

## GEOMETRICAL MODELLING OF RECIDIVISM

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### ABSTRACT

*Recidivism is engaging in criminal activity again after having previously been involved with the criminal justice system, which continues to pose a severe problem for all civilizations. In order to create successful methods for crime prevention, offender rehabilitation, and community reintegration, it is essential to understand the elements that lead to recidivism. This research was undertaken to investigate the ideas and associates of recidivism. We used the quantitative research design and approached 240 criminals using simple random sampling from the Sahiwal division. We used a structured questionnaire, survey method, and face-to-face interview schedule for data collection. The study explored that lower self-containment, high social engagement, appreciable mental health, history of drug usage, especially marijuana, single marital status, and no religious practices are associated with recidivism. We suggested using the self-containment model to prevent recidivism.*

**Keywords:** Geometrical Modeling, Recidivism, Criminal Activities, Criminal Justice System.

### INTRODUCTION

Recidivism, a tendency to re-offend, is a significant challenge in the criminal justice system. It is a complex issue influenced by various socio-psychological determinants, such as family structure, employment, substance abuse, delayed justice, and mental health. Understanding these determinants is crucial in developing effective strategies for reducing recidivism rates. In recent years, there has been a growing interest in the impact of gender on recidivism, and studies have shown that the experiences and risk factors for re-offending are different for male and female offenders (Steadman et al., 1998).

This research proposal explores the socio-psychological determinants of recidivism, explicitly focusing on gender-based differences. The criminal justice system has traditionally been male-dominated, with men overrepresented in the incarcerated population. This disparity has led to increased attention being paid to the role of gender in the criminal justice system, including the study of gender-based differences in the factors that contribute to recidivism (Langan & Levin, 2002).

Recidivism, or engaging in criminal activity again after being involved with the criminal justice system, continues to pose a severe problem for all civilizations. In order to create successful methods for crime prevention, offender rehabilitation, and community reintegration, it is essential to understand the elements that lead to recidivism. Socio-psychological variables are among the many characteristics significantly influencing a person's re-offending propensity. This investigation focuses on investigating the gender-based socio-psychological factors that influence recidivism. We may learn more about how social and psychological variables interact differently for male and female offenders, contributing to their differing recidivism rates, by analyzing how gender affects these components. Numerous research has looked into how sociological and psychological variables affect recidivism rates among people (Hassan & Qureshi, 2019).

For instance, research highlights the significance of criminogenic needs, such as antisocial attitudes, low self-control, and criminal peers, in predicting recidivism among both genders. Their

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work addresses these dynamic risk factors through targeted interventions and rehabilitation programs (Andrews and Bonta, 2010).

### **Social Causes of Recidivism**

Research has shown that family structure and parental involvement play a significant role in the likelihood of re-offending. Children who grow up in unstable or abusive family environments are at a higher risk of engaging in criminal behavior, and parental involvement in the child's life can mitigate this risk. Furthermore, employment is also a significant factor in reducing recidivism rates. Offenders who secure stable employment are less likely to re-offend than those who are unemployed. Substance abuse and mental health also contribute to recidivism, and treatment for these conditions can play a role in reducing re-offending (Steadman et al., 1998).

Existing literature has shown that gender plays a significant role in the social causes of recidivism. For example, male offenders are more likely to have a substance abuse history than female offenders. Additionally, female offenders are more likely to have a history of childhood abuse and trauma, which can contribute to their likelihood of re-offending. These gender-based differences in the social causes of recidivism suggest that interventions for reducing recidivism rates should be tailored to male and female offenders' specific experiences and needs (Morash et al., 2005).

Socioeconomic factors encompass education, employment, income, and housing stability. Research suggests that economic disadvantage and lack of educational opportunities significantly predict recidivism. For instance, limited access to employment and low income can impede successful reintegration into society, increasing the risk of relapse into criminal behavior. Analyzing gender-based disparities in socioeconomic factors helps identify unique challenges male and female offenders face in their post-release transition. They stated that socioeconomic factors significantly influence various aspects of an individual's life, including their likelihood of engaging in criminal behavior and recidivism (Langan and Levin, 2002).

### **Psychological causes of recidivism**

Research has shown that psychological factors such as low self-esteem, poor impulse control, and antisocial attitudes significantly increase the likelihood of re-offending. These psychological factors are often the result of a combination of biological, environmental, and social influences. Mental health conditions, such as depression and anxiety, can also increase the likelihood of re-offending. Existing literature has shown that gender plays a significant role in the psychological causes of recidivism. For example, male offenders are likelier to have a history of antisocial behavior than female offenders (Farrall, 2002).

Additionally, female offenders are more likely to have a history of childhood abuse and trauma, which can contribute to mental health conditions such as depression and anxiety. These gender-based differences in the psychological causes of recidivism suggest that interventions for reducing recidivism rates should be tailored to male and female offenders' specific experiences and needs (Coggeshall et al., 2003).

Psychological causes play a significant role in recidivism, influencing an individual's thoughts, emotions, and behaviors. One prominent psychological cause is substance abuse and addiction. Substance abuse can lead to changes in brain chemistry, impairing judgment, impulse control, and decision-making abilities, making individuals more susceptible to engaging in criminal activities to support their addiction. Co-occurring mental health issues also contribute to recidivism (Gilliard & Altschuler, 2010).

Conditions such as depression, anxiety, post-traumatic stress disorder (PTSD), and personality disorders can exacerbate criminal behavior, as individuals may struggle with managing emotions, coping with stress, and regulating their behavior effectively. A history of trauma and adverse childhood experiences is another psychological cause of recidivism. Trauma can significantly impact an individual's psychological well-being, leading to emotional instability, difficulties in forming healthy relationships, and maladaptive coping mechanisms, all of which increase the risk of re-offending (Petersilia, 2003).

Cognitive factors, such as distorted thinking patterns, low self-control, and a lack of problem-solving skills, also contribute to recidivism. These cognitive processes can lead individuals to engage in criminal thinking and impulsive behaviors, perpetuating their involvement in illegal activities. Finally, a lack of motivation or readiness for change is a psychological cause of recidivism. Some individuals may have a limited internal motivation to reform their behavior, resulting in resistance to

rehabilitation efforts and a higher likelihood of re-offending. Addressing these psychological causes requires comprehensive interventions that include mental health treatment, substance abuse counseling, trauma-informed care, cognitive-behavioral therapy, and motivational enhancement strategies to address underlying psychological issues, develop coping skills, and foster positive behavioral change, ultimately reducing the risk of recidivism (Walters, 2015).

### **Mental Health and Substance Abuse**

The relationship between mental health issues, substance abuse, and recidivism is well-established. Psychological and substance use disorders often co-occur among incarcerated individuals, and untreated or under-treated conditions can contribute to re-offending. Gender-specific patterns in mental health, including prevalence rates, symptom expression, and treatment-seeking behavior, can shed light on distinct vulnerabilities and intervention needs for male and female offenders. The relationship between mental health, substance abuse, and recidivism is significant and complex (Langan & Levin, 2002).

Mental health issues and substance abuse are crucial in contributing to criminal behavior and increasing the risk of recidivism. Many individuals involved in the criminal justice system have co-occurring mental health disorders, such as depression, anxiety, bipolar disorder, or post-traumatic stress disorder (PTSD). These conditions can impair cognitive functioning, emotional stability, and impulse control, making individuals more susceptible to criminal activities. Moreover, individuals with untreated mental health disorders may struggle with managing stress, emotions, and coping mechanisms, increasing their vulnerability to re-offending (Bauminger et al., 2005).

Substance abuse, including drug and alcohol addiction, is also strongly linked to criminal behavior and recidivism. Substance abuse can alter brain chemistry, impair judgment, and compromise decision-making abilities, leading individuals to engage in illegal activities to support their addiction. The cycle of substance abuse and criminality becomes intertwined, as individuals may turn to crime to fund their drug habits or become involved in drug trafficking networks (Wilkinson et al., 2005).

Addressing mental health and substance abuse issues is crucial in reducing recidivism rates. Comprehensive interventions should include mental health screening and assessment, access to appropriate treatment and therapy, and integrated substance abuse programs. Providing mental health support within correctional facilities and ensuring continuity of care upon release is vital to addressing underlying psychological issues contributing to criminal behavior (Mitchell and MacKenzie, 2012).

### **Coping Mechanisms and Cognitive Factors**

Coping mechanisms and cognitive factors, such as problem-solving skills, impulse control, and decision-making abilities, significantly influence an individual's ability to refrain from criminal behavior. Examining gender differences in coping strategies and cognitive processes can elucidate the underlying mechanisms contributing to recidivism disparities. These insights can inform gender-specific therapeutic approaches and cognitive-behavioral interventions to reduce re-offending rates (Vaganay et al. (2005).

Coping mechanisms and cognitive factors significantly influence the occurrence of recidivism among individuals involved in the criminal justice system. Effective coping mechanisms are essential for individuals to navigate daily challenges and stressors. However, individuals with limited or maladaptive coping skills may resort to criminal behavior to manage their emotions or deal with difficult situations (Gumpel and Sharoni, 2007).

Without healthy coping strategies, such as problem-solving, emotion regulation, and impulse control, individuals may be trapped in a cycle of criminal behavior. Cognitive factors, including thinking patterns and decision-making abilities, also play a crucial role in recidivism. Distorted thinking patterns, rationalizing criminal behavior, or minimizing the consequences of their actions can contribute to a higher likelihood of re-offending. Individuals may engage in cognitive distortions that justify their involvement in criminal activities, making it challenging to break free from criminal behavior patterns (Wills, 1997).

This research explores the socio-psychological determinants of recidivism, explicitly focusing on gender-based differences. The criminal justice system has traditionally been male-dominated, with men overrepresented in the incarcerated population. This disparity has led to increased attention being paid to the role of gender in the criminal justice system, including the study of gender-based differences in the factors that contribute to recidivism (Bauminger and Toledo, 2008).

The study of the socio-psychological determinants of recidivism is complex, as it involves a range of interrelated factors, including family background, educational attainment, employment status, mental health, and others. These factors are likely to interact with each other in complex ways, making it challenging to identify the critical determinants of recidivism. By focusing on gender-based differences, this study will shed light on the specific socio-psychological factors associated with recidivism in men and women (Listwan, Latessa, and Koetzle, 2018).

The findings of this study will have important implications for the criminal justice system, as they will inform the development of effective strategies to reduce the re-offending rate. By gaining a deeper understanding of the socio-psychological determinants of recidivism, policymakers and practitioners will be better equipped to design targeted interventions to address the specific needs of male and female offenders. This study will contribute to the growing body of literature on gender and crime and will help to deepen our understanding of the complex relationships between socio-psychological factors and recidivism (Rizwan et al., 2023).

## **REVIEW OF LITERATURE**

According to research (Coggeshall et al., 2003), there is a growing corpus of research on the socio-psychological factors that influence recidivism, but much of it has neglected to look at how gender affects these linkages. Further investigation is required to determine how these elements change according to gender and how these disparities affect the criminal justice system (Coggeshall et al., 2003).

A study (Langan and Levin, 2002) that explored family history, educational level, and work position were all significant drivers of recidivism, although the associations between these characteristics and recidivism varied by gender. Despite being a substantial predictor of recidivism for male and female offenders, the study indicated that the association was more significant for male offenders. Similarly, the study discovered that while the educational level strongly predicted recidivism for female criminals, it was not a significant predictor for male offenders (Langan and Levin, 2002).

Andrews and Bonta (2010) claim that both male and female criminals experience recidivism due to various causes; risk factors for substance misuse include mental health problems, trauma history, and bad childhood events. These elements can cause emotional instability, impair impulse control, and make it harder to cope with pressures, raising the risk of acting criminally. Recognizing that men and women frequently experience distinct difficulties is essential when evaluating the gender-specific drivers of recidivism (Andrews and Bonta, 2010).

Taxman and Belenko (2011) offer a person-based understanding of criminal recidivism. The authors examine the shortcomings of conventional risk assessment techniques that only consider static elements and argue in favor of a more thorough knowledge of people and their experiences to more accurately predict recidivism. They review the significance of considering dynamic elements, including societal influences, personal narratives, and life events when determining the likelihood of re-offending. In offender evaluation and management tactics, the paper emphasizes the potential advantages of using a person-based approach (Abbas and Manzoor, 2015).

Listwan, Latessa, and Koetzle (2018) examine how self-control plays a role in recognizing individual variations in criminal recidivism. They strongly emphasize the significance of self-control as a psychological factor that influences the propensity for recidivism. The writers examine how self-control impacts numerous parts of a person's decision-making process, impulse control, and resistance to criminal behavior through a thorough review of empirical evidence and theoretical frameworks. The study highlights the relevance of self-control in understanding and resolving the individual disparities in recidivism rates by providing insightful information about the link between self-control and recidivism (Listwan, Latessa, and Koetzle, 2018).

Petrila, Skeem, and Loudon (2019) show thorough work that explores the psychological effects of incarceration and how they may affect how people adjust once released. Aspects of the psychological effect covered by the editors and other writers include trauma, coping methods, and social integration. The book sheds light on the intricacies of post-prison adjustment by critically examining the experiences and difficulties people endure during and after incarceration. This book provides insightful information for professionals working in criminal justice, mental health, and

reintegration programs, emphasizing the psychological variables at play (Petrila, Skeem, and Loudon, 2019).

## METHODOLOGY

A quantitative methodology is deemed appropriate for this study, providing a robust and systematic approach to examining the relationships between socio-psychological factors and recidivism. We used simple random sampling to approach 240 male ( $n = 158$ ) and female ( $n = 82$ ) criminals from the Sahiwal Division. The data was collected using survey methods and a face-to-face interview schedule. We administered a structured questionnaire for data collection.

The social class of the respondents was self-reported as they were asked to report their class from lower-lower to upper-upper class. Family constraints and religious practices were measured using one item on three points scale ranging from Always = 3 to Never = 1. Further, social engagement and self-containment measures ranged from 1 = Lower to 3 = High. The respondents were also asked about drug usage, such as marijuana, opium, and alcohol. However, the respondents could also select "Not Addicted" if they were not addicted.

Table 1 comprises basic information about the respondents. Most of the respondents who participated in the research were male and only 34.2% were female. Most respondents were 20-40 years old, comprising 62.5% of the sample. Most of the respondents were married (61.7%) and 38.3% were single. Most respondents committed felony crimes (61.7%), and 38.3% committed misdemeanors.

Table 1

*Frequency and Percentage distribution of respondents' demographic information*

Variable	Frequency	Percentage
<b>Age</b>		
Below 20 years	54	22.5
20-30 years	86	35.8
30-40 years	64	26.7
40-50 years	36	15.0
<b>Marital Status</b>		
Married	148	61.7
Single	92	38.3
<b>Type of Crime</b>		
Felony	148	61.7
Misdemeanor	92	38.3
<b>Gender</b>		
Male	158	65.8
Female	82	34.2
<b>Total</b>	<b>240</b>	<b>100</b>

## ANALYSIS AND DISCUSSION

The two-dimensional solution of discrimination measures shows that age, drug usage, family constraints, social engagement, self constraints, social class, and self-containment contributed to dimension 2 and the rest of the variables loaded on dimension 1. Figure 1 significantly displays such dispersion of variables by dimensions.

Figure 2 is a graphical representation of the results of the Multiple Correspondence analysis. The results showed that recidivistic individuals have the lowest religious tendency as they have never performed religious rituals. They also have lower self-control because their self-containment is lower than non-recidivistic individuals. They lived in a nuclear family system, but some were not married, so they were probably living with their parents. They belong to the lower-lower social class, which generally reflects their social status of poverty.

Interestingly, they are highly socially engaged and never accepted social constraints, but their self-reported mental health is appreciable. It may be due to their drug usage history because most are

addicted to marijuana. Lastly, their age group is 30-40, and they committed misdemeanors.

On the other hand, non-recidivistic individuals are not addicted to any drug. They somewhat perform religious rites and belong to the lower-middle social class. Nevertheless, they are criminals. They used to live in a joint family system and are married. However, their marital status is strongly associated with felony crimes which could be assumed as family or tribal disputes raised to the level of homicides.

In this study, we looked at what factors contribute to people committing crimes again after being previously involved in illegal activities. By understanding and addressing these factors, we can work towards helping individuals stay out of trouble and lead successful lives. In this study, we aimed to explore the social and psychological factors that influence the likelihood of individuals re-offending after being involved in criminal activities. Our findings revealed essential insights into the determinants of recidivism. The results highlight the need for tailored approaches in addressing recidivism, considering the unique circumstances and challenges individuals face. Considering these socio-psychological determinants, we can develop targeted interventions and policies to reduce the likelihood of re-offending and support successful rehabilitation and reintegration into society.

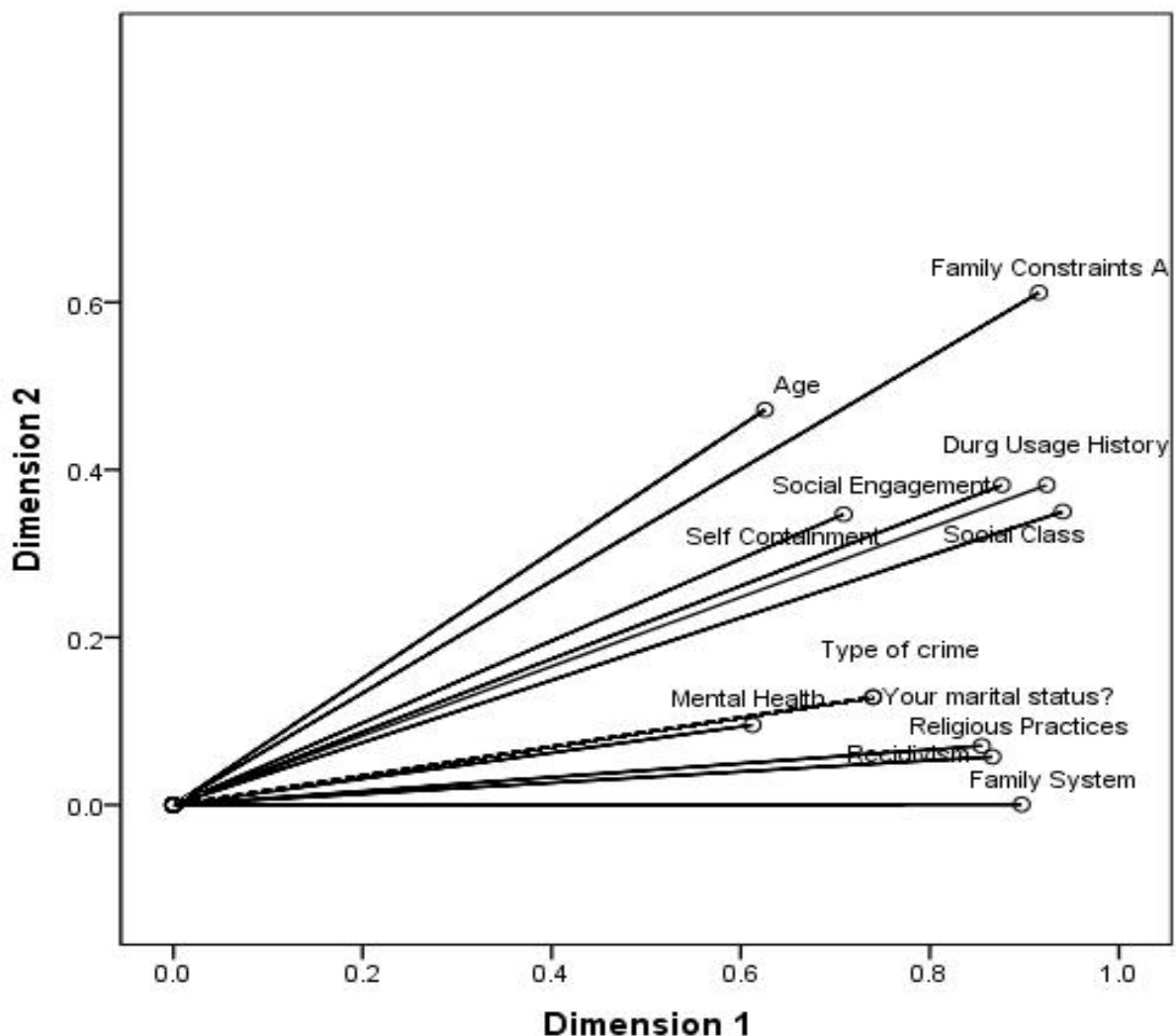


Figure 1. Two-dimensional discrimination measures

Our research findings are consistent with several previous studies, such as the association between recidivism and marital status supports the study by Yukhnenko, Blackwood, and Fazel (2020)

and McCoy et al. (2013). The history of drug usage is one of the most substantial contributors to recidivism. This finding is well established in previous studies. Our findings also support those studies. However, our study finds a specific association between recidivism and marijuana usage. This finding is consistent with the study by Hessol et al. (2014). As far as religious practices are concerned, our findings are contrary to the previous studies. The study by Bhutta, Wormith, and Zidenberg (2019) found an association between religious practices and recidivism, but our study reported the contrary

results. Our findings in this regard are also contrary to Johnson, Larson and Pitts (1997) study.

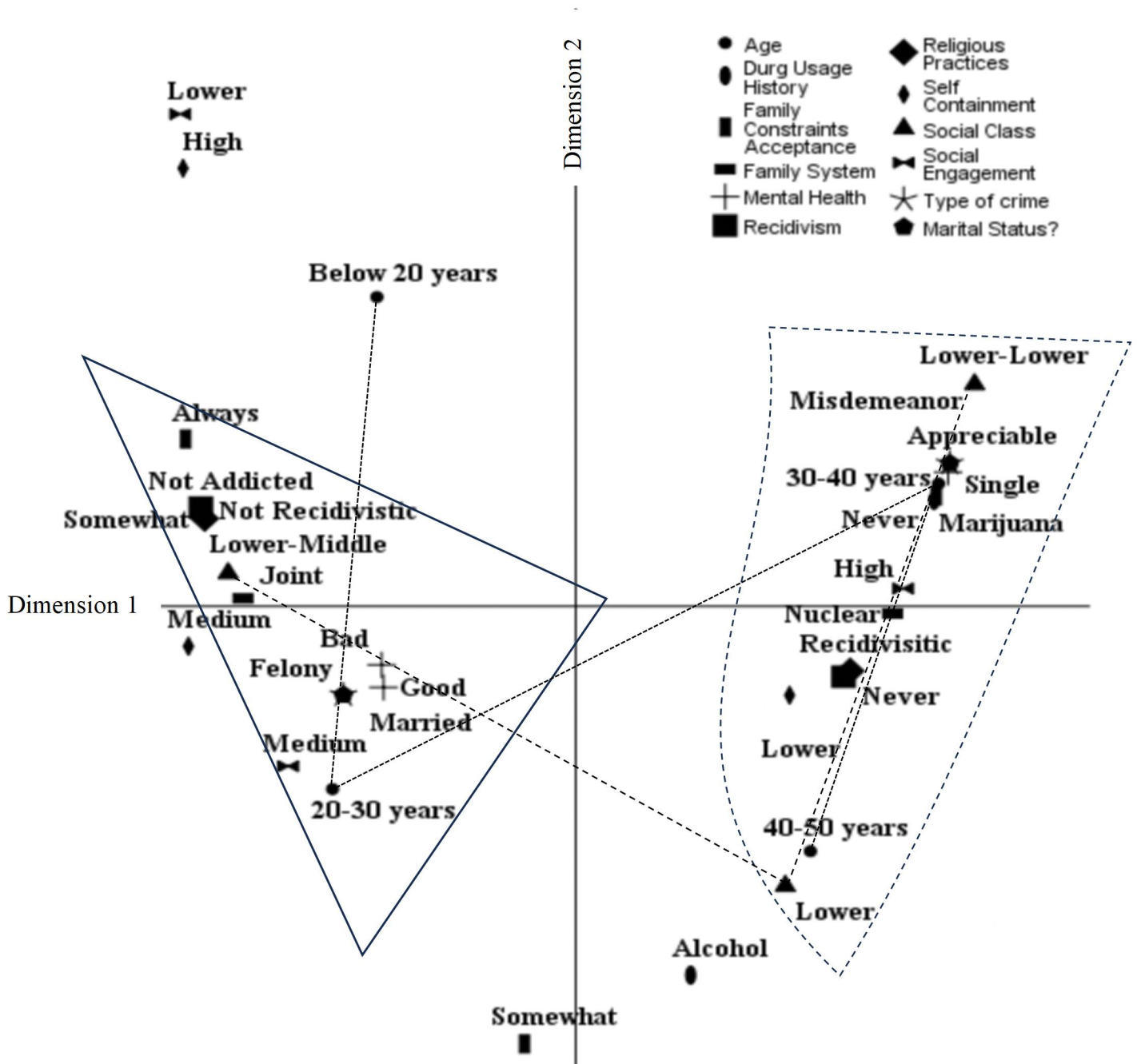


Figure 2. Multiple Correspondence Analysis of Recidivistic and non-recidivistic correlates

*Note:* Dimension 1: Cronbach Alpha = 0.978, Eigenvalue = 9.701 and percentage of variance is 80.39; Dimension 2: Cronbach Alpha = 0.73, Eigenvalue = 3.02 and percentage of variance is 25.2. The mean Cronbach alpha for two-dimensional solution is 0.919 (base on eigenvalue) and mean eigenvalue and inertia are 6.36 and 0.53, respectively.

A plethora of studies have reported poverty and criminal tendency, which can be treated as the association between lower social class and criminal tendency. We also found this association which supported the findings from Holtfreter, Reisig and Morash (2004) findings. However, our findings regarding mental health are contrary to the previous studies, as recidivistic individuals have serious mental health problems (Lamberti, 2016), but our study found that recidivistic individuals have no



such mental health issues. Such findings are interpretable due to the cultural system of the Sahiwal division in which families have lengthy disputes and used to fight with each other repeatedly.

Billen (2019) suggested that self-control could be an influential contributor to reducing the prevalence of recidivism. It indicates that self-containment could be a predictor of recidivism as well. Our study explored that lower self-containment is associated with recidivism. Therefore, we also agreed with the suggestion by Billen (2019). Social constraints can prevent the recidivistic tendency because recidivistic individuals have the lowest acceptance of social constraints. This finding is consistent with previous studies, such as the study by Hanson and Wallace-Capretta (2000).

## CONCLUSIONS

This study has explored the socio-psychological determinants of recidivism. It highlights the necessity of adopting a gender-sensitive approach within the criminal justice system to ensure fairness, equity, and practical strategies for reducing recidivism and promoting long-term positive outcomes for all individuals involved.

This study has looked at the social and psychological factors that influence whether people who have been involved in the criminal justice system go on to commit more crimes. The research has shown that things like a person's social status, drug or alcohol use, and lower self-containment significantly impact whether they re-offend. By understanding these factors and how they affect each other differently, we can create programs and policies that are better at helping people stay out of trouble after they have been in trouble. This research is an essential first step in finding ways to reduce re-offending rates and help people successfully reintegrate into society after being involved in the criminal justice system. The two-dimensional solution of discrimination measures shows that age, drug usage, family constraints, social engagement, self constraints, social class, and self-containment contributed to dimension 2 and the rest of the variables loaded on dimension 1. These are the significant associates of recidivism.

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