



## RESEARCH ARTICLE

# Covariates of Job Opportunities and Its Impacts on Crime among Young Adults

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## ABSTRACT

The FBI's 2022 crime statistics reveal a nuanced landscape in the United States, with a 1.7% decrease in violent crime from the previous year but a 1.3% increase in robberies, highlighting the complexity of national crime trends and the urgent need for targeted interventions. Despite various law enforcement strategies and community programs, the persistence of physical crimes like assault, robbery, and burglary continues to pose significant public safety threats and cause considerable physical and psychological trauma to victims. Thus, this study aims to identify the mediating role of job opportunities in the connection between each predictor (race, health, family and education) and crime using a large data set from the data archive of the Inter-University Consortium for Political and Social Research (ICPSR). The correlation between each predictor and crime is outlined, along with both the direct and indirect impacts of each predictor on crime, mediated by job opportunities. The result highlighted that there is a lack of significant relationship between race and crime with a negative correlation between education with crime and a positive correlation between health, family and job opportunities with crime. In terms of mediation analyses, job opportunities mediated the relationship between education and crime only. While it does not significantly mediate between other predictors (race, health, family) with crime. Results may aid in developing more focused crime prevention strategies and policies, particularly emphasizing the enhancement of educational and employment opportunities as effective tools for reducing crime rates.

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## 1.0 INTRODUCTION

A crime involves a deliberate action that can cause physical or mental harm, damage property, or result in loss, leading to potential punishment from a governing authority based on the severity of the wrongdoing (Shah et al., 2021). According to FBI data, crime in the US fell significantly in 2023. There was a 13% decline in murder, and drops in reported violent crime and reported property offenses. Both robbery and aggravated assault also decreased by 5% from 2022. However, this implies that not all police reports are gathered. Furthermore, many experts agree that there are many

unknown reasons why crime rates change and that government action or regulations only sometimes have a significant short-term impact (Gabbatt, 2024). In addition, the FBI's 2022 crime statistics reveal a nuanced picture: while violent crime decreased by an estimated 1.7% compared to 2021, robbery showed an estimated increase of 1.3% nationally (FBI, 2023). This data underscores the complexity of crime trends and the need for targeted interventions.

Crime can impact mental health through direct and indirect pathways. Being a victim of crime or witnessing it in the community raises the risk of mental disorders, especially depression and post-traumatic stress disorder (Baranyi et al., 2021; Paulino BA et al., 2023). Besides that, research by Macwan (2023) suggests that crime has significant effects on economic productivity. People who are victims of crimes could miss employment as a result of trauma, injuries, or court cases. This results in a drop in productivity at work and possible financial losses for both people and companies (Macwan, 2023). Additionally, high crime rates may also cause a drop in tourist and retail sales, which would affect the local economy of the areas (Fourie et al., 2020; Ozascilar & Mawby, 2023; Shchokin et al., 2023). Development and investment are driven away by crime because a good investor would never invest in a place where there is a high crime rate (Jonathan et al., 2021). Hence, crime may impact a society's economic development and quality of life (Zhang et al., 2021). Therefore, reducing crime rates is crucial for society's general economy as well as for citizen's safety. To protect the security and well-being of the citizens, governments must prioritize funding for research aimed at preventing crime.

Several researches show there is a direct negative correlation between employment status and crime (Jonathan et al., 2021; Gondal et al., 2022; Tambuwal & Abdullahi, 2020). Furthermore, recent studies also investigated the relationship between health conditions (Ineson et al., 2023; Lattimore et al., 2022), race (Carson, 2020; Bradshaw, 2021), education (Wang et al., 2022), family (Sbeglia et al., 2023; Fu, 2023; Chavda & Nisarga, 2023) and crime. This study aims to identify the mediating role of job opportunities in crime, providing invaluable insights for government or policymakers in creating specific interventions to reduce crime rates and foster socio-economic development. The covariates of the crime studied in this paper are race, health condition, family and education.

## **2.0 LITERATURE REVIEW**

### **2.1 Race and employability**

Race is often defined as categories based on presumed biological ancestry, indicated by physical traits thought to be linked to ancestral origins. Few studies have shown that race will affect employability as they face discrimination while applying for a job (Quillian & Midtbøen, 2021). Job opportunities are more likely to be offered to white candidates than black candidates and those of other racial backgrounds (Agan et al., 2020; Bloch et al., 2021). Besides that, people of color disproportionately also suffer from unequal access to fair wages, paid sick leave, and unemployment benefits (Gemelas et al., 2021). The percentage of unemployed women with a college degree of white face is 1.7% which is the lowest when compared to Black and Asian women which are 5.7% and 3%. It also stated that after covid-19 college-educated black men aged 20–29 saw a 12.4 percentage point rise in their likelihood of being out of the labor force due to various reasons (Moen et al., 2020). Wrigley-Field & Seltzer (2020) note that Black workers were more likely to be displaced from their jobs compared to White workers. Additionally, during the Great Recession, Rinz & Census Bureau (2019) reports that job losses among Black workers were approximately 40% higher than those experienced by other racial groups, with men facing more significant losses than women. Furthermore, the employment-population ratio reveals significant disparities in labor-market prospects for African Americans, demonstrating a persistent gap that has struggled to recover to pre-Great Recession levels, with only 58.2 percent employed in the early months of 2019 compared to a peak of 60.5 percent in 2000 (Rodgers, 2019).

### **2.2 Race and crime**

Although the United States is experiencing a sustained and renewed focus on issues related to racial equality, the worry that law enforcement officials disproportionately target minority communities for scrutiny continues to exist (Stewart et al., 2020). According to a study by Duxbury (2021), he revealed that young adults who are Black are arrested more frequently for causing street crime. This is because black men were assumed to be uneducable yet physically superior or hyper-masculine, making them dangerous (Allen et al., 2019).

It appears that there's a correlation between racial demographics and crime rates, suggesting that criminal behavior might be influenced by racial factors. Research states that young adults identified as Black are found to be arrested at a rate that is seven times higher than that of young adults identified as White. Across the United States, African Americans are incarcerated in state prisons at a rate more than five times the imprisonment rate of Whites. In 2019, the imprisonment rate for Black sentenced prisoners across state and federal facilities was 1,096 per 100,000 U.S. residents, significantly higher than the rate of 214 per 100,000 for White prisoners (Carson, 2020; Bradshaw, 2021). Mallari et al. (2020) also stated that blacks are less likely to reoffend compared to whites. Individuals who are Black face higher rates of arrest and incarceration compared to the White population, indicating disproportionate representation in the criminal justice system. This may be due to the black face (1.22%) being exposed to violence more frequently than the white (1.05%) (Schleiden et al., 2020; Hureau, 2022).

### 2.3 Health and job opportunities

Mental health conditions, such as depression and anxiety, have been extensively studied for their effects on employment outcomes. A study by de Oliveira et al. (2023) found that individuals with mental health disorders are associated with lost productivity (i.e., absenteeism and presenteeism). Besides that, a 2024 study revealed that mental health issues can lead to decreased job satisfaction and increased intention to leave, suggesting that mental well-being is crucial for job retention and satisfaction (Peter et al., 2024). Furthermore, van Beukering et al. (2022) also stated that those with common and severe mental problems have a three to seven times higher unemployment rate than those without symptoms. In addition, obesity has also emerged as a significant public health concern with implications for employment outcomes. Various studies investigate the relationship between obesity and labor market participation, suggesting that obesity may reduce job opportunities and earnings potential (Campos-Vazquez & Gonzalez, 2020; Koliaki et al., 2023).

Chronic diseases, such as arthritis and chronic obstructive pulmonary disease (COPD), present significant challenges in the workplace. Research by Gignac et al. (2021) examined the impact of chronic diseases on employment participation, revealing that people with chronic diseases (PwCDs) were more likely to experience unemployment or early retirement. Comparing PwCDs to the economically active population, the employment rate is less than half, but the unemployment rate is twice (Silvaggi et al., 2019).

### 2.4 Health and crime

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community (Franjić, 2022). Halle et al. (2020) found that mental health disorders cannot be considered a strong contributor to crime engagement and violent behaviors. However, some researchers found that there are relationships between mental health disorders and criminal involvement. For example, individuals with a history of traumatic brain injury (TBI) were more likely to engage in violent and impulsive criminal acts (Ineson et al., 2023; Lattimore et al., 2022). Individuals experiencing psychosis also have an increased likelihood of encountering the criminal justice system due to involvement in various types of criminal behavior, not limited to violent offenses (Yee et al., 2020). In addition, health shocks, like cancer diagnoses, increase the likelihood of committing crimes by 13%. This is due to economic factors such as loss of earnings and lower expected punishment costs for patients (Parise et al., 2021). On the flip side, health positively impacts wages and employment while reducing

criminal activities. Public policy experiments suggest that implementing Medicare-for-all could decrease crime rates by 1% and increase aggregate output by over 10% (Otsu & Yuen, 2022).

## 2.5 Family and job opportunities

Research suggests that children who originate from single-parent families have a lower probability of being employed in lucrative jobs compared to children who live in double-parent families (Mwangangi, 2019). Children who live in single-parent families tend to share the burdens of their parents by picking up a job to ease the financial burden of their families (Perry-Jenkins et al., 2019; Sangeet & Singh, 2022). Family plays an important role in assisting children in securing job opportunities. A child receiving support either through opinions given by parents or emotional support is a huge boon to the children and they have higher chances of obtaining a job (Aslan & Koçak, 2023). In addition, research shows an inclination toward children from families with higher socioeconomic status leads to them landing a job easily as they possess ample resources and opportunities (Hornstra & Maas, 2021; Lyu et al., 2019). However, certain research pinpoints that families who involve themselves excessively in children's career opportunities may be seen as hindrances from children (Liang et al., 2023).

## 2.6 Family and crime

Family can be defined as a group of people who share the same accommodation, have close emotional attachments with each other and are tied together whether through birth, marriage or adoption (Mwangangi, 2019). A study also showed that the percentage of children living and growing up in single-parent families has been steadily increasing for the past decade at 15% and 27% respectively in the European Union and the United States (Kroese et al., 2021). There seems to be a negative relationship between a proper family structure (married family) and crime performed by children. Mwangangi (2019) pointed out that children who live in a proper family structure have a lower rate of committed delinquency compared to children who live in other familial arrangements (single-parent families, divorced families). Furthermore, a research pinpoints that children who partake in crimes are often the result of a combination of bad parenting, the fractured relationship between parents and the family structure the children live in (Finebone & Temi, 2022). In addition, children who are not given proper attention, support and emotional support from their parents are prone to committing crimes such as binge drinking, smoking marijuana and consuming drugs (Saladino et al., 2021).

Next, parents in single-parent families are expected to work harder in order to provide financial stability for their family which as a result, reduces the time for them to spend with their children. This causes children to feel neglected and often engage in criminal activities (Chavda & Nisarga, 2023; Fu, 2023; Sbeglia et al., 2023). Moreover, there is an indication of a relationship between parenting style and children committing crimes. Children who are given freedom of life and educated by permissive parents are expected to have a lower rate of committed delinquency as compared to children who are educated by strict parents (Sekar & Bhuvaneshwari, 2023).

## 2.7 Education and job opportunities

Over the last four decades, job requirements have increased significantly, with new demands of professional skills and higher education levels to handle complicated tasks in jobs (Schultheiss et al., 2023). Companies prioritize hiring educated individuals regardless of their skills in the free labor market (Hajdari & Fetai, 2022). A key component of maintaining a country's or company's competitive advantages in the international community is education (Stryzhak, 2020). Education can effectively increase an individual's reservation wage, giving him or her more opportunities and choices over job offers (Altindag et al., 2021). It is proven that without formal qualifications, an individual will probably have a lower chance of finding a new job compared to qualified workers (Effenberger et al., 2019). This is because many companies now expect a specific level of education for positions that previously did not require proper qualifications (Hitka et al., 2021).

Based on the American Community Survey (ACS), having more education typically pays off. Nowadays, employees with bachelor's degrees earn 75% more than individuals who only have a high school certificate. At the median, a person with a bachelor's degree makes \$2.8 million throughout their lifetime, or roughly \$70,000 on average each year (Carnevale et al., 2021). Human resources managers will filter out less educated candidates since they are unable to read every application from the labor markets with a high volume of applicants. This results in an alignment where only people with bachelor's degrees can have the chance to do cognitive tasks at the bachelor's degree level (Horowitz & Ramaj, 2024).

## 2.8 Education and crime

Low-educated individuals are often overrepresented among criminal offenders (Huttunen et al., 2023). On the other hand, education significantly benefits society by improving productivity and lowering crime. Recent research in the economic literature has offered clear evidence that education has reduced crime rates across a range of countries and environments (Wang et al., 2022). By consistently accepting education, people can develop their moral personalities with integrity and reduce the probability of them being involved in such illegal activities (Gong, 2023). Moreover, the crime rate of a city can be decreased significantly with better education quality and more spending on education funds (Ades & Mishra, 2021). With compulsory school attendance, people are kept within the school area which is supervised by the authority, hence reducing the risk of them committing crimes (Beatton et al., 2022).

Among men aged between 20 and 23, there are 34% of them who had completed 11 or 12 years of education involved in some criminal activities, compared to 24% of those who had completed a high school education and only 17% of those who had completed more than twelve years of education (Fast, 2021). Dropping out of high school presents a large effect on increasing adult crime rates. Therefore, strategies aimed at reducing crime and raising school completion rates are always prioritized on any government's agenda (Dragone et al., 2021). In addition, education has provided essential training for people to become better human beings with better integrity and morals and avoid illegal activities (Furqan & Mahmood, 2020).

## 2.9 Job opportunities and crime

Research shows that one of the factors of crime is unemployment. Criminal behavior is primarily seen in people of low socioeconomic status as they tend to perform criminal acts in order to survive (Jonathan et al., 2021). Another research points out that prolonged unemployment leads to frustration and in turn, leads to an increased rate of crime (Gondal et al., 2022). Few researches mention that the high crime rate is caused by unemployment which acts as a source of income. If said source of income is cut off, people incentivize crime to acquire money (Gondal et al., 2022; Tambuwal & Abdullahi, 2020).

- **Summary table of literature review**

The literature review of the covariates of crime are summarised in Table 1, the covariates of job opportunities are summarised in Table 2.

**Table 1: Covariates of crime in the previous studies.**

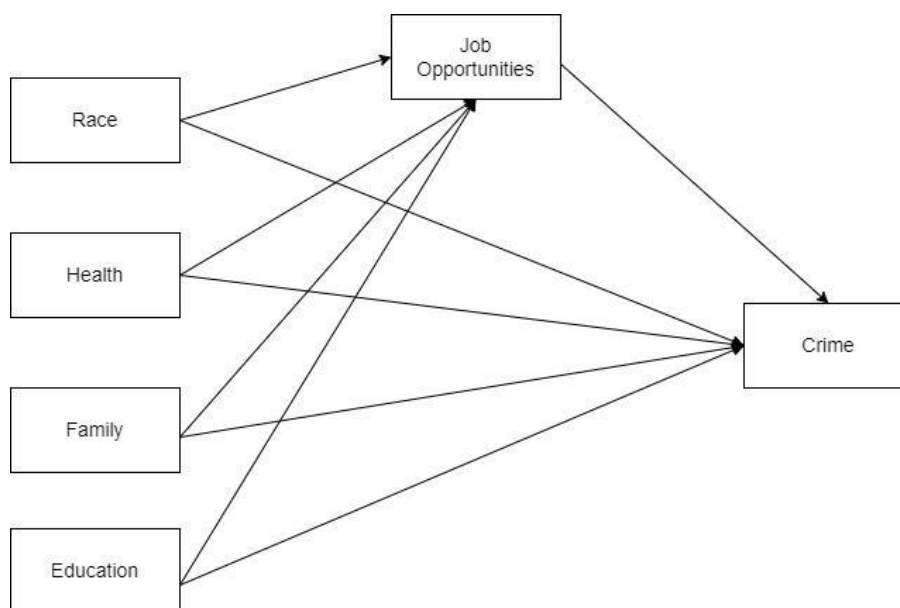
Covariate	Detail Variables	Previous studies
<b>Race</b>	Black men, White men  African American Minority Communities Race	(Carson, 2020; Duxbury, 2021; Mallari et al., 2020; Schleiden et al., 2020; Hureau, 2022) (Bradshaw, 2021) (Stewart et al., 2020)
<b>Health</b>	Mental health Psychosis Cancer Medicare-for-all	(Franjić, 2022; Halle et al., 2020; Ineson et al., 2023; Lattimore et al., 2022) (Yee et al., 2020) (Parise et al., 2021) (Otsu & Yuen, 2022)
<b>Family</b>	Family structure Parental involvement Parenting style	(Mwangangi, 2019; Kroese et al., 2021; Finebone & Temi, 2022) (Saladino et al., 2021; Chavda & Nisarga, 2023; Fu, 2023; Sbeglia et al., 2023) (Sekar & Bhuvaneswari, 2023)

<b>Education</b>	Level of education Moral values Education funding Compulsory School Attendance Education	(Huttunen et al., 2023; Wang et al., 2022) (Gong, 2023) (Ades & Mishra, 2021) (Beaton et al., 2022) (Fast, 2021; Gragone et al., 2021; Furqan & Mahmood, 2020)
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**Table 2: Covariates of job opportunities in the previous studies.**

Covariate	Detail Variables	Previous studies
<b>Race</b>	White men Black worker  African American Color Disproportionately Race	(Agan et al., 2020, Bloch et al., 2021). (Moen et al., 2020; Rinz & Census Bureau, 2019; Wrigley-Field & Seltzer 2020) (Rodgers, 2019) (Gemelas et al., 2021) (Quillian & Midtbøen, 2021)
<b>Health</b>	Mental health Obesity Chronic diseases	(Oliveira et al., 2023; Peter et al., 2024; van Beukering et al., 2022) (Campos-Vazquez & Gonzalez, 2020; Koliaki et al., 2023) (Gignac et al., 2021; Silvaggi et al., 2019)
<b>Family</b>	Family structure Family socioeconomic	(Mwangangi, 2019; Perry-Jenkins et al., 2019; Sangeet & Singh, 2022) (Aslan & Koçak, 2023; Hornstra & Maas, 2021; Lyu et al., 2019; Liang et al., 2023)
<b>Education</b>	Professional skills Higher education levels Education benefits Formal qualifications Education	(Schultheiss et al., 2023;) (Hajdari & Fetai, 2022) (Stryzhak, 2020; Altindag et al., 2021) (Effenberger et al., 2019; Hitka et al., 2021) (Carnevale et al., 2021; Horowitz & Ramaj, 2024)

A conceptual framework was developed based on the literature review to investigate the mediating effect of job opportunities in crime. This framework includes predictors of race, health, family and education. The conceptual framework is shown in Figure 1.

**Figure 1: Conceptual framework**

**H1:** There is a positive relationship between health and job opportunities.

**H2:** There is a relationship between race and job opportunities.

**H3:** There is a positive relationship between education and job opportunities.

**H4:** There is a positive relationship between family and job opportunities.

**H5:** There is a negative relationship between job opportunities and crime.

**H6:** There is a negative relationship between health and crime.

**H7:** There is a relationship between race and crime.

**H8:** There is a negative relationship between education and crime.

**H9:** There is a positive relationship between family and crime.

**H10:** There is a mediating effect of job opportunities in the relationship between health and crime.

**H11:** There is a mediating effect of job opportunities in the relationship between race and crime.

**H12:** There is a mediating effect of job opportunities in the relationship between education and crime.

**H13:** There is a mediating effect of job opportunities in the relationship between family and crime.

### 3.0 RESEARCH METHODOLOGY

The data sets used in this study were obtained from the data archive of the Inter-University Consortium for Political and Social Research (ICPSR). ICPSR is an international consortium of more than 750 academic institutions and research organizations that keep over 250,000 research files related to the social and behavioral sciences. It houses 21 specialist data sets covering terrorism, drug misuse, criminal justice, education, and aging. This study uses datasets from ICPSR 21600, the National Longitudinal Study of Adolescent to Adult Health (1994 - 2018) which consists of five waves of data and each wave combines longitudinal survey data from adolescents and adults in the USA on respondents' demographic, socioeconomic, family, behavioral and health. Wave I (1994-1995) collected data from more than 90,000 students, focusing on demographic aspects. Wave II (1996) collected data from 15,000 participants from the previous Wave I, focusing on nutrition and sun exposure. Wave III (2001-2002) was conducted when respondents were between 18 and 26 years old, focusing on behavior and health. Furthermore, Wave IV (2008) was conducted to understand educational transitions, economic status and health conditions of respondents from 24 to 32 years old. Lastly, Wave V (2016-2018) was conducted when respondents were ages 33 to 43, focusing on respondents' social, environmental, economic and health conditions.

In this paper, four datasets are used which are DS1 (Wave I) - demographic, DS8 (Wave III) - demographic, DS16 (Wave III) - education and DS22 (Wave IV) - crime and job. These data sets are merged and cleaned using IBM SPSS statistics 29.0. The merged data set consists of 59 variables and 6504 cases. The variables are then filtered and categorized to conform to the conceptual framework. Among these variables, 5 belonged to the race category, 21 belonged to the health category, 1 belonged to the education category, 8 belonged to the family category, 9 belonged to the job category and the remaining 15 belonged to the crime category. The details of the variables are presented in Table 3.

**Table 3: Variables selected and merged variables in this study**

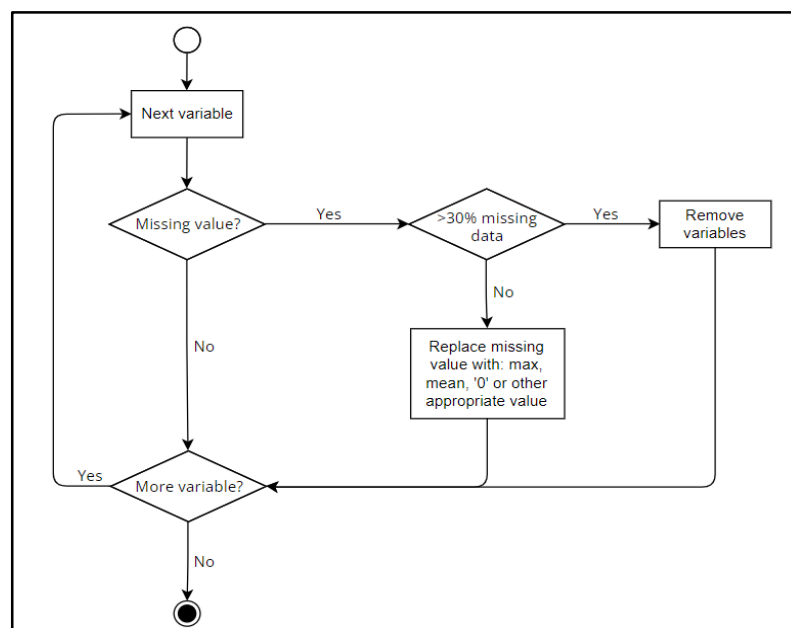
Variable name	Dataset	Variable ID	Description
HEALTH	DS1	H1GH2	In the last month, how often did you feel:
		H1GH3	Headaches
		H1GH4	Feeling hot
		H1GH5	Stomachache
		H1GH6	Cold sweats
		H1GH7	Feeling physically weak
		H1GH8	Sore throat/cough
		H1GH9	Very tired for no reason
		H1GH10	Painful/often urination
		H1GH11	Feeling very sick
		H1GH12	Wake up feeling tired
		H1GH13	Skin problems, ance
		H1GH14	Dizziness
		H1GH15	Chest pains
		H1GH16	Muscle/joint/aches pains
		H1GH17	Menstrual cramps
		H1GH18	Poor appetite
		H1GH19	Insomnia
		H1GH20	Trouble relaxing
		H1GH21	Moodiness
		H1GH21	Frequent crying

		H1GH22	Fearfulness
RACE	DS1	S6A S6B S6C S6D S6E	What is your race? (White) What is your race? (Black) What is your race? (Asian) What is your race? (America) What is your race? (Other) Values: (0) White; (1) Black; (2) Asian; (3) America; (4) Other
EDUCATION	DS16	EAOGPAC	Cumulative GPA across all years
FAMILY	DS22	H4WP21 H4WP22  H4WP23  H4WP24 H4WP35 H4WP36  H4WP37  H4WP38	How often do you and your (mother figure) see each other? How often do you and your (mother figure) talk on the telephone, exchange letters, or exchange email? You are satisfied with the way your (mother figure) and you communicate with each other. * How close do you feel to your (mother figure)? ** How often do you and your (father figure) see each other? How often do you and your (father figure) talk on the telephone, exchange letters, or exchange email? You are satisfied with the way your (father figure) and you communicate with each other. * How close do you feel to your (father figure)? *  Values: (0) never; (1) once a year or less; (2) a few times a year; (3) once or twice a month; (4) once or twice a week; (5) almost every day *Values: (1) strongly agree; (2) agree; (3) neither agree nor disagree; (4) disagree; (5) strongly disagree **Values: (1) not at all close; (2) not very close; (3) somewhat close; (4) quite close; (5) very close
JOB	DS22	H4LM1  H4LM6 H4LM7  H4LM11	Have you ever worked full time at least 35 hours a week at a paying job while you were not primarily a student? Do not include summer work. Are you still at your first full-time job at least 10 hours per week? Since you left your first full-time job, have you had another paying job that was at least 10 hours per week? Do not include military service. Are you currently working for pay at least 10 hours a week?  Values: (0) no; (1) yes
	DS8	H3LM1 H3LM2  H3LM7  H3LM8  H3LM12	Have you ever had a job? Have you ever worked for nine weeks or more at a paying job that was at least 10 hours a week? Are you currently working for pay for at least 10 hours a week? Are you still working at the first paying job you ever had where you worked for 10 hours or more a week? Was your first paying job full-time (35 hours a week or more) or part-time (less than 35 but more than 10 hours a week)? *  Values: (0) no; (1) yes



			*Values: (0) full-time; (1) part-time
FREQCRIME	DS22	H4DS1 H4DS2 H4DS3 H4DS4 H4DS5 H4DS6 H4DS7 H4DS8 H4DS9  H4DS10 H4DS11 H4DS12 H4DS18 H4DS19 H4DS20	In the past 12 months, how often did you: Damage property that didn't belong to you Steal something worth more than \$50 Go into house/building steal something Use weapon to get something from someone Sell drugs Steal something worth less than \$50 Physical fight Buy, sell, hold stolen property Use someone else's credit card, back card, or automatic teller card without permission Deliberately write a bad check Get into a serious physical fight Hurt someone badly enough that he/she needed care from doctor/nurse Beaten up * Pulled a knife or gun on someone * Shot or stabbed someone *  Values: (0) never; (1) 1 or 2 times; (2) 3 or 4 times; (3) 5 or more times *Values: (0) no; (1) yes

The merged data set was cleaned using the process described in Figure 2 which involved removing the variable with over 30% missing data. The handling of missing data varied across variables which involved substituting the missing values of the variable with the mean, and max value or replacing missing values with "0" or other appropriate values.



**Figure 2: Data set cleaning & transformation workflow**

Data analyses are performed using IBM SPSS statistics 29.0 for Pearson's correlation analysis and macro PROCESS 4.2 for mediation analysis. The bivariate function in the SPSS statistics software is then used to examine the Pearson correlation between the selected IVs and DVs. Next, direct effects (DEs) and indirect effects (IEs) in the mediation models are examined using the Andrew F. Hayes macro PROCESS with 5,000 bootstrap samples, model number 4, standardized effects, and 95% confidence interval.

## 4.0 RESULTS

### Demographic

The demographics of the population under study are displayed in Table 4. With 57.5% of the responders being males, and 42.5% being women, men make up the majority. With 41.4% of the

population, White people are the largest racial group, followed by Black (17.3%), Asian (3.5%), American (1.8%), and Other (36.1%) people. Of the respondents, 34.0% are attending a college, university, or vocational school, while 66.0% not having tertiary education. In terms of employment, 27.4% do not have a past work history, whilst 72.6% claim to have had one.

**Table 4: Demographics of respondents**

		Frequency	Percentage
Gender	Male	3743	57.5
	Female	2761	42.5
Race	White	2692	41.4
	Black	1124	17.3
	Asian	226	3.5
	America	114	1.8
	Other	2348	36.1
Tertiary education status	Attending college/university/vocational school	2209	34.0
	Not having tertiary education	4295	66.0
Job	Ever have a job	4725	72.6
	No previous job history	1779	27.4
Total Respondents		6504	

### Preliminary analysis

The description statistics and Pearson's correlation between IVs and DV (crime) are presented in Table 4. The first discovery is the significant relationship between the health condition (frequency of sickness) and the frequency of crime committed ( $r=0.044$ , Sig.(2-tailed) $<0.001$ ). This result shows that there is a positive relationship between the frequency of sickness and crime. Therefore, H6 is accepted based on this result. The results also show positive correlations between family and crime ( $r=0.140$ , Sig.(2-tailed) $<0.001$ ), as well as between job opportunities and crime ( $r=0.058$ , Sig.(2-tailed) $<0.001$ ). These results indicate that better job employment status and stronger family ties might be associated with a higher frequency of crime. Therefore, H5 and H9 is rejected. On the other hand, there is a moderate negative correlation between education and crime ( $r=-0.127$ , Sig.(2-tailed) $<0.001$ ), indicating that higher academic performance is associated with a lower frequency of crime involvement. From this result, H8 is accepted. However, the race ( $r=0.012$ , Sig.(2-tailed) = 0.347) did not correlate significantly with crime. Thus, H7 Is rejected.

**Table 5: Pearson correlation analysis between covariates and crime**

Variable	M	SD	1	2	3	4	5
1. FRQCRIME	.7480	1.84215					
2. JOB	6.2043	1.78368	.058**				
3. RACE	1.2176	1.27848	.012	.006			
4. HEALTH	15.4766	8.12821	.044**	.033**	-.011		
5. FAMILY	21.7206	7.32660	.140**	.440**	-.037**	.077*	
6. EDUCATION	2.63383	.647545	-.127**	.007	-.001	.011	.073**

Note. M: Median; SD: Standard deviation; \*Sig. (2-tailed) $<0.05$ ; \*\*Sig. (2-tailed) $<0.001$

The result also shows that there is a weak positive correlation between health condition (frequency of sickness) and job condition ( $r=0.033$ , Sig.(2-tailed)=0.009). There is also a strong positive correlation between family and job condition ( $r=0.440$ , Sig.(2-tailed) $<0.001$ ), indicating better family

relations are associated with better job employment status. Therefore, H1 and H4 are accepted. However, race and education did not correlate significantly with job employment status. Thus, H2 and H3 are rejected.

### Mediation analysis

DEs and IEe with a bootstrap 95% confidence interval for mediation analysis of job opportunities in the relationship between predictors and crime are presented in Table 5. Through mediation analysis, job opportunities significantly mediate the relationship between education and crime (IE = 0.004, 95% CI = [-0.007, 0.0016]). Therefore, H12 is accepted. In contrast, job opportunities were found not to be a significant mediator when the predictor is health (IE = 0.0018, 95% CI = [0.0004, 0.0036]), race (IE = 0.0004, 95% CI = [-0.0012, 0.0019]) as well as family (IE = -0.0019, 95% CI = [-0.132, -0.101]). Thus, H10, H11 And H13 are rejected.

**Table 6: Direct & indirect effects for mediation analyses**

Predictor	Mediator	DV	DE	IE(BootLLLCI, BootULCI)
RACE	JOB	FRQCRIME	.0163*	.0004(-.0012, .0019)
HEALTH	JOB	FRQCRIME	.0097***	.0018(.0004, .0036)
FAMILY	JOB	FRQCRIME	.0451***	-.0019(-.0132, .0101)
EDUCATION	JOB	FRQCRIME	-.3625***	.0004*(-.0007, .0016)

Note. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; DV: Dependent variable; & IE: Indirect effect

## 4.0 DISCUSSION

### Race

The result we obtained indicates that there is a lack of a significant relationship between race and crime, which means the race of a person does not affect his chance of committing a crime. This result is inconsistent with the result of Schleiden et al.(2020). This discrepancy may stem from variations in the socioeconomic conditions within the racial groups we studied. Instead of attributing differences in crime rates solely to race, it is more accurate to consider the disparities in socioeconomic conditions and the impact of systemic inequality and discrimination (Randall, 2020). Race itself is a social construct rather than a determinant of behavior, it does not inherently predispose any group to a higher or lower likelihood of committing crime. Factors often correlated with race, such as poverty, education, unemployment, and economic conditions, are more directly connected to criminal behavior experienced by different racial groups as the primary factors influencing these outcomes (D'Amato et al., 2021).

Based on the result of this study, there is no significant correlation between race and job opportunities indicating that the race of a person does not affect his chance of getting a job. This result is inconsistent with the result of Quillian & Midtbøen (2021). This inconsistency may arise from differences in educational attainment among the racial groups we examined. Moreover, the legal frameworks in many countries include anti-discrimination laws designed to prevent race from being a factor in hiring processes (Heymann et al., 2023). These laws are intended to provide a level playing field, although their effectiveness can vary based on enforcement and the cultural context of the workplace.

Quillian & Midtbøen (2021) indicate a connection between race and job opportunities, while (Peelen et al., 2023) establish a link between job opportunities and crime committed. However, the mediation study has revealed that there is no mediating effect between them as both of the relationships have no significant correlation. Based on these findings, future research could benefit from considering other potential mediators that influence the relationship between race, job opportunities, and crime

rates. The study didn't look at all the possible factors that could influence this relationship. Things like having supportive friends or access to mental health services might also play a role. Exploring additional factors such as mental health, community resources, or social support systems could provide a more comprehensive understanding of these dynamics. This approach would help in identifying broader socio-economic and environmental influences, paving the way for more targeted interventions and policies.

## Health

In this present study, there is a positive correlation between health conditions (frequency of sickness) and crime, indicating that poorer health conditions are associated with higher crime committed. This result is consistent with Parise et al. (2021) and Yee et al. (2020). Individuals experiencing poorer health conditions may be more susceptible to engaging in criminal activities due to many reasons. Firstly, chronic illness or frequent sickness can lead to financial strain, causing individuals more inclined toward criminal behavior to cope with economic hardships (Becker et al., 2022; Jung et al., 2022). Moreover, long-term health problems can have a psychological toll that shows heightened stress, depression or feelings of hopelessness (Panagi et al., 2024; Porter et al., 2021). These psychological factors further predispose individuals towards engaging in criminal activities as a means of addressing or escaping their distress (Bansal, 2023).

Based on the findings of this study, a notable positive correlation emerges between health status (measured by the frequency of sickness) and job opportunities. Surprisingly, it suggests that poorer health conditions are associated with increased job opportunities. The reason for this occurrence might be caused by respondents of the dataset used in this study having poor health due to dangers or stresses related to their jobs. This assertion aligns with previous research suggesting that work-related factors can significantly impact health outcomes (Berniell & Bietenbeck, 2020; Ronchetti et al., 2021). Therefore, higher employment status may result in poorer health conditions.

Peter et al. (2024) suggest that there is a relationship between health conditions and job opportunities, while Shahid S. (2020) found that there is a relationship between job opportunities and crime committed. However, the mediation analysis of the present study reveals that job opportunities do not mediate the relationship between health conditions and crime. One possible reason for this might be that this study mainly focussed on full-time workers when considering job variables. This finding shows that the link between health, work, and crime is complex and can vary depending on different situations and places. To explore this further, it might be useful to broaden our scope by including part-time workers in future research. This way, we can better understand how different types of employment situations might influence the relationship between health and crime.

## Family

The result we obtained from the study states that there is a positive relationship between family (closeness of family) and crime which means the closer the relationship of the family, the higher the crime rate of children. The result is inconsistent with the study of Finebone & Temi (2022) which indicates that fractured relationships between families are often the factor of children committing crime. Family relationships play an important role in both shaping and changing behavior, impacting the possible criminal behavior of children (Kipāne, 2019). The occurrence of contradiction is most likely due to our focus on the family component considering family relations only. The findings of Finebone & Temi (2022) are based on family structures such as nuclear families (one father one mother family), single-parent families or foster families.

Based on the result of this study, there is a strong positive correlation between family and job opportunities. This result is confirmed by the findings of Lyu et al. (2019) and Hornstra & Maas (2021). The involvement of supportive parents encouraging their children to pursue their career aspirations is often seen in higher-income families (Pribeš et al., 2020). A positive family relationship provides emotional support, advice and encouragement to children which massively boosts the children's employment opportunities and employment prospects.

Retivina (2021) suggests that there is a correlation between family and job opportunities while ŞENTÜRK DIZMAN (2020) establishes a connection between job opportunities and crime committed. Despite that, the mediation analysis of our study indicates that job opportunities do not significantly mediate between family and crime. One potential explanation for this finding could be our narrow focus on family relations when examining family-related factors. It is possible that even without the mediating role of job opportunities, families may still impact the crime rate of children. Future researchers can benefit from this study by considering inserting more family-related factors or other potential mediators such as academic performance that might influence the relationship of family and crime.

## Education

The negative relationship between education and crime indicates that an individual with better academic performance will be less likely to be involved in illegal activities and commit crimes. The result is consistent with the research done by Cortés et al. (2020) This is because social interactions among rational individuals can effectively reduce crime engagement by encouraging positive behavior and promoting values of integrity, thus shaping their perceptions. Moreover, education also helps to improve social awareness which helps to reduce the occurrence of environmental crimes (Castaldo et al., 2021). This awareness leads to a greater understanding of the consequences of environmental crimes and encourages individuals to adopt sustainable practices

The result we obtained indicated that there is no significant relationship between education and job opportunities, showing that the education levels of the individuals do not influence their job opportunities. This is consistent with research done by Beuermann et al. (2024). Workers with higher education or qualifications were not necessarily more resilient to the economic downturn. Even if education provides foundational knowledge and skills to an individual, job opportunities still depend on a combination of factors other than skillset, such as economic conditions, industry demand and job market trends (Choi, 2021).

Based on the mediation analysis, job opportunities significantly mediate education and crime, which conforms to previous research conducted by Olofinbiyi & Singh (2020), which showed that education and employment status are major drivers of criminal tendencies, especially for individuals who live in an unstable environment. Without access to education and stable employment, individuals with no choice have to engage in criminal activities as a means of survival. It is believed that education raises the skill levels of individuals, which then helps to secure job opportunities and increase wage rates, resulting in lower crime rates.

## 5.0 CONCLUSIONS

In investigating how job opportunities mediate crime, this study discovered connections between race, health, education and family relations with crime rate. However, the role of job opportunity as a mediating factor towards crime was deemed insignificant overall as job opportunity was only found to be significant when it comes to mediating the relationship between education and crime. The result of our study showed that job opportunity does not necessarily mediate crime, but, this does not represent the fact that race, health and family have no impact on crime rate.

Nonetheless, the study is subject to several limitations that should be addressed through future research endeavors. Notably, the sample size was limited to young adults from the U.S. This raises concerns about whether the application of the study can be translated to populations of different demographics or countries with vastly different cultures that may have contrasting perspectives towards job opportunities on crime. Moreover, the race of the population varies in different countries and different races hold different cultures, values and opinions. If the study were to take place in an Asian country, the result obtained might differ from what we have obtained. In addition, data used for the family variable was found lacking as only family relations are considered in the study, other family-related data such as family structure and family socioeconomic should be incorporated to obtain a more precise result. The same can be said as well for the data of job opportunities. Our study mainly focuses on full-time jobs only and neglected part-time jobs. Part-time jobs, often associated with lower income and job instability, can inadvertently contribute to higher crime rates due to financial strain and limited economic opportunities. Furthermore, the study only applied analysis

methods such as Pearson correlation and mediation analysis. It is recommended that future research implement additional methodology or use different methodologies in their study to further unveil the subtle relationship of the variables. This is because the application of only two analysis methods may not completely reveal the relationship between the components.

Although job opportunities do not completely correlate to the frequency of crime, government departments should not ignore the partial relation of job opportunities to crime. Governmental departments can come out with policies regarding job opportunities in correlation to race, health, education and family to reduce the crime rates. Further studies can be performed to unveil the reasons positive family relations cause increased frequency of crime, hence using the results to train professionals with the full understanding of these issues, such as counselors or law enforcement officers. These professionals can appropriately address the complex relationship between family relations and crime frequency, eliminating the underlying factors that cause crime within a positive relation family. Furthermore, health conditions may also push an individual to commit a crime out of desperation to meet his or her basic needs such as medical bills. Therefore, authorities should improve access to affordable healthcare services including free mental health services, substance abuse treatment and provide social support to handicapped individuals. On the other hand, a low level of education in a community has greatly increased the exposure of an individual to criminal activities. Thus, government agencies and authorities need to increase the education fund and prioritize the resources for education with a focus on improving the coverage and quality of education in all areas. This includes the investment in early childhood education, school facilities and training programs to produce quality teachers.

## REFERENCES

- Ades, J., & Mishra, J. (2021). Education and Crime across America: Inequity's Cost. *Social Sciences*, 10(8), 283. <https://doi.org/10.3390/socsci10080283>
- Agan, A. Y., Starr, S. B., Li, L., Mogollon, M., Beltran, H. M., Marquez, J., Nunna, K., & Sim, Y. (2020). Employer Neighborhoods and Racial Discrimination. <http://www.nber.org/papers/w28153>
- Allen, Q., Santos Metcalf Book, H., Editor, B., Boyce, T. D., & Chunnu, W. M. (2019). Title: Historicizing Fear Book Subtitle: Ignorance, Vilification, and Othering. Retrieved May 1, 2024, from <https://www.jstor.org/stable/j.ctvwh8d12.4>
- Altindag, D. T., Dursun, B., & Filiz, E. S. (2021). The effect of education on unemployment duration. *Economic Inquiry*, 60(1), 21–42. <https://doi.org/10.1111/ecin.13027>
- Aslan, Y., & Koçak, O. (2023). How do family influence on career choices and perceived social support affect students' life satisfaction in Turkey? The role of vocational outcome expectations as mediator. *International Journal for Educational and Vocational Guidance*. <https://doi.org/10.1007/s10775-023-09602-1>
- Bansal, Y. (2023). Theories and Factors Governing Criminality: A Short Literature Review. *International Journal for Research in Applied Science and Engineering Technology*, 11(5), 6198–6202. <https://doi.org/10.22214/ijraset.2023.53090>
- Baranyi, G., Di Marco, M. H., Russ, T. C., Dibben, C., & Pearce, J. (2021). The impact of neighbourhood crime on mental health: A systematic review and meta-analysis. In *Social Science and Medicine* (Vol. 282). Elsevier Ltd. <https://doi.org/10.1016/j.socscimed.2021.114106>
- Beatton, T., Kidd, M. P., & Sandi, M. (2022). *School Indiscipline and Crime*.
- Becker, N. V., Scott, J. W., Moniz, M. H., Carlton, E. F., & Ayanian, J. Z. (2022). Association of Chronic Disease with Patient Financial Outcomes among Commercially Insured Adults. *JAMA Internal Medicine*, 182(10), 1044–1051. <https://doi.org/10.1001/jamainternmed.2022.3687>
- Berniell, I., & Bietenbeck, J. (2020). The effect of working hours on health. *Economics and Human Biology*, 39. <https://doi.org/10.1016/j.ehb.2020.100901>
- Beuermann, D. W., Botton, N. L., Hoffmann, B., Jackson, C. K., & Vera-Cossio, D. (2024). Does education prevent job loss during downturns? Evidence from exogenous school assignments and COVID-19 in Barbados. *European Economic Review*, 162. <https://doi.org/10.1016/j.euroecorev.2024.104675>
- Bloch, K. R., Taylor, T., Church, J., & Buck, A. (2021). An Intersectional Approach to the Glass Ceiling: Gender, Race and Share of Middle and Senior Management in U.S. Workplaces. *Sex Roles*, 84(5–6), 312–325. <https://doi.org/10.1007/s11199-020-01168-4>

- Bradshaw, E. A. (2021). Do prisoners' lives matter? Examining the intersection of punitive policies, racial disparities and COVID-19 as state organized race crime. *State Crime Journal*, 10(1), 16–44. <https://doi.org/10.13169/STATECRIME.10.1.0016>
- Campos-Vazquez, R. M., & Gonzalez, E. (2020). Obesity and hiring discrimination. *Economics and Human Biology*, 37. <https://doi.org/10.1016/j.ehb.2020.100850>
- Carnevale, A. P., Cheah, B., Wenzinger, E., Strahota, H., Zhang, F., Guillerman, J., Alsaffar, S., & Brandi, C. (2021). *The College Payoff More Education Doesn't Always Mean More Earnings Explore the Data*.
- Carson, Ann E. (2020). Prisoners in 2019. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. <https://bjs.ojp.gov/content/pub/pdf/p19.pdf>
- Castaldo, A., Germani, A. R., & Pergolizzi, A. (2021). Does Education Affect Environmental Crime? A Dynamic Panel Data Approach at Provincial Level in Italy. *International Criminal Justice Review*, 105756772110208. <https://doi.org/10.1177/10575677211020812>
- Chavda, K., & Nisarga, V. (2023). Single Parenting: Impact on Child's Development. *Journal of Indian Association for Child and Adolescent Mental Health*, 19(1), 14–20. <https://doi.org/10.1177/09731342231179017>
- Choi, S. (2021). The impact of education levels and paths on labor market outcomes in South Korea: Focusing on vocational high school graduates. *Social Sciences and Humanities Open*, 4(1). <https://doi.org/10.1016/j.ssaho.2021.100152>
- Cortés, D., Friebel, G., & Maldonado, D. (2020). CRIME AND EDUCATION IN A MODEL OF INFORMATION TRANSMISSION. *Annals of Public and Cooperative Economics*, 91(1), 71–93. <https://doi.org/10.1111/apce.12254>
- de Oliveira, C., Saka, M., Bone, L., & Jacobs, R. (2023). The Role of Mental Health on Workplace Productivity: A Critical Review of the Literature. In *Applied Health Economics and Health Policy* (Vol. 21, Issue 2, pp. 167–193). Adis. <https://doi.org/10.1007/s40258-022-00761-w>
- D'Amato, C., Holmes, B., & Feldmeyer, B. (2021). Economic competition and racial/ethnic disparities in sentencing: A test of economic threat perspective. *Social Sciences*, 10(6). <https://doi.org/10.3390/socsci10060206>
- Dragone, D., Migali, G., & Zucchelli, E. (2021). *High School Dropout and the Intergenerational Transmission of Crime FEBRUARY 2021 High School Dropout and the Intergenerational Transmission of Crime*. [www.iza.org/Electroniccopyavailableat:https://ssrn.com/abstract=3794075](https://www.iza.org/Electroniccopyavailableat:https://ssrn.com/abstract=3794075)
- Duxbury, S. W. (2021). Who Controls Criminal Law? Racial Threat and the Adoption of State Sentencing Law, 1975 to 2012. *American Sociological Review*, 86(1), 123–153. <https://doi.org/10.1177/0003122420967647>
- Effenberger, A., Lauber, V., & Schmitz, S. (2019). *Educational attainment, age and the consequences of job loss: empirical evidence from Germany Charlotte Senftleben-König*. <https://doi.org/10.1787/6197d3cc-en>
- Fast, R. (2021). The Effects Of Education On Alabama's Violent Crime Rate. *SocioEconomic Challenges*, 5(2), 5–14. [https://doi.org/10.21272/sec.5\(2\).5-14.2021](https://doi.org/10.21272/sec.5(2).5-14.2021)
- FBI. (2023). FBI releases 2022 crime in the nation statistics. FBI. <https://www.fbi.gov/news/press-releases/fbi-releases-2022-crime-in-the-nation-statistics>
- Finebone, P., & Temi, H. (2022). *CENTRAL ASIAN JOURNAL OF SOCIAL SCIENCES AND HISTORY Effects of Family Structure on Juvenile Delinquency in Rivers State: A Theoretical Review*.
- Fourie, J., Rosselló-Nadal, J., & Santana-Gallego, M. (2020). Fatal attraction: How security threats hurt tourism. *Journal of Travel Research*, 59(2), 209–219. <https://doi.org/10.1177/0047287519826208>
- Franjić, S. (2022). Research Article Citation: Franjić S. Mental Health is an Integral Part of the General Health. In *Medp Psychiatry Behav Sci* (Vol. 1, Issue 1).
- Fu, Y. (2023). The Impact of Single-parent Families on Children's Externalizing Behaviour. *SHS Web of Conferences*, 180, 02013. <https://doi.org/10.1051/shsconf/202318002013>
- Furqan, M., & Mahmood, H. (2020). Does education reduce homicide? A panel data analysis of Asian region. *Quality and Quantity*, 54(4), 1197–1209. <https://doi.org/10.1007/s11135-020-00981-z>
- Gemelas, J., Davison, J., Keltner, C., & Ing, S. (2021). Inequities in Employment by Race, Ethnicity, and Sector During COVID-19. <https://doi.org/10.1007/s40615-021-00963-3/Published>

- Gignac, M. A. M., Bowring, J., Jetha, A., Beaton, D. E., Breslin, F. C., Franche, R. L., Irvin, E., Macdermid, J. C., Shaw, W. S., Smith, P. M., Thompson, A., Tompa, E., Van Eerd, D., & Saunders, R. (2021). Disclosure, Privacy and Workplace Accommodation of Episodic Disabilities: Organizational Perspectives on Disability Communication-Support Processes to Sustain Employment. *Journal of Occupational Rehabilitation*, 31(1), 153–165. <https://doi.org/10.1007/s10926-020-09901-2>
- Gabbatt, A. (2024, March 19). FBI data shows US crime plummeted in 2023 but experts warn report is incomplete. *The Guardian*. <https://www.theguardian.com/us-news/2024/mar/19/fbi-data-shows-us-crime-plummeted-2023>
- Gondal, A. Q., Ahmad, M., & Qasim, M. (2022). A Research Review of Punjab's problem of increasing crime and its social repercussions [ 193 ] A Research Review of Punjab's problem of increasing crime and its social repercussions. *International Research Journal of Management and Social Sciences*, III. <https://doi.org/10.5281/zenodo.10259108>
- Gong, X. (2023). Citizens with More Educational Experience are Less Likely to Engage in Illegal and Criminal Activities. *Journal of Education and Culture Studies*, 7(1), p75. <https://doi.org/10.22158/jecs.v7n1p75>
- Hajdari, A., & Fetai, B. (2022). The Effect of the Level of Education on Employment: Evidence from Western Balkans. *Economic Alternatives*, 28(2), 364–375. <https://doi.org/10.37075/EA.2022.2.11>
- Halle, C., Tzani-Pepelasi, C., Pylarinou, N. R., & Fumagalli, A. (2020). The link between mental health, crime and violence. *New Ideas in Psychology*, 58. <https://doi.org/10.1016/j.newideapsych.2020.100779>
- Heymann, J., Varvaro-Toney, S., Raub, A., Kabir, F., & Sprague, A. (2023). Race, ethnicity, and discrimination at work: a new analysis of legal protections and gaps in all 193 UN countries. *Equality, Diversity and Inclusion*, 42(9), 16–34. <https://doi.org/10.1108/EDI-01-2022-0027>
- Hitka, M., Štarchoň, P., Lorincová, S., & Caha, Z. (2021). Education as a key in career building. *Journal of Business Economics and Management*, 22(4), 1065–1083. <https://doi.org/10.3846/jbem.2021.15399>
- Hornstra, M., & Maas, I. (2021). Does the impact of the family increase or decrease over the life course? Sibling similarities in occupational status across different career points. *Research in Social Stratification and Mobility*, 75. <https://doi.org/10.1016/j.rssm.2021.100643>
- Horowitz, J., & Ramaj, S. (2024). Educational expansion, fields of study, and the gender gap in analytic skill usage on the job. *Research in Social Stratification and Mobility*, 89. <https://doi.org/10.1016/j.rssm.2023.100877>
- Hureau, D. M. (2022). Seeing Guns to See Urban Violence. 151(1), 49–66. <https://doi.org/10.2307/48638129>
- Huttunen, K., Pekkarinen, T., Uusitalo, R., & Virtanen, H. (2023). Lost boys? Secondary education and crime. *Journal of Public Economics*, 218. <https://doi.org/10.1016/j.jpubeco.2022.104804>
- Ineson, K. M., Erlangsen, A., Nordentoft, M., Benros, M. E., & Madsen, T. (2023). Traumatic brain injury and risk of subsequent attempted suicide and violent crime. *Psychological Medicine*, 53(9), 4094–4102. <https://doi.org/10.1017/S0033291722000769>
- Jonathan, O. E., Olusola, A. J., Bernadin, T. C. A., & Inoussa, T. M. (2021). Impacts of Crime on Socio-Economic Development. *Mediterranean Journal of Social Sciences*, 12(5), 71. <https://doi.org/10.36941/mjss-2021-0045>
- Jung, H., Kwon, Y. D., & Noh, J. W. (2022). Financial burden of catastrophic health expenditure on households with chronic diseases: financial ratio analysis. *BMC Health Services Research*, 22(1). <https://doi.org/10.1186/s12913-022-07922-6>
- Kipāne, A. (2019). CRIMINOLOGICAL ASPECTS OF FAMILY RELATIONS. *SOCIETY. INTEGRATION. EDUCATION. Proceedings of the International Scientific Conference*, 6, 269. <https://doi.org/10.17770/sie2019vol6.3759>
- Koliaki, C., Dalamaga, M., & Liatis, S. (2023). Update on the Obesity Epidemic: After the Sudden Rise, Is the Upward Trajectory Beginning to Flatten? In *Current Obesity Reports* (Vol. 12, Issue 4, pp. 514–527). Springer. <https://doi.org/10.1007/s13679-023-00527-y>
- Kroese, J., Bernasco, W., Liefbroer, A. C., & Rouwendal, J. (2021). Growing up in single-parent families and the criminal involvement of adolescents: a systematic review. In *Psychology, Crime and*



- Law (Vol. 27, Issue 1, pp. 61–75). Routledge. <https://doi.org/10.1080/1068316X.2020.1774589>
- Lattimore, P. K., Richardson, N. J., Ferguson, P. L., & Pickelsimer, E. E. (2022). The Association of Traumatic Brain Injury, post-traumatic stress disorder, and criminal recidivism. *Health and Justice*, 10(1). <https://doi.org/10.1186/s40352-022-00169-7>
- Liang, Y., Zhou, N., & Cao, H. (2023). Stability and change in configuration patterns of various career-related parental behaviors and their associations with adolescent career adaptability: A longitudinal person-centered analysis. *Journal of Vocational Behavior*, 145. <https://doi.org/10.1016/j.jvb.2023.103916>
- Lyu, M., Li, W., & Xie, Y. (2019). The influences of family background and structural factors on children's academic performances: A cross-country comparative study. *Chinese Journal of Sociology*, 5(2), 173–192. <https://doi.org/10.1177/2057150X19837908>
- Macwan, W. G. (2023). *CRIME AND IMPACT ON SOCIETY*. <https://ijeks.com/wp-content/uploads/2023/07/IJEKS24008-2.pdf>
- Mallari, K., Inkpen, K., Johns, P., Tan, S., Ramesh, D., & Kamar, E. (2020, April 21). Do i Look Like a Criminal? Examining how Race Presentation Impacts Human Judgement of Recidivism. Conference on Human Factors in Computing Systems - Proceedings. <https://doi.org/10.1145/3313831.3376257>
- Moen, P., Pedtke, J. H., & Flood, S. (2020). Disparate disruptions: Intersectional COVID-19 employment effects by age, gender, education, and race/ethnicity. *Work, Aging and Retirement*, 6(4), 207–228. <https://doi.org/10.1093/workar/waaa013>
- Mwangangi, R. K. (2019). The Role of Family in Dealing with Juvenile Delinquency. *Open Journal of Social Sciences*, 07(03), 52–63. <https://doi.org/10.4236/jss.2019.73004>
- Olofinbiyi, S. A., & Singh, S. B. (2020). Poor Education and Unemployment Implications for Youth Crimes in Nigeria. *International Journal of Criminology and Sociology* (Vol. 9). <https://doi.org/10.6000/1929-4409.2020.09.09>
- Otsu, Y., & Yuen, C. Y. K. (2022). *Health, Crime, and the Labor Market: Theory and Policy Analysis*. <https://ssrn.com/abstract=3324721>
- Ozascilar, M., & Mawby, R. (2023). The impact of crime on tourists and the need for greater support for tourist victims. *International Review of Victimology*, 29(1), 3–15. <https://doi.org/10.1177/02697580221080006>
- Panagi, L., White, S. R., Dai, X., Bennett, S., Shafran, R., & Ford, T. (2024). Risk of new onset and persistent psychopathology in children with long-term physical health conditions: a population-based cohort study. *European Child and Adolescent Psychiatry*, 33(2), 439–449. <https://doi.org/10.1007/s00787-023-02170-3>
- Paulino BA, S. A., Kuja-Halkola, R., Du Rietz, E., Lichtenstein, P., Brikell, I., Paulino, A., Kuja-Halkola, R., Fazel, S., Sariaslan, A., Du Rietz, E., Lichtenstein, P., & Brikell, I. (2023). Post-traumatic stress disorder and the risk of violent crime conviction in Sweden: a nationwide, register-based cohort study. In *Articles Lancet Public Health* (Vol. 8). [https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-2667\(23\)00075-0.pdf](https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-2667(23)00075-0.pdf)
- Peelen, A. A. E., van de Weijer, S. G. A., van den Berg, C. J. W., & Leukfeldt, E. R. (2023). Employment Opportunities for Applicants with Cybercrime Records: A Field Experiment. *Social Science Computer Review*, 41(5), 1562–1580. <https://doi.org/10.1177/08944393221085706>
- Perry-Jenkins, M., Laws, H. B., Sayer, A., & Newkirk, K. (2019). Parents' Work and Children's Development: A Longitudinal Investigation of Working-Class Families. *Journal of Family Psychology*. <https://doi.org/10.1037/fam0000580>
- Peter, K. A., Voirol, C., Kunz, S., Gurtner, A., Renggli, F., Juvet, T., & Golz, C. (2024). Factors associated with health professionals' stress reactions, job satisfaction, intention to leave and health-related outcomes in acute care, rehabilitation and psychiatric hospitals, nursing homes and home care organisations. *BMC Health Services Research*, 24(1). <https://doi.org/10.1186/s12913-024-10718-5>
- Porter, C., Favara, M., Hittmeyer, A., Scott, D., Sánchez Jiménez, A., Ellanki, R., Woldehanna, T., Duc, L. T., Craske, M. G., & Stein, A. (2021). Impact of the COVID-19 pandemic on anxiety and depression symptoms of young people in the global south: Evidence from a four-country cohort study. *BMJ Open*, 11(4). <https://doi.org/10.1136/bmjopen-2021-049653>

- Pribesh, S. L., Carson, J. S., Dufur, M. J., Yue, Y., & Morgan, K. (2020). Family structure stability and transitions, parental involvement, and educational outcomes. *Social Sciences*, 9(12), 1–14. <https://doi.org/10.3390/socsci9120229>
- Quillian, L., & Midtbøen, A. H. (2021). Annual Review of Sociology Comparative Perspectives on Racial Discrimination in Hiring: The Rise of Field Experiments. <https://doi.org/10.1146/annurev-soc-090420>
- Randall, J. L. (2020). Race and the Criminal Justice System in the United States: Part 1. <https://news.gallup.com/poll/1603/crime.aspx>.
- Retivina, V. V. (2021). The role of family in the formation of students' labor values. *SHS Web of Conferences*, 101, 03049. <https://doi.org/10.1051/shsconf/202110103049>
- Rinz, K., & Census Bureau, U. S. (2019). Did Timing Matter? Life Cycle Differences in Effects of Exposure to the Great Recession. <https://www2.census.gov/ces/wp/2019/CES-WP-19-25.pdf>
- Rodgers, W. M. (2019). Race in the Labor Market: The role of equal employment opportunity and other policies. *RSF*, 5(5), 198–220. <https://doi.org/10.7758/rsf.2019.5.5.10>
- Ronchetti, M., Russo, S., Di Tecco, C., & Iavicoli, S. (2021). How Much Does My Work Affect My Health? The Relationships between Working Conditions and Health in an Italian Survey. *Safety and Health at Work*, 12(3), 370–376. <https://doi.org/10.1016/j.shaw.2021.04.002>
- Saladino, V., Mosca, O., Petrucci, F., Hoelzlhammer, L., Lauriola, M., Verrastro, V., & Cabras, C. (2021). The Vicious Cycle: Problematic Family Relations, Substance Abuse, and Crime in Adolescence: A Narrative Review. In *Frontiers in Psychology* (Vol. 12). Frontiers Media S.A. <https://doi.org/10.3389/fpsyg.2021.673954>
- Sangeet, O., & Singh, S. (2022). Experiences of single-parent children in the current Indian context. *Journal of Family Medicine and Primary Care*, 11(7), 3790. [https://doi.org/10.4103/jfmpe.jfmpe\\_2455\\_21](https://doi.org/10.4103/jfmpe.jfmpe_2455_21)
- Sbeglia, C., Randolph, I., Cavanagh, C., & Cauffman, E. (2023). *Annual Review of Criminology Parental Legal Culpability in Youth Offending*. <https://doi.org/10.1146/annurev-criminol-022422>
- Schleiden, C., Soloski, K. L., Milstead, K., & Rhynehart, A. (2020). Racial Disparities in Arrests: A Race Specific Model Explaining Arrest Rates Across Black and White Young Adults. *Child and Adolescent Social Work Journal*, 37(1), 1–14. <https://doi.org/10.1007/s10560-019-00618-7>
- Schultheiss, T., Pfister, C., Gnehm, A. S., & Backes-Gellner, U. (2023). Education expansion and high-skill job opportunities for workers: Does a rising tide lift all boats? *Labour Economics*, 82. <https://doi.org/10.1016/j.labeco.2023.102354>
- Sekar, D., & Bhuvaneshwari, M. (2023). The impact of juvenile victimization, peer influence, birth order, parenting style, and home environment. ResearchGate. <https://doi.org/10.25215/1103.138>
- ŞENTÜRK DİZMAN, Z. (2020). ANALYZING CRIME AND UNEMPLOYMENT FROM A SOCIOLOGICAL PERSPECTIVE. *Pamukkale University Journal of Social Sciences Institute*. <https://doi.org/10.30794/pausbed.789991>
- Shah, N., Bhagat, N., & Shah, M. (2021). Crime forecasting: a machine learning and computer vision approach to crime prediction and prevention. In *Visual Computing for Industry, Biomedicine, and Art* (Vol. 4, Issue 1). Springer. <https://doi.org/10.1186/s42492-021-00075-z>
- Shchokin, R., Mazyichuk, V., Mykhailiyk, O., Kolomiets, A., Akifzade, S., & Tymoshenko, Y. (2023). THE IMPACT OF THE CRIME RATE ON THE HOSPITALITY AND TOURISM INDUSTRY IN THE EU COUNTRIES. *Geojournal of Tourism and Geosites*, 46(1), 135–147. <https://doi.org/10.30892/gtg.46115-1009>
- Silvaggi, F., Leonardi, M., Guastafierro, E., Quintas, R., Toppo, C., Foucaud, J., Lamore, K., Rothe, U., & Scaratti, C. (2019). Chronic diseases & employment: An overview of existing training tools for employers. *International Journal of Environmental Research and Public Health*, 16(5). <https://doi.org/10.3390/ijerph16050718>
- Stewart, E. A., Warren, P. Y., Hughes, C., & Brunson, R. K. (2020). Race, Ethnicity, and Criminal Justice Contact: Reflections for Future Research. *Race and Justice*, 10(2), 119–149. <https://doi.org/10.1177/2153368717738090>
- Stryzhak, O. (2020). *The relationship between education, income, economic freedom and happiness*. <https://doi.org/10.1051/conf/20>

- Tambuwal, S. A., & Abdullahi, N. (2020). ENTREPRENEURSHIP EDUCATION AND UNEMPLOYMENT RATE IN NIGERIA: ISSUES AND CHALLENGES. <https://journal.uaspolysoke.edu.ng/sospolyjee/view/202004.pdf>
- van Beukering, I. E., Smits, S. J. C., Janssens, K. M. E., Bogaers, R. I., Joosen, M. C. W., Bakker, M., van Weeghel, J., & Brouwers, E. P. M. (2022). In What Ways Does Health Related Stigma Affect Sustainable Employment and Well-Being at Work? A Systematic Review. In *Journal of Occupational Rehabilitation* (Vol. 32, Issue 3, pp. 365–379). Springer. <https://doi.org/10.1007/s10926-021-09998-z>
- Wang, C., Liu, X., Yan, Z., & Zhao, Y. (2022). Higher education expansion and crime: New evidence from China. *China Economic Review*, 74. <https://doi.org/10.1016/j.chieco.2022.101812>
- Wrigley-Field, E., & Seltzer, N. (2020). Unequally Insecure: Rising Black/White Disparities in Job Displacement
- Yee, N., Matheson, S., Korobanova, D., Large, M., Nielssen, O., Carr, V., & Dean, K. (2020). A meta-analysis of the relationship between psychosis and any type of criminal offending, in both men and women. In *Schizophrenia Research* (Vol. 220, pp. 16–24). Elsevier B.V. <https://doi.org/10.1016/j.schres.2020.04.009>
- Zhang, F., Fan, Z., Kang, Y., Hu, Y., & Ratti, C. (2021). “Perception bias”: Deciphering a mismatch between urban crime and perception of safety. *Landscape and Urban Planning*, 207. <https://doi.org/10.1016/j.landurbplan.2020.104003>