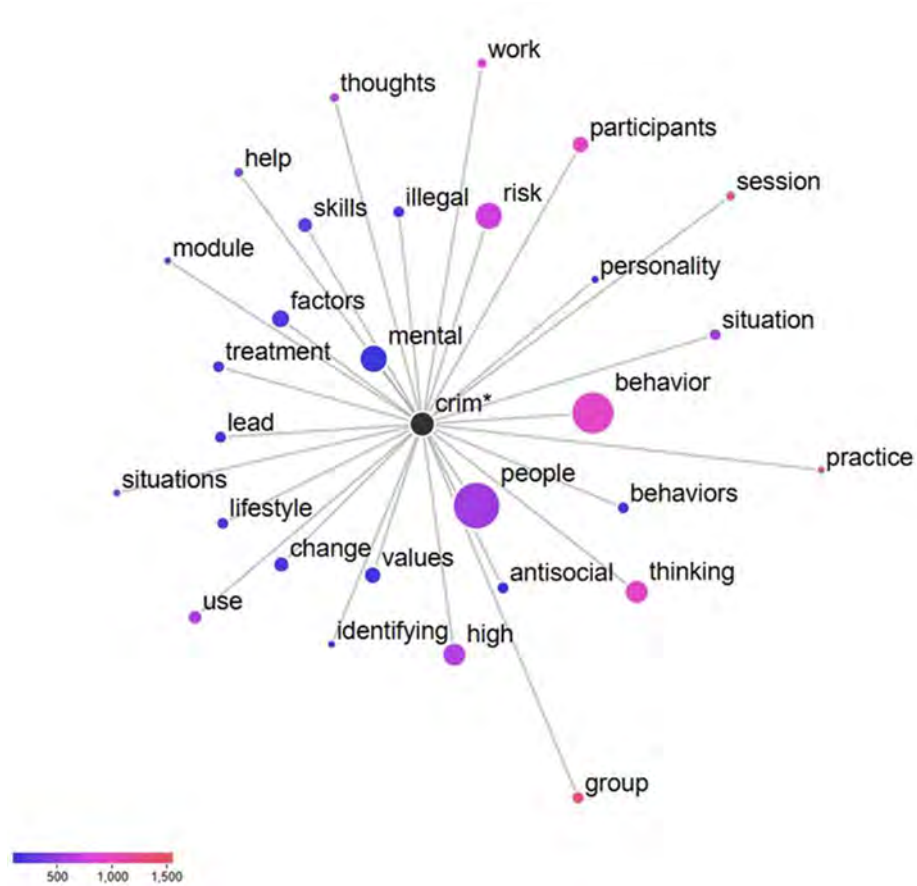
**Figure 2.1**

*Strongest Positive Keyness in the CBI-CA Manual (RQ2)*



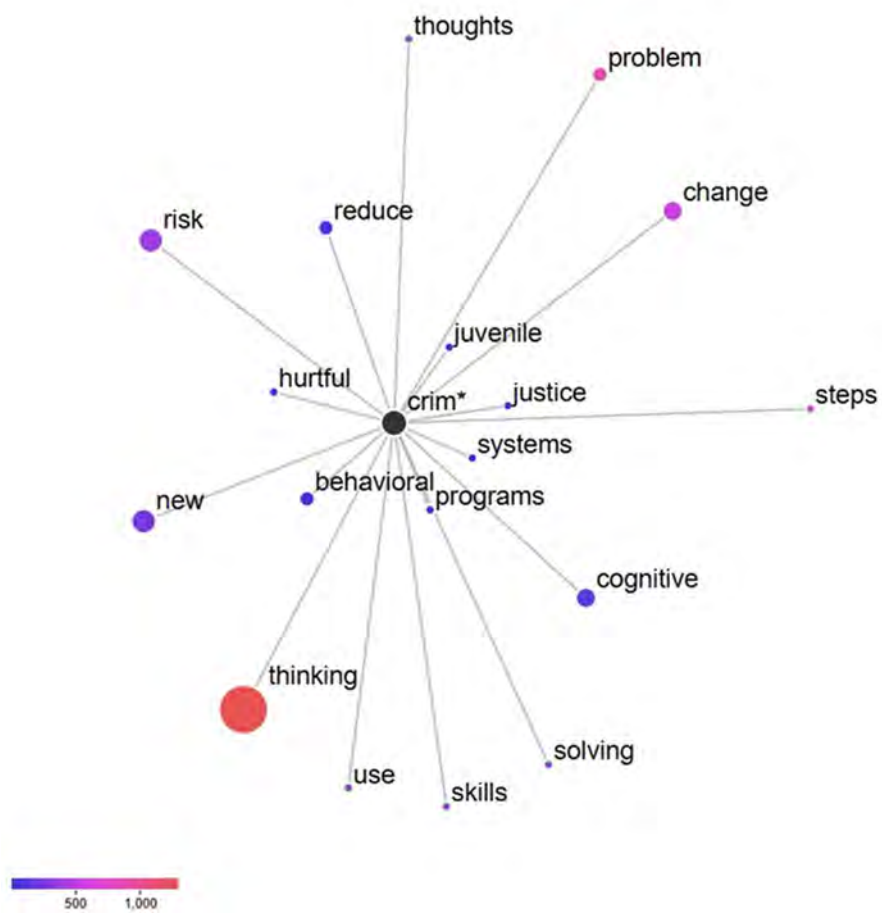
**Figure 2.2**

*Collocates of the Word Stem Crim\* in the CBI-CA Manual (RQ3)*



**Figure 2.3**

*Collocates of the Word Stem Crim\* in the T4C Manual (RQ4)*



### **Chapter 3: A Research Manuscript**

## The Topical Structure of the Academic Discourse on Criminal Recidivism


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### **Abstract**

In the United States, there are 11 million arrests in local jails annually (Riley et al., 2018). The study identified the historical foci of the academic literature on recidivism and identified future areas of focus that can contribute to recidivism reduction. This study utilized Latent Dirichlet Allocation and topic modeling. The statistical model provided a deeper look at data and identified correlations and distinctions within data. Six topic structures provided the most optimal solution regarding perplexity and coherence. The topics were (a) legal framework and governance, (b) mental health and substance abuse interventions in correctional systems, (c) risk assessment and predictive factors in violent offenders, (d) gender disparities in the prison system, (e) criminal sentencing in sexual offense cases, and (f) behavioral experiments and interventions in correctional settings. The topics were grouped into half decades. The study identified gaps in the literature and the need for additional multiculturalism and social justice efforts. The study also highlights the need for increased trauma-informed practices, consideration for the social determinants of health, and clinical therapeutic interventions in the criminal justice system.

*Keywords:* recidivism, topic modeling method, Latent Dirichlet Allocation, BIPOC, LGBTQIA+, trauma, social determinants of health, counseling, social justice



## **The Topical Structure of the Academic Discourse on Criminal Recidivism**

Recidivism is a global phenomenon impacting millions of individuals and their families. Although there are significant disparities in the rates of rearrest and reconviction around the world, some countries report staggering figures, such as two out of three individuals returning to prison shortly after their release. The U.S. Department of Justice (2022) noted, “Recidivism is one of the most fundamental concepts in criminal justice. It refers to a person’s relapse into criminal behavior, often after the person receives sanctions or undergoes intervention for a previous crime” (para. 1). In the United States, there are 11 million arrests in local jails annually (Riley et al., 2018). There have been efforts in the United States to reduce recidivism (Drawbridge et al., 2019; Latessa & Reitler, 2015; Latessa & Schweitzer, 2020). However, it is uncertain if academia has researched recidivism sufficiently or identified overarching themes. It is unclear whether enough research has been conducted on recidivism. This study identified the historical foci of the academic research and reviewed the overarching themes.

The study had two goals. The first goal was gap spotting in the academic literature on recidivism. The extant literature addresses isolated aspects of recidivism (e.g., risk factors, offense typology, and assessment practices), but an overall empirical perspective on the topical structure of research is absent. The second goal was to engage in research that has the potential to disrupt current practice. The production of an empirically based, topical structure can point researchers to missing areas of study that might be essential to recidivism reduction.

### **Literature Background**

In a review of the literature on recidivism, four key points emerged: (a) key definitions, (b) the academic discourse on recidivism, (c) what has been done in topic modeling in criminology, and (d) what Latent Dirichlet Allocation (LDA) is as a topic modeling method.

## Key Definitions

In this area of research, there are essential technical definitions of widely used words. *Topic models*, such as LDA, are algorithms used to analyze data and highlight the thematic composition within the text of the corpus (El-Assady, 2018). *Recidivism* refers to the act of committing another criminal offense after being previously convicted of a crime (Klinge, 2019).

## Academic Discourse on Recidivism

A significant amount of research exists on criminal recidivism. Yukhnenko et al. (2020) conducted a systematic review of recidivism rates worldwide. They reported that current recidivism rates are not comparable from country to country. For instance, during the two-year follow-up, they noticed that rearrest rates varied drastically between 26% and 60% among various countries, the reconviction rates ranged between 20% and 63%, and the reimprisonment rates ranged between 14% and 45% (Yukhnenko et al., 2020).

Lloyd et al. (2020) reported that various dynamic risk factors affect recidivism. They compared distal and proximal assessments to analyze time-dependent predictors of imminent recidivism. They found that nonrecidivists showed more significant decreases in risk scores and an increase in protective scores across their entire sequences of reassessments. Recidivists demonstrated more instability in risk scores following a pattern of gradual decline. Lloyd et al. alluded to the growing body of research emphasizing the need for community corrections to conduct periodic risk assessments to mitigate the risk factors and reduce recidivism rates. Academic journals reflect the wealth of knowledge gathered on criminal recidivism and its significance as a global phenomenon. However, the foci of studies within academia are widespread; using a topic modeling method can help categorize criminology within the academic

literature.

### **Topic Modeling**

Topic modeling is a type of statistical method for discovering abstract topics that occur in a collection of documents and has been used to categorize and analyze criminology. Vander Beken et al. (2021) examined two decades of European criminology, identifying 50 topics. The top five topics were meta-language, critical study, UK-based research, research methods language, and self-reports. The lowest five topics were family, drugs, sex work, corruption, and environmental harm. Vander Beken et al. (2021) also noted that topics such as hate crime homicide rates, and sexual offending had a significant decline from 2001–2019. Topic modeling is used for discovering obscure language or thematic structures in a collection of documents. LDA can help identify themes within the academic discourse on recidivism.

### **Latent Dirichlet Allocation (LDA)**

LDA is a mathematical method or a generative statistical model that provides a more profound observation of data and identifies correlations and distinctions within data. LDA is a method utilized in many fields of study; a popular application is topic discovery. Gamma et al. (2016) used a Dirichlet distribution to predict methamphetamine-related crime. Their study revealed that by country, web searches for “meth” paralleled related criminal activity. Khorshidi and Carter (2020) suggested that LDA is useful for “crime linkage analysis, anomaly detection, and crime clustering and categorization” (p. 6). Eleven topics and multiple keywords were identified for each of the topics. For example, Topic ID 0 had the following words: victim, face, punch, time, verbal, strike, push, argument, dispute, and hit. Topic ID 1 keywords were suspect, leave, lock, return, cut, bike, park, victim, secure, and room. Although there are various statistical models for observing data and identifying correlations and distinctions, LDA continues

to demonstrate its efficacy compared to other models. Conducting LDA analyses on the academic discourse on recidivism can contribute to the literature by identifying the major themes of research during the last 50 years (timespan: 1971–2021).

### **Statement of Research Questions (RQs)**

Given the aforementioned rationale and background literature, two research questions were created to direct this study:

RQ1: What is the topical structure of the academic discourse on recidivism?

RQ2: How does the presence of the topics differ by half decade?

### **Method**

#### **Design**

This study utilized LDA. The LDA statistical model provided a deeper look at data and identified correlations and distinctions within data. It led to topic discovery in the literature related to recidivism. For RQ1, LDA variables analyzed were (a) the number of words in a document ( $N$ ), (b) the number of documents ( $D$ ), (c) the number of topics ( $K$ ), (d) the Dirichlet prior parameter for per topic word distribution ( $\beta$ ), (e) the Dirichlet parameter for per-document topic distribution ( $\alpha$ ), (f) word distribution for topic  $k$  ( $\phi_k$ ) document topic distribution for document  $d$  ( $\theta_d$ ), (g) word topic assignment for  $W_{d,n}$  ( $Z_{d,n}$ ), and (h) observed word (the  $n^{\text{th}}$  word in the  $d^{\text{th}}$  document;  $W_{d,n}$ ; Blei, 2012; Naushan, 2020). Given the public and published nature of the data, human subjects review was not required. The minimum sample size required was assessed via an a priori power analysis employing G\*Power 3.1 (Faul et al., 2009). This power analysis used the G\*Power input settings from a forensics topic modeling study (Draws et al., 2020), except for the use of a stricter alpha level. The input parameters were (a) test family- F tests- ANOVA: fixed effects, omnibus, one-way; (b) statistical test- goodness-of-fit tests:

contingency tables; (c) type of power analysis- a priori: compute required sample size - given  $\alpha$ , power, and effect size; (d)  $f = 0.30$ ; (e) power ( $1-\beta$  error probability) = 0.80; (f)  $\alpha = .001$ ; and (g) number of groups = 6. The G\*Power 3.1 output suggested a sample size of 402 with an actual power of 0.80. For RQ2, the additional nominal variable of half decade was added. Given the public and published nature of the data, no human subjects review was required. Complete LDA and topic modeling results are available at <https://osf.io/kngzx/>.

## **Study Corpus**

### ***Register, Sources, and Scope***

The register for this study was nonfiction. The subregister was English for academic purposes. The specific text artifact used for analysis was journal article abstracts. The use of abstracts as a proxy for the entire content of a journal article has both wide acceptance and solid empirical support (Khany & Malmir, 2020; Rashidi & Meihami, 2018). The source for the abstracts was Web of Science (WoS; Wang et al., 2016). In terms of scope, there were four WoS search functions used to set the parameters of the corpus. These were:

1. Document type: article
2. Publication years: all dates (1965 to 2023)
3. All fields: recidivism
4. All fields (recidivism with OR): crim\*, jail\*, prison\*, convict\*, parole\*, and penal\*.

The WoS export features were Excel and full record. The total number of articles was 58,764, with a total word count of 1,231,333. A visualization of the academic disciplines from which these articles were drawn appears in Figure 3.1.

### ***Preprocessing***

Each abstract was converted into .txt files. These .txt files were then cleaned for non-

ASCII characters and diacritics. Stopwords are common words with a grammatical function (e.g., the, of, an) but reveal nothing about the content (Wilbur & Sirotkin, 1992). These words were removed during preprocessing using a standard list (Natural Language Toolkit [NLTK] stopwords; Bleier, 2010).

## Measures

### *Topic Modeling*

**Log Perplexity.** Perplexity refers to how surprised a model is by new data it has not seen before and is measured as the normalized log-likelihood of a held-out test set (Kapadia, 2019).

**Topic Coherence.** Topic coherence is a metric of the degree of semantic similarity between high-scoring words in the topic (Kapadia, 2019). This measure compares the different topic models based on their human interpretability (Gensimr, 2022).

***k*.** *k* is the symbol in LDA analyses for the number of topics. LDA permits the researcher to experiment with multiple numbers of topics. The aim is to find a *k* that maximizes the coherence and minimizes the perplexity (Shchepina & Surikov, 2022).

### *Topic Interpretation*

**Lift.** Lift is defined as the ratio of a term's probability within a topic to its marginal probability across the corpus (Sievert & Shirley, 2014).

**Topic relevance ( $\lambda$ ).** Relevance ( $\lambda$ ) is the weight given to the probability of term *w* under topic *k* relative to its lift (Sievert & Shirley, 2014).

### *Heatmap*

A heatmap is a graphical representation of data where the individual values contained in a matrix are represented as colors (National Cancer Institute, 2023). In the case of this study, the main variable was the topic, and the other variable was half decade.

## Apparatus

Preprocessing and LDA were accomplished using the Python package Gensim (Řehůřek & Sojka, 2019) with topic interpretation assistance via the Python port for LDAvis called pyLDAvis (Mabey, 2015; Sievert & Shirley, 2014). The heatmap was produced using the Seaborn Python package (Waskom, 2021).

## Data Analysis

In terms of RQ1, topic modeling was accomplished with the use of LDA. The  $k$  selected for modeling ranged from 2 to 15, seeking the model that represents the best mix of low log perplexity and high topic coherence. In terms of topic interpretation assistance via pyLDAvis, the relevance setting was the one found as optimal by Sievert and Shirley (2014;  $\lambda = .6$ ). Regarding RQ2, a heatmap of the topics (x-axis) and half decade (y-axis) matrices are provided.

The analysis included linear and squared effects for each topic. The interpretations of the trends are based on the regression output. The gamma values represent the proportion of a topic within a document. For example, if gamma was 0.7 for Topic 1 in Document A, this means that 70% of the content in Document A pertained to Topic 1. The analysis captured trends over time because of the number of academic articles in WOS spanning multiple decades. A linear or quadratic regression model was selected depending on which best represented the trends by half decade. The selection between models was made with the use of the Bayesian information criterion (BIC). The model with the lower BIC score was selected as the best fit (Burnham & Anderson, 2004).

## Results

### RQ1

In terms of RQ1 (topical structure of the academic discourse on recidivism), a six topic

structure provided the most optimal solution in terms of perplexity and coherence (see Figure 3.1). These topics were (a) legal framework and governance, (b) mental health and substance abuse interventions in correctional systems, (c) risk assessment and predictive factors in violent offenders, (d) gender disparities in the prison system, (e) criminal sentencing in sexual offense cases, and (f) behavioral experiments and interventions in correctional settings. The topic labels and keywords can be inspected in Table 3.1.

## **RQ2**

Regarding RQ2 (presence of the topics by half decade), the abstracts were grouped into half decades based on publication year. The heatmap of the presence of topics by half decade can be found in Figure 3.2. The nature of the change by topic across the half decades are addressed in the following subsections.

### ***Topic 1: Legal Framework and Governance***

The optimal model was identified as the linear trend, as evidenced by its lower (BIC) metric (-8,832) compared to the quadratic trend (-8,823) despite a similar adjusted  $R^2$ . Additionally, the trend variable under the linear framework was statistically significant. Based on the linear time series model, Topic 1's gamma has decreased over time.

### ***Topic 2: Mental Health and Substance Abuse Interventions in Correctional Systems***

The best model was determined to be the linear trend, as evidenced by its lower BIC metric (7,233) compared to the quadratic trend (7,238), despite comparable adjusted  $R^2$  values. Furthermore, the linear time series model analysis revealed a declining trend in Topic 2's gamma over the 5 decades.

### ***Topic: 3 Risk Assessment and Predictive Factors in Violent Offenders***

The optimal model was identified as the quadratic trend, as evidenced by its lower BIC



metric (-14,124) compared to the linear trend (-14,121). The adjusted  $R^2$  was slightly higher under the quadratic trend (0.006) than the linear trend (0.005). Based on the quadratic time series model, Topic 3's gamma has steadily decreased, albeit at a slower rate over time (i.e., the decrease is not linear).

***Topic 4: Gender Disparities in The Prison System***

The best model was determined to be the quadratic trend due to a lower BIC metric (25,600) compared to the linear trend (25,642). The adjusted  $R^2$  was slightly higher under the quadratic trend (0.013) than the linear trend (0.012). Based on the quadratic time series model, Topic 4 gamma has steadily increased, albeit at a “slower” rate over time (i.e., the increase is not linear).

***Topic 5: Criminal Sentencing in Sexual Offense Cases***

The optimal model was identified as the quadratic trend due to a lower BIC metric (11,344) compared to the linear trend (11,356). Additionally, the adjusted  $R^2$  was slightly higher under the quadratic trend (0.006) than the linear trend (0.005). Based on the quadratic time series model, Topic 5 gamma increased in the 2000s but decreased in the subsequent decades.

***Topic 6: Behavioral Experiments and Interventions in Correctional Settings***

The best model was determined to be the quadratic trend due to a lower BIC metric (5,541) compared to the linear trend (5,622). The adjusted  $R^2$  was slightly higher under the quadratic trend (0.014) than the linear trend (0.012). Based on the quadratic time series model, Topic 6 gamma decreased in the early 1990s but increased in the 2020s.

**Discussion**

This study explored the academic discourse on recidivism and what has been done in topic modeling in criminology. Using LDA, RQ1 examined the topical structure of the academic

discourse on recidivism. RQ2 focused on the presence of the topics by half decade. The topic distribution identified the six topics with the highest coherence. Following an analysis of the obtained results, subsequent sections note the study's limitations and implications. The reasons for the obtained results for RQ1 and RQ2 are addressed topic by topic.

## **Topic 1: Legal Framework and Governance**

### ***RQ1***

The first topic is legal framework and governance. The words for this topic relate to the overarching theme of legal frameworks, governance, and policies that encompass aspects of criminal justice, human rights, international relations, and enforcement of laws at the state and national levels. The topic examines systems and execution of the law. For example, Wolfe et al. (2016) reviewed the effect of procedural justice on police legitimacy. The study looked at distributive justice and police effectiveness. Wolfe et al.'s results demonstrated that procedural justice had a more significant impact on the trust of law enforcement with individuals who have been victimized by law enforcement. Wolfe et al. also pointed out that distributive justice and the perception of citizens impact trust in the police, particularly in neighborhoods with higher levels of disorder. The study concluded that law enforcement can increase legitimacy by ensuring procedural fairness when interacting with individuals. Cardarelli and Hicks (1993) stated, "Today, the role of the academic in society is largely informative rather than transformative" (p. 552). Cardarelli and Hicks examined radicalism in law and criminology in previous decades from an academic perspective. This topic reflects the trends in policymaking from a historical perspective but can also inform future advocacy efforts.

### ***RQ2***

During the last 3 decades, there has been a significant shift in the research literature from

policy driven to clinically driven. The correctional system acknowledged that focusing solely on incarceration does not restore individuals to wellness. In addition, the U.S. legal framework continues to be scrutinized in academia and popular media for its human rights violations as reflected in Alexander's (2020) *The New Jim Crow: Mass Incarceration in the Age of Colorblindness* and DuVernay et al.'s (2016) Netflix documentary, *13th*.

## **Topic 2: Mental Health and Substance Abuse Interventions in Correctional Systems**

### ***RQ1***

The second topic is mental health and substance abuse interventions in correctional systems. The words in this topic focus on interventions and services related to mental health and substance abuse within the context of correctional systems and addresses the needs of individuals in prison and their impact on recidivism rates and public health. For example, Laux et al. (2008) assessed the substance abuse counseling needs of women in the criminal justice system. The study identified the following themes:

Trauma and violence, rape and sexual abuse, women's experiences in childhood and adolescence, formal support systems, informal support systems, behavioral health risks, stigmatization-discrimination, participation in the underground economy, commercial sexual exploitation and prostitution, pre-incarceration factors, factors during incarceration, post-incarceration factors, women's self-esteem, future dreams, and spiritual connections. (Laux et al., 2008, p. 42)

The results revealed the need for gender-specific treatment and family-oriented support for incarcerated mothers. Jones et al. (2019) conducted a longitudinal analysis of women within the criminal justice system. The results denoted that women who participated in Drug Court and therapeutic interventions decreased the risk of victimization, substance use, and HIV/AIDS by

46% in an 8-month follow-up. This topic reflects the importance of increasing treatment and counseling interventions with justice-involved individuals to reduce the risk of reoffending.

### ***RQ2***

The trend reflected a pivoting point during the 1990s when the criminal justice system began investing and integrating funding for the treatment of substance use disorders into correctional institutions. The trend is reflected in MacInerney et al.'s (2020) publication patterns by author and characteristics of the studies from 1998 to 2017 in the *Journal of Addictions & Offender Counseling*.

## **Topic 3: Risk Assessment and Predictive Factors in Violent Offenders**

### ***RQ1***

The third topic is risk assessment and predictive factors in violent offenders. This collection of words centers around the theme of assessing and predicting the risk of violent behavior in offenders, focusing mainly on factors such as personality traits, disorders, and symptoms to understand and potentially mitigate recidivism. Amaoui et al. (2023) identified men's inability to regulate their emotions as a risk factor for committing intimate partner violence against women. The topic and these studies inform clinician practices of the significance of emotion regulation interventions for male offenders, which, in turn, helps reduce high recidivism rates.

### ***RQ2***

The research on assessments and identifying risk factors has varied through the years, from criminogenic risk/needs to intimate partner violence. For example, the postconviction risk assessment was developed in 2004 as part of the "fourth-generation risk assessment instruments" (Johnson et al., (2011, p. 16).

## **Topic 4: Gender Disparities in the Prison System**

### ***RQ1***

The fourth topic is gender disparities in the prison system. The list of words highlights a theme concerning the gender disparities within the prison system, focusing on research findings related to women's experiences, social support, family dynamics, and the attitudes of both inmates and correctional staff while addressing issues related to race and incarceration. The topic has many areas of exploration. For example, Beeby et al. (2021) described how gender disparities reflect lower incarceration sentences for women convicted as sexual offenders. Another example is the disparity and challenges of individuals from the LGBTQIA+ community receiving healthcare within the criminal justice system (Kosenko & Nelson, 2018; Sevelius & Jenness, 2017). This topic points to the gender disparities in sentencing, treatment, and medical care of specific populations within the criminal justice system. Recognizing these disparities can help provide better behavioral and medical care. It can also help challenge biases and stereotypes and promote social justice for marginalized communities.

### ***RQ2***

As previously noted, greater awareness has been raised about the disparities and challenges for individuals from the LGBTQIA+ community when it comes to receiving services within the criminal justice system (Kosenko & Nelson, 2018; Sevelius & Jenness, 2017). For example, the first publication acknowledging the LGBTQIA+ community in the *Journal of Addictions & Offender Counseling* occurred in 2011 (Goodrich, 2011). There has been a delay in recognizing the needs of marginalized communities within academic research.

## **Topic 5: Criminal Sentencing in Sexual Offense Cases**

### ***RQ1***

The fifth topic is criminal sentencing in sexual offense cases. The list of words points to a theme involving the sentencing of individuals in cases related to sexual offenses—encompassing aspects such as court proceedings, criminal evidence, victims, and various types of sexual crimes, including homicide, child abuse, rape, and juvenile offenses. For example, one systematic research study of convictions for sexual offenses found that female sex offenders receive more leniency during sentencing than male sex offenders (Beeby et al., 2021). Hartley et al.'s (2021) study demonstrated that Black, Indigenous, people of color (BIPOC), particularly Blacks and Hispanics/Latinx, receive longer prison sentences. Hartley et al. (2021) explained the following:

The racial composition of individuals across the two offense types is also stark. The majority of those convicted of receipt or possession of child pornography are White (86%); there are very few Black (4%), Hispanic (10%), or Native American (<1%) individuals charged with this offense. The demography of individuals convicted of sexual abuse offenses is more mixed; 42% are White, 18% are Black, 10% are Hispanic, and 31% are Native American. (pp. 912–913)

These studies reflect the inconsistency in sentencing within the criminal justice system. The information can lead to more equitable sentencing practices.

## ***RQ2***

The point of inflection, marking the transition from a positive to a negative trend, occurred in 1999. After 20 years of research, sufficient treatment outcomes for addressing adult sex offenders have been published (McGrath et al., 2003). The research has continued, but as aforementioned, the research trends have focused on sentencing disparities between males, females, and BIPOC populations.

## **Topic 6: Behavioral Experiments and Interventions in Correctional Settings**

### ***RQ1***

The sixth topic is behavioral experiments and interventions in correctional settings. The list of words indicates a focus on conducting experiments and interventions within correctional settings to understand and potentially modify inmate behavior—emphasizing cooperation, learning, decision making, and the impact of various cues, rewards, and penalties on participants. Beyond cognitive behavioral therapy, new interventions are being explored within correctional institutions—for example, canine-assisted therapy with women dealing with mental illness (Holman et al., 2020). This experimental study compared the outcomes of the Seeking Safety curriculum to canine-assisted therapy. The results demonstrate that canine-assisted therapy was very effective in addressing anxiety, depression, and posttraumatic stress disorder (PTSD).

Another therapeutic intervention is eye movement desensitization and reprocessing for individuals with severe mental illness (SMI) or severe and persistent mental illness (SPMI) within the criminal justice system (Bashir et al., 2023; Hood & Komosky, 2023). These studies and interventions point to the criminal justice system’s acknowledgment to address PTSD and SMI/SPMI within the prison populations.

### ***RQ2***

The point of inflection, marking the transition from negative to positive, happened in 2000. The trends reflect innovative treatment practices, such as the delivery of group therapy via video conference. LaPlant et al. (2020) found that *T4C* is as effective at improving social problem-solving skills as when the curriculum is delivered in person. Diverse therapeutic approaches are rising inside correctional institutions, and the research reflects these clinical practices.

## Limitations

LDA and topic modeling analyses are frequently used to discover and categorize topics from large amounts of linguistic data. However, there are two limitations to this study. The first concerns the body of knowledge surrounding the academic discourse on recidivism. While WoS is a sizable database, it does not contain all the collective knowledge of academia. Utilizing another extensive database could provide additional scholarly articles not captured in this study. The second limitation is the sole focus on the academic discourse. Although the discourse within academia is of great significance for counselors and counselor educators, there are relevant discourses to be considered when examining the impact and influences of recidivism. These relevant discourses are in policy, law, and news sources.

## Implications

Based on the results and limitations of this study, two implications emerge from the topical structure results of this study. These are the needs to address the topical absence of diversity issues and the impact of trauma and adverse childhood experiences on recidivism. First, the study reminds behavioral health professionals that a passive voice is not an option. For counselors and counselor educators, social justice and advocacy are ethical imperatives (ACA, 2014; Adams et al., 2016; Aldarondo, 2007; Arredondo, 1999; Chang et al., 2010; Ratts et al., 2016). Researchers can influence policymaking, leading to increased human rights and justice reform initiatives for BIPOC and LGBTQIA+ populations. The study points to gaps in the literature where multiculturalism and social justice are needed. For example, Chaney (2019) reported that since 1980, in the *Journal of Addictions & Offender Counseling*, “Only five articles (1.78%) have been published that were specifically focused on LGBTQ+ SUDs [substance use disorders] or process addictions” (p. 6). In terms of delivery and practice for professional



counselors, Rio et al. (2022) explained that there are effective ways and models to integrate multiculturalism and social justice into the criminal justice system. One of these models is the multicultural and social justice counseling competencies. Research and clinical practices must be conscious and purposeful in recognizing and addressing cultural and diversity barriers.

Concerning the impact of trauma and adverse childhood experiences on recidivism, there is a need for holistic views on the factors that lead and maintain individuals in the criminal justice system and how to support justice-involved individuals in their efforts to change. The study points to the criminal justice system's reliance on criminogenic risk factors to determine the risk of reoffending. The risks are identified as follows: criminal history, family/marital interactions, employment/education status, peer relations, alcohol/drug problems, leisure/recreation activities, antisocial personality/behavior patterns, and procriminal attitudes/orientations (Dyck et al., 2018). However, Maté (2010) encouraged medical and behavioral health professionals to look at addiction as the individual's resolution for dealing with their pain (psychological/emotional). Trauma-informed practices and clinical therapeutic interventions that recognize the impact of adverse childhood experiences must be increased in the criminal justice system to address recidivism (Craig et al., 2019; Janković et al., 2022; Zettler & Craig, 2023).

There are other risk factors to consider as well. For example, Rotter and Compton (2022) reported, "Social determinants (e.g., discrimination, underemployment or unemployment, housing instability, food insecurity, poor access to health care) are risk factors for, and consequences of, behavioral disorders and criminal legal system involvement" (p. 110). Lastly, the healing of individuals can take on many forms other than talk therapy (van der Kolk, 2014). Research and clinical practices must consider alternative forms of medicine beyond Western

standards of practice. Alternative forms of healing should continue to be explored and utilized to address trauma, mental health disorders, and recidivism. Practices include acupuncture, yoga, art therapy, and psychedelic therapies (ketamine, psilocybin, methylenedioxy-methamphetamine; Barrett et al., 2022; Davis et al., 2021; Jones, 2023; Mathew et al., 2023; Matzopoulos et al., 2022; Neitzke-Spruill, 2019; Rukmindar et al., 2023; van der Kolk, 2014).

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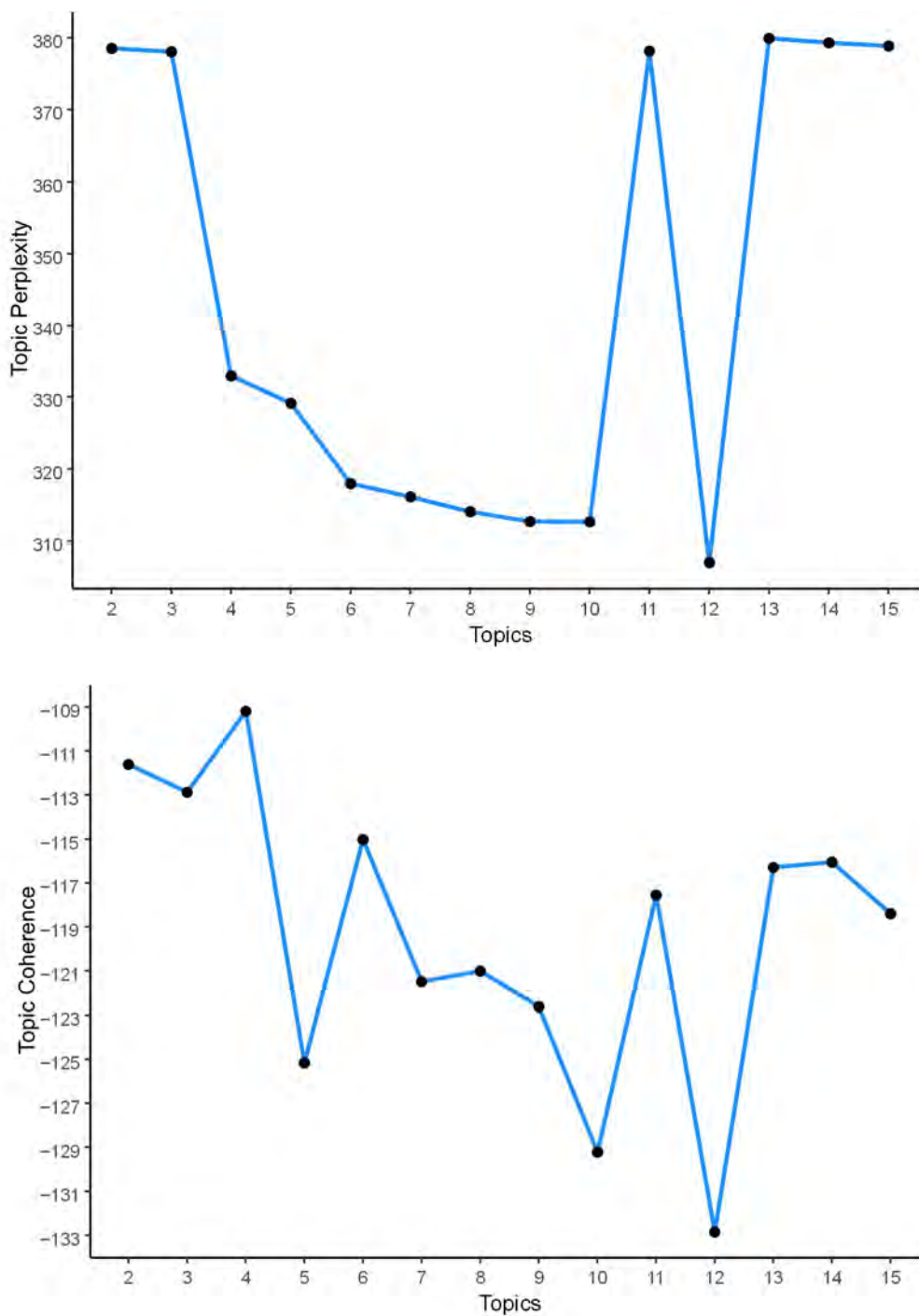
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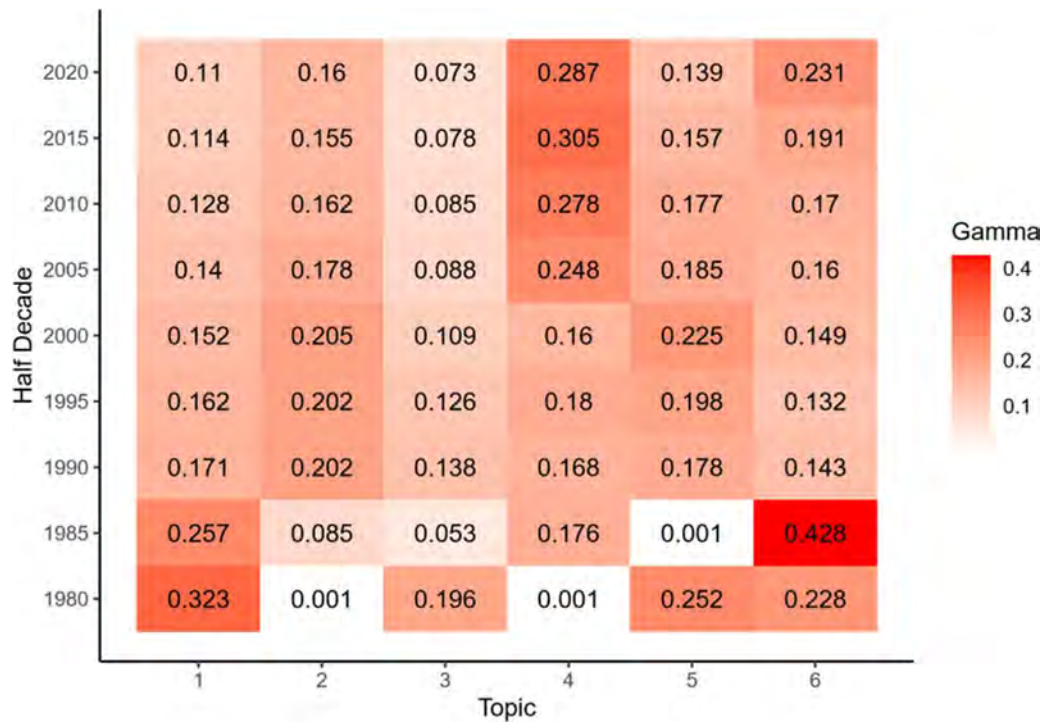
**Table 3.1***Topic Labels and Keywords (RQ1)*

Topic	Topic Title	Top Key Words
1	Legal Framework and Governance	law, article, criminal, legal, penal, rights, state, international, public, system
2	Mental Health and Substance Abuse Interventions in Correctional Systems	treatment, health, mental, drug, use, program, services, substance, care community
3	Risk Assessment and Predictive Factors in Violent Offenders	risk, personality, violent, offenders, study, disorder, sample, recidivism, scores, assessment
4	Gender Disparities in the Prison System	prison, women, social, research, study, experiences, work, findings, gender, family
5	Criminal Sentencing in Sexual Offense Cases	sentencing, cases, offenders, sexual, court, crime, convicted, police, defendant, criminal
6	Behavioral Experiments and Interventions in Correctional Settings	cooperation, game, experiment, task, performance, dilemma, behavior, effect, model, results

**Figure 3.1**

*Topic Perplexity and Coherence Across  $k$  (RQ1)*



**Figure 3.2***Topic Distribution Per Half Decade (RQ2)*

## **Chapter 4: A General Conclusion**



In this chapter, the following items are covered: (a) a summary of findings, limitations, discussions, and recommendations resulting from MS1; (b) a summary of findings, limitations, discussions, and recommendations resulting from MS2; (c) a discussion of the link between MS1 and MS2; (d) implications of the collective research; and (e) recommendations for future research agenda.

## **Manuscript 1**

### **Summary of Findings**

From a behavioral health perspective, the rates of incarceration and recidivism present a social justice challenge for counselor educators and clinicians, necessitating deliberate clinical procedures and scholarly study (Chang et al., 2010). The counselor may benefit or impede an individual's ability to avoid incarceration. It is imperative to investigate the linguistics of therapy interventions to keep people out of the criminal justice system and to advance clinical practices. The study employed a synchronic corpus linguistics design.

MS1 examined the data for keyness and collocation patterns. Four variables were used: manual, keyness, node word, and collocates of the node word. Four research questions were designed for MS1. First, comparing the *CBI-CA* recidivism prevention program manual to the *T4C* recidivism prevention program manual, what words were used with greater and lesser frequency? Second, in the *CBI-CA* manual, what is the word network of the word with the strongest positive keyness in RQ1? Third, what is the word network of the word stem crim\* in the *CBI-CA* manual? Fourth, what is the word network of the word stem crim\* in the *T4C* manual? The findings revealed the collocated words to the stem word crim\* varied significantly between treatment manuals. It also revealed that motivational interviewing is integrated into *CBI-CA*, and the curriculum's wording emphasized motivational engagement techniques to

prevent power struggles with participants but instead focused on successes. Lastly, although one of the goals of these treatment manuals is to address recidivism, the word is not found within the curricula.

### **Limitations**

Two limitations should be considered when analyzing the study's findings. The first concerns the number of treatment manuals available for the study. For proprietary reasons, many manual publishers severely restrict access to their products. A second limitation was the availability of digital copies, where there were no direct proprietary barriers, but practical ones were encountered. The extensive collection of curricula exists only in hard copies. Because of this, the enormous Optical Character Recognition efforts needed to include these texts in the corpus were more than practical.

### **Discussion**

MS1 studied the keyness and collocation of the word usage in treatment manuals used by the criminal justice systems and treatment providers to reduce recidivism. The study compared the words used with greater and lesser frequency in the *CBI-CA* manual to those in the *T4C* recidivism prevention program manual. It identified the word network of the word with the strongest positive keyness in the *CBI-CA* manual. Lastly, the study examined the word network of the word stem *crim\** in *CBI-CA* and *T4C* manuals. RQ1 measured the words occurring in the study corpus with greater and lesser frequency. The three words with the strongest positive keyness were “module,” “success,” and “worksheet.” The three words with the strongest negative keyness were “lesson,” “supplement,” and “handout.” *CBI-CA* has a more engaging approach to word usage that reflects a less pedantic stance (e.g., lesson, supplement) than the *T4C* curriculum.

RQ2 measured the most frequent term in the study corpus. This was “module,” and the two strongest collocates were “session” and “worksheet.” The use of these words reflects the psychoeducational inherent emphasis in any cognitive-behavioral interventions. *CBI-CA* is a guided approach to linking thoughts and behaviors, teaching individuals to identify risky thoughts, and implementing new thinking. The goal of the treatment manual is to replace risky thoughts, feelings, and beliefs.

RQ3 measured the word network of the word stem crim\* in the *CBI-CA* manual. The most collocated words to the stem word crim\* were “people” and “mental.” *CBI-CA* focuses on the therapeutic alliance and mental health needs to address the individual’s criminality. *CBI-CA*’s focus is on counselors addressing mental health concerns within correctional institutions. As mentioned earlier, *CBI-CA* uses motivational interviewing and motivational engagement techniques throughout the curriculum. These techniques assist the individual in recognizing their mental health and interpersonal barriers to wellness, sobriety, and a crime-free lifestyle.

RQ4 measured the word network of the word stem crim\* in the *T4C* manual. The most collocated words to the stem word crim\* were “systems” and “justice.” *T4C* uses the terms for the orientation of the facilitators and the participants when describing the curriculum to individuals involved with the criminal justice system.

### **Implications and Recommendations**

These are the clinical and research implications. First, the strict designs of EBP recidivism manuals restrict eclectic clinical practices for addressing recidivism treatment. In addition, as part of EBP, some developers require formal facilitator training before access to the treatment manuals is granted. For example, the *CBI-CA* curriculum requires over 20 hours of training, which includes several hours of live observation of group facilitation. *T4C* requires 32

hours of training. The requirement is to ensure fidelity to the curriculum. Completing multiple training sessions for various treatment manuals is time-consuming. In addition, the training can cost thousands of dollars per group facilitator, which is not cost-effective for some clinicians or smaller treatment programs.

Second, treatment manuals are unavailable for the study due to proprietary reasons and access to digital copies. This barrier obstructs advancements to EBP, treatment manuals, and future corpus linguistic and comparative analyses research projects because of the access needed for corpus construction. Finally, future research may consider the demographics of individuals in recidivism treatment programs and the cross-cultural and linguistic attunement of the curriculum. For example, Caldwell (2016) described how practitioners must maintain a basic framework for delivering culturally competent evidence-based treatment services. Caldwell also highlighted the responsibilities of clinicians and facilitators to recognize the client's motivation, readiness for change, strengths, resources, and struggles as they relate to the individual's social-cultural factors within the context of treatment and the meso/macro/chrono levels. The focus on cross-cultural and linguistic attunement is an ethical responsibility based on the statistical reports revealing racial and ethnic disproportionalities with incarceration rates. Although EBP yields more significant results in decreasing recidivism rates compared to treatment as usual, finetuning the cultural and linguistic components towards those disproportionately impacted by incarceration could enhance the facilitators' training and the curriculum's implementation.

## **Manuscript 2**

### **Summary of Findings**

Recidivism is a global phenomenon impacting millions of individuals and their families. MS2 utilized LDA and topic modeling for the analyses. The LDA statistical model provided a

deeper look at data and identified correlations and distinctions within data. It led to topic discovery in the literature related to recidivism. The study had two goals. The first goal was gap spotting in the academic literature on recidivism. The extant literature addresses isolated aspects of recidivism (e.g., risk factors, offense typology, and assessment practices), but an overall empirical perspective on the topical structure of research is absent. The second goal was to engage in research that has the potential to disrupt current practice. Two research questions were designed for MS2. First, what is the topical structure of the academic discourse on recidivism? Second, how does the presence of the topics differ by half decade? Six topic structures provided the most optimal solution regarding perplexity and coherence in the academic discourse on recidivism. The study also identified the presence of the topics by half decade. The study revealed gaps in the research literature and identified future focus areas.

### **Limitations**

There are two limitations of this study to be considered. First, although WoS is a sizable database, it does not contain all the collective knowledge of academia. Utilizing another extensive database could provide additional scholarly articles not captured in this study. Second, the sole focus is on the academic discourse. Though the discourse within academia is of great significance for counselors and counselor educators, there are relevant discourses to consider when examining the impact and influences of recidivism. These relevant discourses are in policy, law, and news sources.

### **Discussion**

This study aimed to explore the academic discourse on recidivism and what has been done in topic modeling in criminology. Using LDA, RQ1 examined the topical structure of the academic discourse on recidivism. A six-topic structure provided the most optimal solution

regarding perplexity and coherence. These topics were (a) legal framework and governance, (b) mental health and substance abuse interventions in correctional systems, (c) risk assessment and predictive factors in violent offenders, (d) gender disparities in the prison system, (e) criminal sentencing in sexual offense cases, and (f) behavioral experiments and interventions in correctional settings. RQ2 focused on the presence of the topics by half decade. The bases for the acquired results for RQ1 and RQ2 are addressed by topic.

The first topic is legal framework and governance. RQ1: The words for this topic relate to the overarching theme of legal frameworks, governance, and policies, encompassing aspects of criminal justice, human rights, international relations, and the enforcement of laws at the state and national levels. The topic examines systems and execution of the law. This topic reflects the trends in policy-making from a historical perspective but can also inform future advocacy efforts. RQ2: Over the past 30 years, a notable transformation has occurred in the research literature landscape. The emphasis on research has transitioned from being policy-driven to being clinically driven. The correctional system has recognized that an exclusive focus on incarceration does not effectively contribute to the restoration of individuals' wellbeing. The legal framework remains scrutinized in academic circles and popular media, particularly regarding concerns about human rights violations.

The second topic is mental health and substance abuse interventions in correctional systems. RQ1: The words in this topic focus on interventions and services related to mental health and substance abuse within the context of correctional systems, addressing the needs of individuals in prison and their impact on recidivism rates and public health. This topic reflects the importance of increasing treatment and counseling interventions with justice-involved individuals to reduce the risk of reoffending. RQ2: The trend demonstrated a turning point in the

1990s, as the criminal justice system initiated investments and integrated treatment of substance use disorders into its institutions.

The third topic is risk assessment and predictive factors in violent offenders. RQ1: This collection of words centers around the theme of assessing and predicting the risk of violent behavior in offenders, focusing mainly on factors such as personality traits, disorders, and symptoms to understand and potentially mitigate recidivism. The topic informs clinician practices of the significance of emotion regulation interventions for male offenders, which, in turn, helps reduce high recidivism rates. RQ2: Over the years, research on assessments and the identification of risk factors has transitioned, shifting from a focus on criminogenic risk/needs to addressing intimate partner violence. Risk factors continued to be examined but not to the extent of the 1980s.

The fourth topic is gender disparities in the prison system. RQ1: The list of words highlights a theme concerning the gender disparities within the prison system, focusing on research findings related to women's experiences, social support, family dynamics, and the attitudes of both inmates and correctional staff while addressing issues related to race and incarceration. This topic points to the gender disparities in sentencing, treatment, and medical care of specific populations within the criminal justice system. Recognizing these disparities can help provide better behavioral and medical care. It can also help challenge biases and stereotypes and promote social justice for marginalized communities. RQ2: Increased attention has been drawn to the disparities and obstacles faced by individuals within the BIPOC and LGBTQIA+ communities and their access to services within the criminal justice system. There has been a delay in recognizing the needs of marginalized communities within academic research.

The fifth topic is criminal sentencing in sexual offense cases. RQ1: The list of words

points to a theme involving the sentencing of individuals in cases related to sexual offenses, encompassing aspects such as court proceedings, criminal evidence, victims, and various types of sexual crimes, including homicide, child abuse, rape, and juvenile offenses. The topic reflects the inconsistency in sentencing within the criminal justice system. The information can lead to more equitable sentencing practices. RQ2: The inflection point, signaling the shift from a positive to a negative trend, occurred in 1999. Over 2 decades of research, extensive treatment outcomes addressing adult sex offenders were documented. While research endeavors persist, the recent trends have notably concentrated on exploring sentencing disparities among males, females, and BIPOC populations.

The sixth topic is behavioral experiments and interventions in correctional settings. RQ1: The list of words indicates a focus on conducting experiments and interventions within correctional settings to understand and potentially modify inmate behavior, emphasizing cooperation, learning, decision making, and the impact of various cues, rewards, and penalties on participants. Beyond cognitive behavioral therapy, new interventions are being explored within correctional institutions. The topic points to the criminal justice system's effort to address PTSD and SMI/SPMI within the prison populations. RQ2: The inflection point, signifying the shift from negative to positive, occurred in 2000. The trends mirror innovative treatment approaches, including implementing group therapy through video conferencing. The effectiveness was comparable whether treatment was delivered in person or via remote means. Varied therapeutic methods are gaining prominence within correctional institutions, and the research aligns with these clinical practices.

### **Implications and Recommendations**

The academic journals reflect the wealth of knowledge on criminal recidivism and its



significance as a global phenomenon. LDA and topic modeling categorized the academic literature conducted on recidivism. These are the clinical and research implications. First, the study reminds behavioral health professionals that a passive voice is not an option. For counselors and counselor educators, social justice and advocacy are ethical imperatives (ACA, 2014; Adams et al., 2016; Aldarondo, 2007; Arredondo, 1999; Chang et al., 2010; Ratts et al., 2016). Researchers can influence policymaking, leading to increased human rights and justice reform initiatives for BIPOC and LGBTQIA+ populations. The study points to gaps in the literature where multiculturalism and social justice are needed. For example, Chaney (2019) reported that since 1980, in the *Journal of Addictions & Offender Counseling*, “Only five articles (1.78%) have been published that were specifically focused on LGBTQ+ SUDs or process addictions” (p. 6). In terms of delivery and practice for professional counselors, Rio et al. (2022) explained that there are effective ways and models to integrate multiculturalism and social justice into the criminal justice system. One of these models is the multicultural and social justice counseling competencies.

The second implication is the need for holistic views on the factors that lead and maintain individuals in the criminal justice system and how to support justice-involved individuals in their efforts to change. The criminal justice system relies on criminogenic risk factors to determine the risk of reoffending. The risks are identified as follows: criminal history, family/marital interactions, employment/education status, peer relations, alcohol/drug problems, leisure/recreation activities, antisocial personality/behavior patterns, and procriminal attitudes/orientations (Dyck et al., 2018). However, Maté (2010) encouraged medical and behavioral health professionals to look at addiction as the individual’s resolution for dealing with their pain (psychological/emotional). Trauma-informed practices and clinical therapeutic

interventions are being integrated into the criminal justice system. There is a need to address the influence of trauma and adverse childhood experiences on recidivism (Craig et al., 2019; Janković et al., 2022; Zettler & Craig, 2023). There are other risk factors to consider. For example, Rotter and Compton (2022) reported, “Social determinants (e.g., discrimination, underemployment or unemployment, housing instability, food insecurity, poor access to health care) are risk factors for, and consequences of, behavioral disorders and criminal legal system involvement” (p. 110). Lastly, alternative forms of medicine beyond Western standards of practice should continue to be explored and utilized to address trauma, mental health disorders, and recidivism. Practices include acupuncture, yoga, art therapy, and psychedelic therapies (ketamine, psilocybin, methylenedioxy-methamphetamine; Barrett et al., 2022; Davis et al., 2021; Jones, 2023; Mathew et al., 2023; Matzopoulos et al., 2022; Neitzke-Spruill, 2019; Rukmindar et al., 2023; van der Kolk, 2014).

### **MS1 and MS2: Thematic Links and Differences**

MS1 and MS2 explored the linguistics associated with recidivism in academia and clinical practice. Both manuscripts are linked in terms of content and methodology. The content for both manuscripts is criminal recidivism. The studies examined the discourse associated with recidivism in academia and clinical practice. Both studies also analyzed the content used to address recidivism. Lastly, both studies used words as the unit of analysis for the methodology. The two studies have significant differences. MS1 examined the most frequently used words and their collocates across two popular treatment manuals currently used to address recidivism, while MS2 used topic modeling and LDA to categorize and analyze academic discourse on criminological topics.

### **Research Imperatives and Research Agenda**

## Research Imperatives

I have a personal investment in the content of recidivism. In my late teens, I was sentenced to seven and a half years in prison. My father spent a significant portion of his life in prison, and my son is currently incarcerated. I was able to make different choices in life through my participation in treatment programs and academics. I have been providing addiction treatment services for over 21 years. I began my career providing treatment services for individuals within the Oregon Department of Corrections. As a treatment provider, I am significantly invested in what the counseling field utilizes to help individuals stay out of correctional institutions. Comparing treatment manuals and the substance of academic discourse was encouraging, yet it demonstrated there is much to do. I am not saying that a universal panacea can be created but that some interventions may prove more effective than others.

The examination of the node words within treatment manuals was fascinating. However, the fact that specific terms were missing, such as recidivism, is more telling since that is what these treatment manuals set out to address; furthermore, the acknowledgment of multicultural factors is nonexistent. Concerns arise when recognizing that the most significant percentages of the inmate population in the United States are Black and Latino. The manuals do not seem sensitive to the idiosyncrasies and diaspora of these cultural and ethnic groups.

I learned to value the significance of the research methods. It was interesting to develop two studies linked in content and methodology. I enjoyed examining the most frequently used words and their collocates across two popular treatment manuals currently used to address recidivism. As Firth (1957) stated, “You shall know a word by the company it keeps” (p. 11). It was revelatory how words are accommodated in the manuals. It was also great to categorize and analyze the academic discourse on criminological topics using topic modeling and LDA. I

learned the power of words in research since the methodology for both studies used words as the unit of analysis. I can see myself using these methods of analysis in the future.

### **Future Research Agenda**

I am interested in delving further into the social discourse on recidivism, particularly in the media. I believe the media has the potential to shift public perception, given how a topic and the content are framed to the viewers. The lack of coverage on the subject matter may be part of the problem. Future research could examine the discourse of crime in the media. For example, a study could be a sentiment analysis around the word “criminal” by comparing the *Wall Street Journal* and the *New York Times* over the last 150 years. The study would reveal the underlying themes in which the word “criminal” has been framed to the American public in one of the most prominent newspaper outlets with a worldwide readership. Another research study could examine topic modeling within public media outlets such as magazines, radio shows, television news shows, and internet articles.

Lastly, when considering future research goals, I ask myself, is there a treatment manual within me? I say yes! Again, there is a gap with culturally specific treatment programs, which is significant because Blacks and Latinos comprise the majority of the prison population. There are brilliant treatment providers who do some phenomenal work with these particular populations. I believe collaboration and additional research are needed to help fill these gaps. For example, the Change Companies created the workbook titled *Strengthening the Spirit*, specifically for Native Americans in treatment, with a holistic look at the effects alcohol and other drugs have on the body, mind, emotions, and spirit. It assists individuals in discovering how their values can help them maintain a life of sobriety. Another example is the Wellbriety Movement, which integrates traditional Native ways with other forms of recovery. Yet, I do not see one culturally specific for

African Americans or Latino/a/x populations. Another area of significance is spirituality. Extratherapeutic support is recognized as a significant contributor to individuals' well-being, yet I have not found much literature measuring the importance of spirituality for individuals.

The focus on cross-cultural and linguistic attunement is an ethical responsibility based on the statistical reports revealing racial and ethnic disproportionalities with incarceration rates. Future research studies can examine the significance and impact of cross-cultural and linguistic factors (e.g., history, family, spirituality, values, norms, rituals/ceremonies, and social hierarchies; Bakan, 2016) and the intersectionality for BIPOC, LGBTQIA2S+, and individuals with disabilities involved with the criminal justice system that are receiving behavioral health services. Ratts et al. (2016) stated, "An understanding of intersectionalities continually and the influence of oppression on mental health and well-being requires a commitment to exploring individuals and their social environment" (p. 33). From a counseling perspective, Arredondo (1999) emphasized counselors' need to explore multicultural competencies and continually examine all the "isms." As a co-occurring therapist, clinical supervisor, behavioral health administrator, counselor educator, and social justice advocate, my personal and professional goals are to continue sharing knowledge and contributing to the development of the counseling field.

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## Appendices

### **Appendix A: Human Subjects Review Statement**

Given the public and published nature of the data used for this dissertation (law texts and movie scripts), no human subjects review was required.

### **Appendix B: Biographical Statement**

Carlos Obed Texidor Maldonado is from Caguas, Puerto Rico. He has been providing addiction and co-occurring treatment services for 24 years. His career in counseling began in 1999 in the Freedom and Recovery Program (Programa Libertad y Recuperación) at the Oregon State Correctional Institution. Mr. Texidor Maldonado has twenty-one years of lead/supervisory experience. He completed the Master of Arts in Clinical Mental Health Counseling at Corban University in August 2019 and the Master of Business Administration at Corban University in May 2020. He is a Licensed Professional Counselor through the Oregon Board of Licensed Professional Counselors and Therapists (OBPLCT), a National Certified Counselor (NCC) and an Approved Clinical Supervisor through the National Board of Certified Counselors (NBCC), a Master Addiction Counselor (MAC) through the National Association for Alcoholism and Drug Abuse Counselors (NAADAC), a Certified Alcohol and Drug Counselor III (CADC III), and a Certified Gambling Addiction Counselor II (CGAC II) through the Mental Health Addiction Certification Board of Oregon (MHACBO).

Mr. Texidor Maldonado is the Director of Behavioral Health for Bridgeway Recovery Services. He is also a faculty professor in the Rehabilitation and Mental Health Counseling program at Western Oregon University and an adjunct professor in the Clinical Mental Health Counseling program at Corban University. Mr. Texidor Maldonado has demonstrated strong leadership and advocacy by participating in the Oregon Health Authority Multicultural Advisory Committee (MAC) for Problem Gambling Services since 2008. He is also a part of Corban University's Clinical Mental Health Counseling Advisory Board, the Marion County Local Alcohol and Drug Planning Committee (LADPC), and the Willamette Health Council (WHC).