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A Seasonal Crime?: A Quantitative Examination of the Relationship Between Criminal Charges
in the City of Lynchburg and Seasons of the Year with Reference to Gender and Race

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Senior Honors Project

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Abstract

Previously, many criminologists have focused on the intersectionality of gender and race with reference to only one or a few specific crime categories, such as theft or illegal drug use (Sommers et al., 1996; Bushman et al., 2005; Stalans & Ritchie, 2008). According to Sommers & Baskin (1992), gender causes misinterpretation without the inclusion of race when researching violent crime because both characteristics are inherently linked to an individual's identity. Furthermore, there is a seasonal component to analyzing crime (Hipp et. al., 2004). Using data from the City of Lynchburg Office of Corrections in Virginia from January 2010 to July 2018, 34 crime categories (N=74,147) were sorted based on season of the year and were tested with binomial logistic regression models where gender and race were predictor variables. Drawing from general strain theory, routine activities theory, and temperature-aggression theory, the hypotheses are that there are significant gender and race disparities within crime categories and that these disparities vary based on season. The results of this study suggest support for both hypotheses. The results suggest a combination of routine activities theory and general strain theory to understand crime. However, temperature-aggression theory is not supported.

Keywords: Gender, Race, Intersectionality, Routine Activities Theory, General Strain Theory, and Temperature-Aggression Theory

Introduction

Previous criminological research analyzes data through one of two opposing methods: the examination of only a few crime categories, like theft or illegal drug use, per study or the examination of overall crime as one large dataset (Sommers, Baskin, & Fagan, 1996; Bushman, Wang, & Anderson, 2005; Stalans & Ritchie, 2008). The analysis of the former leads to the failure of researchers to fully examine the strength of gender and race differences in reference to multiple crimes simultaneously whereas the analysis of the latter lumps data into one large group, resulting in decreased validity. This current study allows for all crime categories to be studied at once without losing its validity by conducting tests on individual crime categories through the platform of one large dataset.

In addition to studying many crime categories at an individual level simultaneously, the intersectionality¹ of gender and race in major social structures, including the criminal justice system, is mentioned. Systematic racism is examined with reference to this study. Abell (2018) suggested that systematic racism has remained consistent throughout the City of Lynchburg since the Jim Crow Era, even with the enactment of laws that restrict segregation on the basis of race, gender, and/or sexual orientation. In his study on economic variables and housing in Lynchburg, Abell (2018) finds that there is a dramatic disparity between whites and blacks in reference to socio-economic status where blacks are increasingly left to struggle to a much greater extent than whites are. Moreover, systematic sexism is considered in this study as well. Broidy & Agnew (1997) mentioned that “strain” is gendered as a result of males and females experiencing “strain”

¹ Intersectionality is defined as the ability to look at multiple issues, concepts, and/or ideas simultaneously. This theory was originally “developed to address the non-additivity of effects of sex/gender and race/ethnicity” (Bauer, 2014). Utilizing an intersectional approach, researchers increase validity of their studies, allowing for a multi-dimensional understanding of results and relationships between different issues, concepts, and/or ideas.

differently where “females suffer from a range of oppressive conditions [that are] at the root of their crime” (276).

The examination and analysis of gender and race underscores the idea of “strain.” One major theory that is often used in relation to the intersectionality of gender and race is general strain theory, originally proposed by Robert Agnew (1992). According to Broidy & Agnew (1997), these previous studies saw “strain” as the “inability to achieve the goals of monetary success, middle-class status, or both” (275-276). Agnew (1992) understood the original idea of “strain” where it was dependent on economic success or climbing up the social ladder; however, he went further to suggest that there could be “strains” outside of these economic-based goals. Thus, for the purpose of this study, “strain” is defined as any entity, idea, or concept that causes an individual to feel pressure, tension, worry, or trauma.

Many researchers have related increased “strain” to an increased risk of victimization with minority groups. Agnew (2002) found that “strain” was associated with delinquency and living in an area of instability or disorder. Here, “strain” felt by individuals can be a powerful risk factor for an individual deciding to commit a crime. Moreover, emphasis should be given to “strains” based on traits of individual identity, specifically race and gender, since those are common, descriptive qualities of individuals (Broidy & Agnew, 1997). Agnew’s general strain theory is not the only theory referenced with regards to gender and race, however. Cohen & Felson’s (1991) study called routine activities theory and Anderson’s (1989) temperature-aggression theory have also been studied with regards to race and gender.

Drawing from these three theories and other peer-reviewed, academic literature, the researcher hypothesizes that race and gender are significantly related to crime categories and that there is a seasonality component to those crime categories. First, we conduct descriptive

statistics for numerically recoded values of 1 = Yes and 0 = No. Next, we conduct a series of binomial logistic regression models in order to determine the relationship between gender and race and all crime categories using seasons of the year. Gender and race are tested together to provide intersectionality between these two major components of an individual's identity. Using data from the Office of Corrections from the City of Lynchburg, Virginia Jail System, the researcher analyzes the findings in comparison to her original hypotheses.

Literature Review

The hypothesis for this study is based on three main criminological theories: general strain theory, routine activities theory, and temperature-aggression theory. Each theory has its own section for literature review. As predictor variables, gender and race are also examined using previous literature.

General Strain Theory. Research has shown that neighborhoods and communities of lower socio-economic status have higher levels of crime (Shaw & McKay, 1942). Taniguchi & Salvatore (2012) suggest that one reason for this phenomenon is that treatment centers for abuse- and addiction-based criminal offenses, such as drug and alcohol rehabilitation centers, have a much lower success rate in areas of lower socio-economic status comparative to those of higher socio-economic status. The lowered success rate in areas of lower socio-economic status is a result of lower resources in those areas to pay for adequate professionals and materials to successfully help those individuals with addiction and/or abuse. Agnew's general strain theory (1992) has been used to explain delinquency in areas of instability by citing individual and environmental "strains," or stressors, that he or she either experiences or expects as a consequence of a particular behavior. This means that "strains" act as a powerful risk factor for crime. Broidy & Agnew (1997) and Jang (2007) found that there were gender differences with

“strain,” specifically with regard to coping and negative emotions. Both studies also found a racial component to “strain” where African American men were more likely to use deviant coping strategies as opposed to African American women because of a woman’s ability to “self-direct” their emotions rather than direct them upon others. Furthermore, Wilson (1987) and Anderson (1999) found that individuals living in more impoverished, economically unstable areas may commit more deviant acts than those in more advantaged areas of higher economic status. This difference is based on the struggle to survive given the poor conditions and living standards of lower advantaged areas comparative to those of higher advantaged areas.

Routine Activities Theory. Another theory, routine activities theory, identifies three items necessary for a crime to be committed: a motivated offender, a lack of a capable guardian, and a suitable target (Cohen & Felson, 1979). A motivated offender is one who wants or feels the need to commit a crime. An offender may be motivated by economic “strain” and/or any other “strain,” or stressor, that causes him or her to want to commit a crime. The lack of capable guardianship is when there is no individual or barrier present that would deter an individual to choose to commit a crime. The presence of capable guardians, such as a police officer or a fence², may result in the offender choosing not to commit a crime because of the possibility of getting caught or of the crime not being worth the effort. In other words, without the presence of capable guardians, the offender may find that the benefits of committing the crime do not outweigh the possibility of getting caught or being seen. As a result, the individual would

² Capable guardians can be represented differently. It may sound odd to find that a police officer may play no greater role than a fence with regards to increasing or decreasing the possibility that a crime may occur. Nevertheless, a capable guardian is anything, either a human or an object, that makes an offender think twice prior to choosing to commit a crime. If a police officer is present, then the offender may reconsider their criminal actions in fear of being seen and arrested. If a fence is present, then the offender may reconsider their criminal actions because it is more difficult to get over a fence than to commit a crime without any barriers present. According to Cohen & Felson (1979), it is important to remember that the motivation of the offender and suitability of the target are considered by the offender as well prior to choosing to commit a crime.

choose not to commit a crime if a capable guardian were present. For example, an offender who is looking to burglarize someone's house looking for money and valuables will find a house without an alarm system and without a pet for protection to be a more suitable target than a house with an alarm system and with a large, aggressive dog. In addition, a suitable target is necessary for an individual to commit a crime. A suitable target can be a tangible object that the individual commits a crime in order to receive, or it can be an individual that the offender believes he or she can commit a crime to and get away with it. The suitability of the target is dependent on the value that the offender puts on different materials or choices in his or her life. For example, if an individual is addicted to heroin, an illegal drug, then heroin would be a suitable target for that individual to commit a crime for. In order for a crime to be committed, Cohen & Felson (1979) argue that it is necessary that all three of these items occur simultaneously.

With the combination of a motivated offender, a suitable target, and a lack of a capable guardian or object to prevent the occurrence of a crime, the opportunity for crime is increased (Cohen, Kluegal, & Land, 1981). Thus, routine activities theory is viewed as a theory of criminal opportunity for property crimes. One major motivation for an individual to commit a crime is the "strain" of socio-economic status (Agnew, 2002). Bennett (1991) concluded that routine activities theory could be applied more accurately to property crimes, like burglary and theft, than to violent crimes, like aggravated assault and rape. Here, it is interesting to note that both general strain theory and routine activities theory focus on an individual's lifestyle and how their varying situations lead to deviant behavior (Cook & Fox, 2011).

In terms of routine activities theory being correlated with crime through seasonal variations, there are studies that show temperature may affect at least one of the three areas

necessary for crime to occur as suggested by Cohen & Felson (1979). It was determined by a study on the effect of property crimes in Beijing, China that the crime of burglary, a property crime, was more associated with days of the year that had longer sunlight and was warmer as opposed to robbery, a violent crime, which was found to occur mainly at night (Peng, Xueming, Hongyong, & Dengsheng, 2011). Cook et. al. (2011) found that an individual's perceived risk of being a victim of a crime was a "consistent and significant predictor of all property crimes."

An outlet used by some individuals to cope with any form of "strain," including poverty or being unemployed may be the use and abuse of alcohol, drugs, and/or other addictive substances. This idea was suggested by McCorkle (1993) and by McGrath, Marcum, & Copes (2012), who studied inmate populations and their coping mechanisms to seeing violence. Moreover, Stalans & Ritchie (2008) studied intimate partner violence and illicit marijuana use and abuse and found that individuals with low socio-economic status who used marijuana are significantly more likely to increase their involvement in physical and verbal conflicts with their partners while those with higher socio-economic status who used marijuana were not significantly more likely to do the same. The researchers also found that an overwhelming majority of individuals with low socio-economic status were of racial or ethnic minority. This research demonstrates the power of socio-economic "strain."

In a study focused on the "Fighting Back" program, which hopes to reduce drug-related crimes in neighborhoods, it was concluded that the visible sight of drug use, the visible presence of drug sales, burglary when the homeowner is out of the house, and disorder within a neighborhood were statistically significant to criminal activity in the neighborhood and related to the victimization of residents in the neighborhood (Ford & Beveridge, 2006). Here, it is understood that property crimes can be correlated to drug use. Furthermore, it was found that

female drug dealers in disadvantaged neighborhoods actually engaged in selling drugs in order to avoid other types of crime, such as prostitution (Sommers et al., 1996). With explicit reference to property crimes between 1990 and 1992, it was found that pleasant weather positively affects property crime rates, following the suggestions of routine activities theory where temperature can play a major role in increasing the potential for all three necessary conditions to be met for crime to occur (Hipp, Bauer, Curran, & Bollen, 2004).

Temperature-Aggression Theory. A theory that has often been contrasted with routine activities theory is temperature-aggression theory. This theory originates from the heat hypothesis suggested by C. A. Anderson (1989). Anderson finds that an increase in physiological arousal and stimulation results in the increase of aggressive behaviors, like crimes. Here, Anderson focuses on the initial arousal or motivation of an individual to commit a crime. If the individual is stressed or “strained” as a result of the heat, Anderson believed that he or she would act rashly in an aggressive manner (Anderson, 1989; Anderson, 2001; Anderson, 2012; Bushman et al., 2005). Unfortunately, this theory has been put into question by researchers who argue against its validity in criminological research, citing its specific focus on human agitation based on heat. In other words, critics cite that there are multiple potential risk factors of crime that are more valid than heat because of the ambiguity of individual biological temperature differences. Hipp et al. (2004) found that routine activities theory better explains the fluctuations in property crime rates than temperature aggression theory does. In other words, Hipp et al. (2004) found that the causality between seasonal heat and anger-related violent behavior is somewhat overgeneralized; they question the causal relationship between individual biological temperature differences and crime.

However, in this current study, the researcher attempts to relate temperature-aggression theory to routine activities theory rather than contrast them. Cohen & Felson (1979) argue that a suitable target is one of the three necessities for the commission of a crime. The more targets present as a result of warm weather, the more likely a crime may occur. Moreover, the more suitable targets available, the more people are outside and the more people who may be close in proximity to one another. This proximity may result in an increase in body heat and a greater agitation associated with the environment, increasing the possibility that a crime may occur (Anderson, 1989).

Crime, Race, and Gender. Sexism has been found in every possible area, including education, income, promotion, health, and sports. Jang (2007) hints at the differences in how males and females cope with “strain.” While males tend to experience “strain” outwardly, females tend to self-direct their emotions. The researcher suggests that males are more outwardly aggressive than females and more likely to commit a crime as a result. Furthermore, whites and non-whites also experience “strain” differently from one another. By feeling inferior to, less than, or different from whites, it is unsurprising that non-whites experience “strain” differently than whites. And, these varying “strains” cause genders and races to commit different crimes (Cohen et al., 1981).

As a result of this “strain,” it is necessary to understand the relevance of systematic racism in all crime categories. Racial and ethnic minorities feel social inequality and inequity throughout their daily life through “strain” (Agnew, 2002). And, it is this “strain” that increases the risk that an individual commits a crime (Cohen et al., 1981). It is the prevalence of inequality and inequity that results in a feeling of worthlessness and inferiority that inflicts a “strain” on many individuals of racial and ethnic minority. And, the more “strain” that is felt by

an individual increases possibility that he or she will choose to commit a crime in order to combat that “strain” felt.

Abell (2018) uses this idea of “strain” to illustrate race-based housing inequality in the City of Lynchburg in Virginia. He cites the “strain” of blacks in Lynchburg, suggesting that housing inequality is a form of systematic racism and goes further to suggest that neighborhoods in Lynchburg are segregated based upon race, where black residents overwhelmingly live in disadvantaged areas that are unstable while white residents live in more advantaged, upscale areas. With the disproportionality of blacks and other racial and ethnic minorities in major social structures in the United States, such as housing and the criminal justice system, Abell (2018) illustrates that systematic racism acts to disenfranchise and oppress the non-white population and continues on a local-level in Lynchburg, even though slavery itself has ended in the United States. Thus, it is important to note that Abell (2018) finds there to be a socio-economic component used to segregate blacks from whites in Lynchburg.

One such study by Cohen et al. (1981) focused on this systematic racism and it subsequent increased risk of racial and ethnic minority victimization. Using data from two years, 1974 and 1977, of the Law Enforcement Assistant Administration’s (LEAA) National Crime Surveys (NCS) of United States households, the researchers hypothesized that social stratification, measured through variables of income, race, and age, were significantly related to the most serious and frequent crimes. In conclusion, the researchers found that there were partial relationships between exposure, guardianship, and proximity to the risk of predatory victimization and that the risk of victimization fluctuated on the three conditions set forth by routine activities theory.

To fully understand race as a predictor of crime, researchers have found that race should be considered with gender (Cohen et al, 1981). This current study looks at gender and race through an intersectional lens. In a study focusing on “strain” and crime, Jang (2007) hypothesized that African American females would experience “strain” more personally than their male counterparts, that females would self-direct emotions regarding their “strains” more than males, and that these self-directed emotions would lead to more self-directed but deviant coping mechanisms. A study by Broidy & Agnew (1997) also considered the oppression of females through education, promotion, etc. and suggested that it was this oppression that led to males and females expressing their “strain” differently. Furthermore, Dotson & Scott (2012) studied the perceptions of the death penalty related to the perspectives and environmental stability of potential offenders and found that there was an unchanging nature of views throughout one’s life as a result of sexist and/or racist experiences that he or she felt as a child or young adult. These studies suggest the importance of recognizing how the “strain” of one’s race and gender can affect their potential to commit certain crimes.

Furthermore, these perspectives suggest the relationship between the three criminological theories tested within this study. Gender and race form an individual’s identity. As a result, the “strain” felt from oppression of an individual’s gender and race has potential to play a role in whether that individual chooses to commit and/or is charged with a crime (Broidy & Agnew, 1997). Because gender and race cause major “strains” for individuals, especially in a location like Lynchburg where slave trading had occurred in the past, according to Abell (2018), the risk factors for committing certain property crimes, like theft, and violent crimes, like robbery, may result in the likelihood that non-whites commit certain crimes at a disproportionate rate than whites and that females commit certain crimes at a disproportionate rate than males. These

“strains” may fluctuate based upon season, especially as socio-economic standing changes throughout the year (Agnew, 2002; Hipp et al., 2004). For example, the motivation of an offender in routine activities theory may result in more crimes occurring around time periods of economic constraint, like the winter months, where many holidays occur. Drawing from what we know from routine activities theory and temperature-aggression theory, the amount of targets available may result in more crime being likely when there is a greater population density or number of targets available (Cohen & Felson, 1979; Anderson, 1989).

Methodology

Research Question

The research question proposed in this study is to what extent do gender and race play a role in crime categories in the City of Lynchburg from January 2010 to July 2018 and how does season of the year affect the role of gender and race in these crime categories? It is important to continue conducting research in the controversial fields of gender and race because biased perspectives of these two areas often cause public policies to be unequally swayed towards the dominant majority, white males (Dotson & Scott, 2012). By conducting more research on gender and race, public policies can be instituted to help reduce the consequences that sexism and racism have on major social structures. General strain theory (Agnew, 1992; Broidy & Agnew, 1997; Agnew, 2002) is used to explain how an individual’s “strain” affects his or her feeling towards himself or herself based on inequality or inequity whereas routine activities theory (Cohen & Felson, 1979) and temperature-aggression theory (1989) are used to illustrate how the environment may sway an individual to commit crimes as a result of motivation spawning from their “strains.” And, being in a city with roots of systematic racism and where population density fluctuates based upon season, the combination of these three criminological

theories may be helpful in determining the intersectionality of gender and race with reference to crime categories (Abell, 2018). This problem is apparent throughout the entirety of the United States; however, this study is focusing specifically on the City of Lynchburg in Virginia because of the Office of Corrections approved the analysis of this data and of the socio-economic “strains” mentioned by Abell (2018) that have potential to increase crime rate. This dataset was also easily accessible for the researcher because she was currently residing in Lynchburg, Virginia.

All 34 categories of crime are being analyzed with reference to seasons of the year: winter, spring, summer, and fall. Routine activities theory suggests that crime will typically increase in the summer months as a result of more individuals being outside, creating greater opportunity for the commission of a crime to occur and is, therefore, dependent on population (Cohen & Felson, 1979). Another theory, temperature-aggression theory (Anderson, 1989) focuses on the idea that summer months will have more overall crime comparative to the other seasons of the year as a result of the heat making individuals more aggressive. Here, with more individuals outside of their homes, it is suggested that crimes increase in the summer months of the year or areas where most people are available and outside. But, it should be noted that the City of Lynchburg is a college town with many colleges and universities present. As a result, most of the population in the City of Lynchburg will most likely be in the fall and spring seasons, rather than the summer and winter seasons due to school breaks.

Considering that seasonality and crime could be linked, the researcher hopes to combine three criminological theories together in an attempt to explain the intersectionality of gender and race with respect to season. General strain theory suggests that males tend to externalize their “strains” more often than females overall as a result of the differences in socialization for boys

and girls as they grow up (Broidy & Agnew, 1997). This theory also claims that racial and ethnic minority groups are more likely to feel “strain” as a result of being oppressed by those in power within our society. Here, the intersectionality of gender and race is illustrated. The more “strains” of identity (i.e. race and gender) that an individual may have, the more likely he or she may commit crime.

General strain theory plays a part in routine activities theory through the motivated offender and the suitable target. An individual may be more motivated to commit a crime as a result of particular “strains,” like socio-economic status. A suitable target for an offender is something of value based upon that offender’s particular “strain” (Cohen & Felson, 1979). Moreover, temperature-aggression theory suggests that the heat could be a “strain” for individuals, especially males who are socialized to act more aggressively when agitated (Anderson, 1989). With the raising heat and agitation, an individual’s “strain” may cause him or her to act rashly and commit crime. Here, it is shown that all theoretical models used in this study can be combined to increase the potential risk of a crime to occur.

Drawing from prior research relating to this topic of study, the researcher has determined the following hypotheses for analyses using this dataset: Gender and race will predict a majority of crime categories. And, a seasonal relationship will be found between gender and race and a majority of crime categories.

Data Collection & Sampling

The data used in this study was retrieved from the City of Lynchburg’s Office of Corrections in Virginia. This dataset shows every criminal offense charged to an offender in the City of Lynchburg from January 2010 to July 2018. The age, criminal charge, gender, and race of each offender are listed in the dataset for examination. The researcher retrieved this dataset

with the help of Michael Klein, PhD, Assistant Professor in the Department of Criminology at the University of Lynchburg. The dataset consists of 74,147 criminal charges.³ Due to the size of the database, the researcher used R-studio, a free and openly accessible method of quantitative analysis, was used to test her hypothesis. The researcher decided to focus on all 34 categories of crime for her research in order to provide a cumulative examination of gender, race, and seasonal change.

Variables and Operationalization

Each of the 34 crime categories⁴ act as the outcome variables for the binomial logical regressions tested. The hypotheses are analyzed using both gender and race as predictor variables. Each outcome and predictor variable was tested based on season (i.e. winter, summer, spring, and fall) that the crime was charged to the offender. Binomial logical regressions will be used to test the hypotheses. In all regression models for the hypotheses, the outcome variables will be the crime categories and the predictor variables will be gender and race.

³ It is important to note that this study was conducted using criminal charges, not convictions. According to Boston Criminal Defense Attorney C. Henry Fasoldt, an individual is charged with a crime when he or she has been formally accused of a crime by the government whereas an individual is convicted of a crime when he or she has been declared guilty of committed a crime, either by a guilty plea or a guilty verdict. Much less evidence is needed for an individual to be charged with a crime than for an individual to be convicted of a crime. Whereas “probable cause,” or suspicion that a crime is being committed or has occurred, is necessary to charge an individual with a crime, evidence must be given “beyond a reasonable doubt” by a unanimous jury decision or guilty plea that an individual committed a crime in order to be convicted. Thus, there are more charges in this dataset than there were convictions in the City of Lynchburg during this time period. By using a dataset of criminal charges, the researcher is able to have a more comprehensive list of criminal activity in the City of Lynchburg without prejudice of jury or counsel.

⁴ The 34 crime categories that the individual criminal charges were sorted into are battery, abduction, abuse, accessory, sex, animal, burglary, robbery, capias, carry concealed, theft, conspiracy, contempt, fraud, disorderly, default, destruction of property, drug, weapon, drinking, moving, driving while intoxicated (DWI), emergency custody order (ECO), elude police, technical, forge, escape, trespass, temporary detention order (TDO), stalking, obstruct, murder, hit and run, and harassment. It is important to note that the individual criminal charges were sorted into these crime categories in order to allow for charges similar to one another to be tested together without losing its validity, like studying all crime categories together in one test would.

Analytical Plan

Descriptive statistics of the crime categories within the seasons were conducted using the “xtabs” function on R-studio. Every variable tested was categorical, meaning that the study uses only “Yes – the category of crime was charged” or “No – the category of crime was not charged” for each offense, rather than focusing on a continuous, or count-based, relationship. Thus, the results for all outcome and predictor variables yield the number of times where “0” or “1” is found in the variable.

For the testing of the hypotheses, it is important to note that a positive coefficient (b) denotes that either male or white was more likely to be charged with the subsequent crime whereas a negative coefficient (b) denotes that either female (or unknown) or non-white (or unknown) was more likely to be charged with the subsequent crime. Only if the level of significance, or p-value, is less than or equal to 0.05 for the regression model test will the positivity or negativity of the coefficient (b) will be analyzed. Here, it is important to note that this dataset contains only crimes where the individual was charged with a crime. Thus, this dataset lacks those crimes where an individual was not charged with a crime and gotten away without penalty.

All of the models used categorical predictor and outcome variables that were “recoded”⁵ in order to run a binary test. For the outcome variables, the criminal charges were sorted based on 1 = “Yes” and 0 = “No” for each crime category. For the predictor variable of gender, 1 = “Male” and 0 = “Female and Unknown.” For the predictor variable of race, 1 = “White” and 0 =

⁵ All variables were “recoded,” or sorted into two binary categories and given a number, either “1” or “0.” This “recode” means that each charge that made up the dataset was sorted into 34 different crime categories. The charges that fit the crime category were given a “1,” and those charges that did not fit the crime category were given a “0.” This “recode” was also done with the race variable where “1” = “White” and “0” = “Non-white” and “Unknown” and with the gender variable where “1” = “Male” and “0” = “Female” and “Unknown.” It is important to note that the “recoded” number itself (i.e. “0” or “1”) does not affect the significance of the regression tests.

“Non-White and Unknown.” The 1 = “Yes” and 0 = “No” represent the two recoded variables in this study. For example, if the criminal charge was “ATTEMPT TO OBTAIN DRUGS BY FRAUD,” then the charge would be recoded to Drug = 1 and Fraud = 1 with all other crime categories being zero. And, if the “ATTEMPT TO OBTAIN DRUGS BY FRAUD” charge was committed by a black male, then the gender of the specific charge would show a number “1” for male and the race of the specific charge would show a number “0” for black.

In order to refrain from manipulating the dataset too much, the charges that gave “unknown” data points of race and gender were included in the regression analysis. If the “unknown” data points had been removed from the dataset, then the relationship between crime categories and criminal charges would not illustrate a valid description of Lynchburg. As a result of this researcher choice, it is possible that results of the regression model tests may vary slightly comparative to if only females or non-whites were utilized in the regression model tests.

Results

To see the descriptive statistics for all variables used in the regression analyses, please see Tables 1 through 4. To see the positivity or negativity of the coefficients (b) for the predictor variables found to be significant, please see Tables 5 and 6.

Gender, Race, and Winter. For the descriptive statistics of the regression models using the season of Winter (Table 1), GenderRecoded (where 0 = 4627, 1 = 12765) and RaceRecoded (where 0 = 10151, 1 = 7241) were the predictor variables. The outcome variable with the highest number of “Yes” for number of times the crime was charged was Drug (where 0 = 14362, 1 = 3030), and the outcome variable with the lowest number of “Yes” for number of times the crime was charged were Harassment (where 0 = 17379, 1 = 13) and Default (where 0 = 17379, 1 = 13).

For the winter binomial logistic regressions where gender (Table 5) and race (Table 6) predict crime, females (and unknowns) were charged more likely than males in 8 of 20 crime categories (battery, accessory, theft, contempt, fraud, ECO, technical, and TDO). Non-whites (and unknowns) were charged more likely than whites in 9 of 19 crime categories (battery, robbery, contempt, disorderly, weapon, technical, forge, trespass, and obstruct).

Gender, Race, and Spring. For the descriptive statistics of the regression models using the season of Spring (Table 2), GenderRecoded (where 0 = 5649, 1 = 14539) and RaceRecoded (where 0 = 12088, 1 = 8100) were the predictor variables. The outcome variable with the highest number of “Yes” for number of times the crime was charged was Drug (where 0 = 16713, 1 = 3475), and the outcome variable with the lowest number of “Yes” for number of times the crime was charged was Default (where 0 = 20181, 1 = 7).

For the spring binomial logistic regressions where gender (Table 5) and race (Table 6) predict crime, females (and unknowns) were charged more likely than males in 8 of 22 crime categories (battery, accessory, theft, contempt, fraud, emergency custody order (ECO), forge, and temporary detention order (TDO)). Non-whites (and unknowns) were charged more likely than whites in 10 of 21 crime categories (battery, abduction, robbery, carry concealed, contempt, weapon, technical, trespass, TDO, and obstruct).

Gender, Race, and Summer. For the descriptive statistics of the regression models using the season of Summer (Table 3), GenderRecoded (where 0 = 5338, 1 = 14344) and RaceRecoded (where 0 = 11601, 1 = 8081) were the predictor variables. The outcome variable with the highest number of “Yes” for number of times the crime was charged was Drug (where 0 = 16282, 1 = 3400), and the outcome variable with the lowest number of “Yes” for number of times the crime was charged was Harassment (where 0 = 19671, 1 = 11).

For the summer binomial logistic regressions where gender (Table 5) and race (Table 6) predict crime, females (and unknowns) were charged more likely than males in 8 of 20 crime categories (battery, accessory, theft, fraud, disorderly, destruction of property, ECO, and TDO). Non-whites (and unknowns) were charged more likely than whites in 9 of 23 crime categories (battery, conspiracy, contempt, disorderly, destruction of property, weapon, technical, trespass, and obstruct).

Gender, Race, and Fall. For the descriptive statistics of the regression models using the season of Fall (Table 4), GenderRecoded (where 0 = 4777, 1 = 12108) and RaceRecoded (where 0 = 9611, 1 = 7273) were the predictor variables. The outcome variable with the highest number of “Yes” for number of times the crime was charged was Drug (where 0 = 14156, 1 = 2729), and the outcome variable with the lowest number of “Yes” for number of times the crime was charged was Harassment (where 0 = 16871, 1 = 14).

For the fall binomial logistic regressions where gender (Table 5) and race (Table 6) predict crime, females (and unknowns) were charged more likely than males in 8 of 19 crime categories (battery, accessory, theft, fraud, default, ECO, forge, and TDO). Non-whites (and unknowns) were charged more likely than whites in 11 of 25 crime categories (battery, robbery, contempt, disorderly, weapon, elude police, technical, trespass, TDO, obstruct, and murder).

Table 1: Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Winter. Information was presented in the R-studio coding database and was re-written in the form of a table to find the needs of this study.

Table 1 Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Winter (N = 17392)	
Predictor Variables	No = 0 ; Yes = 1
GenderRecoded	0 = 4627 ; 1 = 12765
RaceRecoded	0 = 10151 ; 1 = 7241
Outcome Variables	
Battery	0 = 15398 ; 1 = 1994
Abduction	0 = 17348 ; 1 = 44
Abuse	0 = 17079 ; 1 = 313
Accessory	0 = 17137 ; 1 = 255
Sex	0 = 17240 ; 1 = 152
Animal	0 = 15442 ; 1 = 1950
Burglary	0 = 17178 ; 1 = 214
Robbery	0 = 16443 ; 1 = 949
Capias	0 = 17268 ; 1 = 124
CarryConcealed	0 = 17320 ; 1 = 72
Theft	0 = 15278 ; 1 = 2114
Conspiracy	0 = 17367 ; 1 = 25
Contempt	0 = 16046 ; 1 = 1346
Fraud	0 = 16533 ; 1 = 859
Disorderly	0 = 17094 ; 1 = 298
Default	0 = 17379 ; 1 = 13
DestructionofProperty	0 = 17024 ; 1 = 368
Drug	0 = 14362 ; 1 = 3030
Weapon	0 = 17065 ; 1 = 327
Drinking	0 = 15957 ; 1 = 1435
Moving	0 = 15455 ; 1 = 1937
DWI	0 = 17230 ; 1 = 162
ECO	0 = 16921 ; 1 = 471
EludePolice	0 = 17333 ; 1 = 59
Technical	0 = 14496 ; 1 = 2896
Forge	0 = 17161 ; 1 = 231
Escape	0 = 17348 ; 1 = 44
Trespass	0 = 16827 ; 1 = 565
TDO	0 = 15505 ; 1 = 1887
Stalking	0 = 17303 ; 1 = 89
Obstruct	0 = 17216 ; 1 = 176
Murder	0 = 17377 ; 1 = 15
HitandRun	0 = 17345 ; 1 = 47
Harassment	0 = 17379 ; 1 = 13

Table 2: Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Spring. Information was presented in the R-studio coding database and was re-written in the form of a table to find the needs of this study.

Table 2 Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Spring (N = 20188)	
Predictor Variables	No = 0 ; Yes = 1
GenderRecoded	0 = 5649 ; 1 = 14539
RaceRecoded	0 = 12088 ; 1 = 8100
Outcome Variables	
Battery	0 = 17643 ; 1 = 2545
Abduction	0 = 20112 ; 1 = 76
Abuse	0 = 19807 ; 1 = 381
Accessory	0 = 19820 ; 1 = 368
Sex	0 = 20063 ; 1 = 125
Animal	0 = 17629 ; 1 = 2559
Burglary	0 = 19937 ; 1 = 251
Robbery	0 = 18858 ; 1 = 1330
Capias	0 = 20036 ; 1 = 152
CarryConcealed	0 = 20094 ; 1 = 94
Theft	0 = 18016 ; 1 = 2172
Conspiracy	0 = 20155 ; 1 = 33
Contempt	0 = 18683 ; 1 = 1505
Fraud	0 = 19376 ; 1 = 812
Disorderly	0 = 19826 ; 1 = 362
Default	0 = 20181 ; 1 = 7
DestructionofProperty	0 = 19794 ; 1 = 394
Drug	0 = 16713 ; 1 = 3475
Weapon	0 = 19758 ; 1 = 430
Drinking	0 = 18279 ; 1 = 1909
Moving	0 = 17962 ; 1 = 2226
DWI	0 = 20031 ; 1 = 157
ECO	0 = 19634 ; 1 = 554
EludePolice	0 = 20119 ; 1 = 69
Technical	0 = 16799 ; 1 = 3389
Forge	0 = 19930 ; 1 = 258
Escape	0 = 20155 ; 1 = 33
Trespass	0 = 19492 ; 1 = 696
TDO	0 = 18126 ; 1 = 2062
Stalking	0 = 20114 ; 1 = 74
Obstruct	0 = 20004 ; 1 = 184
Murder	0 = 20169 ; 1 = 19
HitandRun	0 = 20145 ; 1 = 43
Harassment	0 = 20180 ; 1 = 8

Table 3: Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Summer. Information was presented in the R-studio coding database and was re-written in the form of a table to find the needs of this study.

Table 3 Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Summer (N = 19682)	
Predictor Variables	No = 0 ; Yes = 1
GenderRecoded	0 = 5338 ; 1 = 14344
RaceRecoded	0 = 11601 ; 1 = 8081
Outcome Variables	
Battery	0 = 17316 ; 1 = 2366
Abduction	0 = 19608 ; 1 = 74
Abuse	0 = 19252 ; 1 = 430
Accessory	0 = 19328 ; 1 = 354
Sex	0 = 19497 ; 1 = 185
Animal	0 = 17184 ; 1 = 2498
Burglary	0 = 19389 ; 1 = 293
Robbery	0 = 18646 ; 1 = 1036
Capias	0 = 19554 ; 1 = 128
CarryConcealed	0 = 19614 ; 1 = 68
Theft	0 = 17564 ; 1 = 2118
Conspiracy	0 = 19651 ; 1 = 31
Contempt	0 = 18082 ; 1 = 1600
Fraud	0 = 18787 ; 1 = 895
Disorderly	0 = 19341 ; 1 = 341
Default	0 = 19666 ; 1 = 16
DestructionofProperty	0 = 19319 ; 1 = 363
Drug	0 = 16282 ; 1 = 3400
Weapon	0 = 19300 ; 1 = 382
Drinking	0 = 17892 ; 1 = 1790
Moving	0 = 17667 ; 1 = 2015
DWI	0 = 19545 ; 1 = 137
ECO	0 = 19205 ; 1 = 477
EludePolice	0 = 19627 ; 1 = 55
Technical	0 = 16673 ; 1 = 3009
Forge	0 = 19331 ; 1 = 351
Escape	0 = 19659 ; 1 = 23
Trespass	0 = 18913 ; 1 = 769
TDO	0 = 17623 ; 1 = 2059
Stalking	0 = 19591 ; 1 = 91
Obstruct	0 = 19482 ; 1 = 200
Murder	0 = 19661 ; 1 = 21
HitandRun	0 = 19647 ; 1 = 35
Harassment	0 = 19671 ; 1 = 11

Table 4: Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Fall. Information was presented in the R-studio coding database and was re-written in the form of a table to find the needs of this study.

Table 4 Descriptive Statistics of Multivariate Binomial Logistic Regressions with the Season of Fall (N = 16885)	
Predictor Variables	No = 0 ; Yes = 1
GenderRecoded	0 = 4777 ; 1 = 12108
RaceRecoded	0 = 9611 ; 1 = 7273
Outcome Variables	
Battery	0 = 14966 ; 1 = 1919
Abduction	0 = 16826 ; 1 = 59
Abuse	0 = 16606 ; 1 = 279
Accessory	0 = 16562 ; 1 = 323
Sex	0 = 16738 ; 1 = 147
Animal	0 = 14702 ; 1 = 2183
Burglary	0 = 16656 ; 1 = 229
Robbery	0 = 16020 ; 1 = 865
Capias	0 = 16757 ; 1 = 128
CarryConcealed	0 = 16816 ; 1 = 69
Theft	0 = 14957 ; 1 = 1928
Conspiracy	0 = 16863 ; 1 = 22
Contempt	0 = 15551 ; 1 = 1334
Fraud	0 = 15993 ; 1 = 892
Disorderly	0 = 16594 ; 1 = 291
Default	0 = 16870 ; 1 = 15
DestructionofProperty	0 = 16552 ; 1 = 333
Drug	0 = 14156 ; 1 = 2729
Weapon	0 = 16571 ; 1 = 314
Drinking	0 = 15263 ; 1 = 1622
Moving	0 = 14992 ; 1 = 1893
DWI	0 = 16756 ; 1 = 129
ECO	0 = 16473 ; 1 = 412
EludePolice	0 = 16832 ; 1 = 53
Technical	0 = 14170 ; 1 = 2715
Forge	0 = 16678 ; 1 = 207
Escape	0 = 16862 ; 1 = 23
Trespass	0 = 16218 ; 1 = 667
TDO	0 = 15067 ; 1 = 1818
Stalking	0 = 16812 ; 1 = 73
Obstruct	0 = 16718 ; 1 = 167
Murder	0 = 16862 ; 1 = 23
HitandRun	0 = 16833 ; 1 = 52
Harassment	0 = 16871 ; 1 = 14

For a consolidated list of all categories of crime in relation to gender and race, please see Tables 5 and 6 below.

Categories of Crime	Seasons of the Year			
	Spring	Summer	Fall	Winter
Battery	O	O	O	O
Abduction	X	X	X	X
Abuse	X	X		X
Accessory	O	O	O	O
Sex	X	X	X	X
Animal	X			
Burglary	X	X	X	X
Robbery	X	X	X	X
Capias				
Carry Concealed	X	X	X	X
Theft	O	O	O	X
Conspiracy				
Contempt	O			O
Fraud	O	O	O	O
Disorderly		O		
Default			O	
Destruction of Property	O	O		
Drug		X	X	X
Weapon	X	X	X	X
Drinking	X	X	X	X
Moving	X			
DWI	X			X
ECO	O	O	O	O
Elude Police	X	X	X	X
Technical		X		O
Forge	X		O	
Escape		X		
Trespass	O		X	X
TDO	O	O	O	O
Stalking				
Obstruct				
Murder			X	
Hit and Run				
Harassment				

Table 5 – List of seasons where gender was found to be significant to crime categories, where the p-value was less than or equal to 0.05. X represents a positive coefficient (or “b”) value for the outcome variable when gender was found to predict crime. This suggests that whites were more likely to be the offender of a crime category than non-whites (and unknowns) by the “b” value amount. O represents a negative coefficient (or “b”) value for the outcome variable when gender was found to predict crime. This suggests that non-whites (and unknowns) were more likely to be the offender of a crime category than whites by the “b” value amount.

Categories of Crime	Seasons of the Year			
	Spring	Summer	Fall	Winter
Battery	O	O	O	O
Abduction	O			
Abuse	X	X	X	X
Accessory			X	X
Sex		X		
Animal	X	X	X	X
Burglary			X	
Robbery	O	O	O	O
Capias		X		
Carry Concealed	O			
Theft	X	X	X	X
Conspiracy		O		
Contempt	O	O	O	O
Fraud	X	X	X	
Disorderly	O	O	O	O
Default				
Destruction of Property		O		
Drug			X	
Weapon	O	O	O	O
Drinking	X	X	X	X
Moving	X	X	X	X
DWI	X	X	X	X
ECO	X	X	X	X
Elude Police			O	
Technical	O	O	O	O
Forge	X	X	X	O
Escape		X		
Trespass	O	O	O	O
TDO	O		O	
Stalking				X
Obstruct	O	O	O	O
Murder			O	
Hit and Run	X		X	X
Harassment		X	X	

Table 6 – List of seasons where race was found to be significant to crime categories, where the p-value was less than or equal to 0.05.

X represents a positive coefficient (or “b”) value for the outcome variable when race was found to predict crime. This suggests that whites were more likely to be the offender of a crime category than non-whites (and unknowns) by the “b” value amount.

O represents a negative coefficient (or “b”) value for the outcome variable when race was found to predict crime. This suggests that non-whites (and unknowns) were more likely to be the offender of a crime category than whites by the “b” value amount.

This suggests that non-whites (and unknowns) were more likely to be the offender of a crime category than whites by the “b” value amount.

Discussion

The results of this study support for the original hypotheses: Gender and race predict a majority of crime categories. And, a seasonal relationship is found between gender and race and a majority of crime categories. However, it is important to note that the results show a much larger link between criminal activity and non-whites (and unknowns) than between criminal activity and females (and unknowns). For all seasons, race is disproportionately shown where non-whites (and unknowns) commit much more crime than whites and gender is disproportionately shown where males commit much more crime than females (and unknowns).

One reason for females (and unknowns) not being charged with more crime categories than males may be as a result of the tendency of females to internally cope with their “strains” as opposed to males, who outwardly cope, as found in Jang (2007). Because of this, the “strain” of race is mentioned in this section more than the “strain” of gender is. Nevertheless, there are still significant differences between the crime categories that varying races and genders are charged with. Thus, it is important to recognize the intersectionality of race and gender when analyzing this dataset.

Spring was found to have more categories of crime predicted by gender. When analyzing the regression results where gender predicts crime, 22 out of 34 crime categories yielded significant results where the level of significance, or p-value, was less than or equal to 0.05 (see Table 5). The second highest number of tests where gender predicts crime among the four seasons was tied with winter and summer where 20 out of 34 crime categories yielded significant results where the level of significance, or p-value, was less than or equal to 0.05. The least number of significant tests where gender predicts crime among the four seasons was fall where

19 out of 34 crime categories yielded significant results where the level of significance, or p-value, was less than or equal to 0.05.

Fall was found to have more categories of crime predicted by race when gender and race were analyzed as predictor variables for the multivariate binomial regression model tests. When analyzing the regression results when using race to predict crime, 25 crime categories yielded significant results where the level of significance, or p-value, was less than or equal to 0.05 (see Table 6). The second highest number of significant tests using race to predict crime, among the four seasons yielded significant results, was summer with 23 out of 34 crime categories showing, followed by spring with 21 out 34 crime categories, and, lastly, winter with 19 out 34 crime categories.

Having both fall and spring with the most significant relationships found between crime categories and gender or race is unsurprising as a result of the City of Lynchburg being an area where six colleges or universities have major ties to population density: Randolph College, the University of Lynchburg, Liberty University, Central Virginia Community College, Virginia University at Lynchburg and Sweet Briar College. As a result of this population increase in the Fall and Spring, there is a possibility that there are more targets available for a crime to occur. In addition, there are more opportunities for individual's to become offenders if they are motivated, such as through economic constraints, being away from one's parents, or other potential "strains." The relationship between economic difficulties and crime is described by McCorkle (1993), McGrath et al. (2012), and Stalans & Ritchie (2008).

As the results suggest, gender and race were found to predict many crime categories. These findings demonstrate the disproportionality of females and non-whites in the commission of certain crime categories. Thus, this research illustrate how different genders and races choose

to express their “strain” in different manners. The crime categories where non-whites (and unknowns) were more likely than whites to be charged with the crime, in all four seasons were battery, robbery, contempt, disorderly, weapon, technical, trespass, and obstruct. Contrastingly, the crime categories where whites were more likely than non-whites (and unknowns) to be charged with the crime, in all four seasons were abuse, animal, theft, drinking, moving, driving while intoxicated (DWI), and ECO (see Table 6). Moreover, the crime categories where females (and unknowns) were more likely than males to be charged with the crime, in all four seasons were battery, accessory, fraud, ECO, and TDO. Oppositional to these findings, the crime categories where males were more likely than females (and unknowns) to be charged with the crime, in all four seasons were abduction, sex, burglary, robbery, carry concealed, drug, weapon, drinking, and elude police (see Table 5).

It is interesting to find that females (and unknowns) are more likely to be charged with certain crime categories where all were considered property crime with the exception of battery, a violent crime. These results align with general strain theory where females tend to look for less violent outlets because of their emotional coping strategies to “self-direct” their “strain” (Broidy & Agnew, 1997; Jang 2007).

The results show a seasonal component to social-economic “strain.” These economic “strains” fluctuate throughout the year, increasing during the winter season with many gift-focused holidays, such as Christmas Day, New Year’s Eve, and New Year’s Day. Results of theft in this study demonstrate this phenomenon, where gender was found to be a negative significant variable for fall, spring, and summer but a positive significant variable for winter. This means that females (and unknowns) were significantly more likely to be charged with theft in fall, spring, and summer but that males were significantly more likely to be charged with the

same crime in winter. These results prove that there is a gender difference that varies based on season. Moreover, non-whites (and unknowns) were more likely to be charged with forgery in the winter whereas whites were more likely to be charged with forgery in all other seasons. This finding illustrates a socio-economic component to the “strain” of non-whites as suggested by Agnew (2002) and Abell (2018) as well as to the season as suggested by Hipp et al. (2004).

Non-whites (and unknowns) were more likely to be charged with certain crime categories than whites. Of the significant results, non-whites (and unknowns) were charged with battery, robbery, weapon, contempt, disorderly, technical, trespass, and obstruct. The results show that non-whites were charged with both violent crimes and property crimes. In addition, the results of this study suggest a seasonal difference between race and violent crime, particularly with regards to our testing of burglary and robbery. Race was not found to predict a charge of burglary, with the exception of the fall where whites were more likely than non-whites (and unknowns) to be charged. Contrastingly, robbery was found to have a negative significant relationship where non-whites (and unknowns) were more likely than whites to be charged. Because both burglary and robbery are typically committed in order to gain some tangible object, like money, it is important to note that an individual’s “strain” may lead him or her to commit crime. And, since non-whites (and unknowns) were found to commit multiple types forms of both property and violent crimes, “strain” predicated on being of racial minority may predict crime more than “strain” predicated on being a female.

These results show the complexity of gender and race as it is combined to form an individual’s identity and become a “strain” (Broidy & Agnew, 1997). By understanding this, the findings of this study overwhelmingly support general strain theory (Agnew, 2002) and suggest the potential of routine activities theory (Cohen & Felson, 1979) through “strain” affecting

whether or not a target is considered suitable or a motivated offender is motivated enough to commit a crime. However, evidence of temperature-aggression theory (Anderson, 1989) could not be found in this study as a result of the study's inability to have specific temperature degrees or ranges. The results provide more significant relationships between gender or race and crime category with fall and spring than winter and summer. Although routine activities theory typically shows the summer to have the most potential risk for crime to occur, this study's results suggest that population density, as opposed to season, should be considered in the case of Lynchburg due to its population changes throughout the year since it is considered a college town.

Implications and Future Research

The hypotheses were supported by the results in this study that gender and race could be valuable predictors of specific crime categories and dependent on seasons of the year. Even though there is a much larger link between criminal activity and non-whites (and unknowns) than between criminal activity and females (and unknowns), the consequences of "strain" felt by both minority groups are illustrated in this analysis by the crimes they are charged with⁶.

One major implication of these findings is that crime should not be generalized. Because gender and race was found to predict many crime categories at varying amounts and times of the year according to this study's results, crime categories should be viewed on a separate basis. In other words, combining multiple crime categories does not show a valid determination of significance. This means that crime categories should not be summed up into groups of multiple

⁶ It is important to recognize the importance of intersectionality in this study. Multiple predictors of crime should be analyzed together in order to show a valid analysis of crime. Although this study shows that the "strain" of racial minority has an effect on multiple types of crime (both property crimes and violent crimes), it is important to recognize the "strain" of being a female and its role predominantly in property crimes. Thus, when both race and gender are analyzed, a more valid version of analysis is given.

crime categories since it decreases the validity of research. For example, analysis of results on rape, aggravated assault, robbery, and homicide are more valid when studied separately than when tested together. Crime should be viewed at an individual crime category level or a season/specific time period level.

In addition to gender and race, it may be important to view the income level of each offender along with their subsequent crimes and time of the year at which he or she is charged with committing those crimes in order to find data focused on income-level. It is important to highlight low income-level, poverty, or single family life as risk factors of crime when analyzing non-white disproportionality and studies of general strain theory. This study suggests that socio-economic status may, therefore, be a powerful predictor of crime along with gender and race.⁷

The findings of this study show the disproportionality of crime based on race and gender. As a result, it is necessary to provide possible policy changes that could allow for these consequences to be reduced. If these consequences are reduced, then it is possible that the “strain” felt by non-whites will be reduced as well, resulting in a decreased possibility that a crime by occur as suggested in general strain theory (Agnew, 1995) and routine activities theory (Cohen & Felson, 1979). Here, it is important to note that the gender “strain” was only displayed in non-violent crime categories and, as a result, is potentially based on the tendency for females to internally cope, rather than use physically force.

⁷ This study analyzes gender and race as predictors of 34 different crime categories. It is important to remember that this study only takes criminal charges, not criminal convictions, into consideration when analyzing the dataset. The results show that the “strain” of individual identifiers, specifically gender and race, may be powerful predictors that lead to crime. And, in this study, the socio-economic component of “strain” was determined to be a consequence of the oppression of minority groups in major social structures. However, future research should be done specifically on the area of socio-economic status with regards to race, gender, and crime for more valid results since this dataset did not take the specific socio-economic status of offenders into consideration.

Still, the relationship between gender, race and an individual's identity plays a part in our understanding of society and the justice it affords its citizens. In order to combat the potential for crime that can be predicted by an individual's gender and race, it is important to suggest policies that are all-encompassing, pushing for a more socially-focused effort to combat these issues. Adding an educational curriculum that is appealing to helping individuals within our society begin to open their minds for a more diverse, inclusive environment is necessary for sexism and racism to be reduced in our society. This curriculum would be open discussion-focused on normalizing gender and race through communication. This educational tool, if added to a standard curriculum in middle or high school, as well as higher level education, would help cause a conversation about gender and race at a younger age.

Even though this study's results proved a greater disproportionality on race than on gender, it is important to use curriculums that are intersectional in-nature, meaning that they focus on all aspects of an individual's identity, including gender and socio-economic status. Thus, this program will address the "strains" felt by minority groups. It will allow for an open discussion for all issues of inequality and inequity found within Lynchburg as well as in the United States.

By starting with this open discussion on inclusion of all genders and races,⁸ all major social institutions, including the criminal justice system, will be positively impacted. By positively outlining diversity and inclusion, differences in race and gender will become more

⁸ This approach is a very inclusion-oriented one. As a result, there needs to be an understanding of inequality and inequity in our society prior to the curriculum being added into the education system. In other words, without having individuals understand the consequences of these "strains" on others prior to the teaching of the curriculum, it is unlikely that the curriculum will have any effect on changing our current oppressive structures. Thus, the researcher understands that an inclusive curriculum needs to be carefully constructed in order to include all demographics of people and to provide the most up-to-date data on the consequences of inequality and inequity in our society.

mainstream and accepted. As a result, individual “strains” of gender and race will no longer be thought of as being female or non-white will not be as strenuous, inferior, or oppressive as it currently does in today’s society. Here, the power of gender and race as a “strain” will be decreased, reducing the risk factor of an individual’s gender and race to cause a crime to occur. Nevertheless, the continuing disparities regarding poverty, education level, etc. should be considered (Agnew, 2002). This would involve a restructuring of rules and regulations regarding housing, wage, etc., like in Abell (2018) where the consequences of systematic racism are analyzed.

Furthermore, it is important to conduct future research on criminal convictions. As explained by Fasoldt (2017), much less evidence is needed for an individual to be charged with a crime than for an individual to be convicted of a crime. By conducting research on criminal convictions in addition to criminal charges, the research can analyze whether there is any prejudice of jury or counsel found as a result of systematic racism or sexism found within major social structures, like the criminal justice system. The criminal charge focus of this study can only suggest that the “strain” of race and gender can affect what types of crime an individual is charged with. Thus, this current study can only suggest a connection between the consequence of “strain” to crime, not a causal relationship between the two.

Conclusion

This study highlights gender and race as predictor variables of 34 crime categories and how seasonality affects the results of those predictor variables. Using data (N=74147) from the Office of Corrections in the City of Lynchburg, Virginia, charges were sorted into 34 crime categories that were tested using binomial logistic regressions. This dataset includes the offender’s race and gender, as well as the month, year, and season of the year that the offender

was charged with the crime. The results supported the original hypotheses that gender and race could be valuable predictors of specific crime categories and dependent on seasons of the year.

The results of this study indicate that the “strain” on individuals as a result of race and gender. Also, this research shows that this “strain” may be affected by season of the year, and that socio-economic status may be a powerful predictor of criminal activity. Females (and unknowns) were charged with non-violent crime more than violent whereas non-whites (and unknowns) were charged with both violent and non-violent crime. As a result, there is a connection between “strain” and factors consistent with routine activities theory felt by individuals based upon socio-economic status. In addition, non-whites (and unknowns) were found to predict many crime categories, not just those solely economic-based. Because temperature-aggression theory was solely based on the degree of heat that would cause a heightened agitation, it could not accurately be tested in this study.

Limitations.

- 1) This dataset used charges specifically from the City of Lynchburg, Virginia. As a result, this data could only be generalizable to cities that fit the same population, demographic, and crime levels of the City of Lynchburg.
- 2) The dataset used was from the Office of Corrections of the City of Lynchburg, Virginia. As a result, the dataset only included those offenses where the offender was arrested and charged with the offense. Any jail or prison time was not listed on the dataset. And, the demographics of the victim of the crime were not listed. Having this information would allow the researcher to see if there was an inter-/intra- sexual or racial relationship between victim and offender of specific crime categories.

- 3) A large amount of data manipulation was done in order to be able to conduct particular tests. The race, gender, month, year, and season of all 34 categories of crime were analyzed. As a result, the researcher had to be very careful to make concrete decisions to all sections of the dataset, including using “unknown” data as a part of the 0 = “No” recode for the crime categories.
- 4) This dataset only contains criminal charges, not criminal convictions. Whereas a conviction determines guilt or innocence, a charge only considers a suspicion that a crime has been committed. As a result, there is an increased potential of bias with a criminal charge comparative to a criminal conviction.
- 5) The crime categories were created based upon Bureau of Justice Statistics results. It is important to recognize that many charges were measured more than once as a result of the description of the charge. For example, if the charge was “ATTEMPT TO OBTAIN DRUGS BY FRAUD,” then the charge would be recoded to Drug = 1 and Fraud = 1 with all other categories being zero.

Nevertheless, this study found that gender and race predict many crime categories in the City of Lynchburg in Virginia from January 2010 to July 2018. Moreover, a seasonal component was found with these predictor variables. These findings suggest a relationship between routine activities theory and general strain theory. While non-whites (and unknowns) were charged more than whites in both property and violent crimes, females (and unknowns) were charged more than males predominantly in property crimes. These findings suggest that the “strain” felt by an individual has an effect on the type of crime that he or she is charged with.

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