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The Geographical Tendencies of Serial Killers in the United States

Charlene Niles
University of Arkansas, Fayetteville

“The Geographical Tendencies of Serial Killers in the United States”

An Honors Thesis submitted in partial fulfillment of the requirements of Honors Studies in Criminal Justice and Sociology

By

Charlene Rae Niles

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Abstract

Law enforcement agencies operate with the belief that serial murder occurs in geographical areas where groups engaging in high-risk lifestyles are prevalent. While such a conclusion does seem logical, it has never been challenged using empirical data. My thesis challenges this assumption through factual analysis. A literature review revealed what other researchers in the field estimate are the reasons behind a serial killer's choice to operate in a given area. Research will be conducted by implementing data from the Radford/Florida Gulf Coast University Serial Killer Database and the United States Census Bureau to examine the geographical patterns of serial murder in North America. Throughout the study, major themes will be identified as the factors that contribute to geographical serial homicide trends. Key groups in the victimology are defined and how they contribute to serial murder patterns is explored. This study focuses on providing factual evidence to support the notion that it is possible to identify what geographical factors are correlated and even predictive of the locale of why serial offenders choose to operate within a preferred geographic area. Future research should focus more precisely on how considerable the impact of a victim's characteristics is on their measure of vulnerability as well as broadening the scope to analyze census data.

Introduction

Before diving into my thesis, I would like to note that all terms used throughout this thesis are common identifiers in the criminal justice field and are not meant to degrade or dehumanize any subject in this study. I have chosen to define several concepts related to murder. These terms are defined by the Federal Bureau of Investigation and stated to be generalizations; therefore, these basic definitions alone cannot account for the entirety of specifications that encompass these actions.

Homicide: The willful (nonnegligent) killing of one human being by another.
Mass Murder: A number of murders (four or more) occurring during the same incident.
Serial Murder: The unlawful killing of two or more victims by the same offender(s), in separate events.
Spree Murder: Someone who kills two or more victims in a short time, in multiple locations.

It has long been suggested that there are serial killing hot spots, locations where serial offenders tend to congregate (see DeFronzo, et al, 2007; and Ellison & Khanna, 2006), but is this true? Serial homicide is dissimilar to other forms of homicide in that the offenders do not usually have a prior relationship with their victims. While a tremendous amount of research has focused on the factors that drive homicide rates in general, there is very little empirical research focused on serial homicide, and specifically, why serial offenders appear to kill in particular areas. It is essential that law enforcement agencies operate on current and accurate data when solving serial crimes, rather than relying on generalizations or anecdotal experiences. Operating on assumptions risks the credibility of these institutions and poses a danger to future victims. Testing these assumptions against nationwide data will give a more precise vision of serial homicide tendencies and help enable our criminal justice system to operate with greater accuracy. With that in mind, I pose the following research question: What geographical factors

are correlated with the locale of serial killing, and is it possible to determine why serial offenders prefer to operate within a geographic area?

Literature Review

A thorough study of the literature involving serial homicide reveals the subject has not been explored in much detail. Research has been conducted on homicides internationally and has yielded beneficial data detailing the trends of this crime. However, not much information on serial killers has been empirically tested, leaving law enforcement agencies in the dark. Studies done regarding serial homicide are not all encompassing. The literature study I conducted found very little research on geographical profiling that focused primarily on serial homicide. I plan to test the assumptions about serial murder throughout America from 1986 to 1995. This review will begin with literature on geographic factors that may influence where serial offenders operate, then the focus will turn to cultural factors and their influence on location choice. Next, it will cover literature that explores other factors said to influence where serial offenders choose victims. Finally, the review will focus on victimology and victim selection.

Geographic Factors

One approach to studying serial crime is using geographic profiling to create homicide patterns using the killers' targets. By examining the murders on both a micro and macro level, researchers are able to gather a more complete picture of the crimes. Rossmo (1987) examined murders in the late 1980's and focused on the homicide location in relation to where the offenders lived. Rossmo explained that, "by establishing patterns in serial murder hunting activity it proved possible to outline, based on an analysis of the locations connected to the crimes, the most probable areas within each killer resided." Rossmo used a criminal geographic targeting model, that he described as a computerized system that produces a "probability

surface" (Rossmo, 1987). Probability surfaces are quite helpful. Studying the relationship between the killer's hunting ground and their residence aids law enforcement by helping them prioritize and organize possible suspects by area and provides information on the offender's probable movement. This area of study focuses primarily on where a killer operates in relation to his or her home and attempts to identify patterns in their behavior. This approach is helpful in individual cases, but my research question is broader. Rather than tracking a specific offender based on the location of crimes, can the characteristics of the location be used to explain why offenders choose the places they do?

While not focused on serial homicide, one researcher did examine neighborhood structure and its relationship to homicide in general. Kubrin (2003) focused on the correlation between homicide levels in a neighborhood structure. She identified trends within neighborhoods in an effort to explain homicide rates in those areas. Resource deprivation, affluence, population structure, and the percentage of divorce are all associated with changes in homicide rates (Kubrin, 2003). Kubrin found that different characteristics of a neighborhood correlate with different types of homicide. Using a growth-curve when studying these relationships allowed researchers to model histories of an individual and to research neighborhood variation in homicide trajectories (Kubrin, 2003). Kubrin asserted that the growth curve differs from that of other research and allows a study to be presented visually over the entire span of time that the study covers. While this study focuses on homicide in general, the premise of the study could be applied to serial murder. These factors will be utilized to the extent possible to determine if there is an impact on serial offenders. Another interesting connection related to Kubrin's study involves the serial killer's need to find suitable victims. The killer's residence affects the mode in which the offender operates (Rossmo, 1987). How close he or she is to the desired victim pool

directly correlates with the probability that they will follow through with their crime, due to the tendency to migrate to those things which are most convenient (Holmes and Holmes, 2010).

Cultural Factors

Because there is little research specific to serial homicide, this review turned to research on homicide in general. Harries (2002) conducted a study of the overall trend of homicides in the United States. Harries focused on "windows" in the past sixty years using census data and found that homicide rates in America are elevated compared to those in other developed countries. According to Harries, the trends indicate that rates in the South, especially in Alabama and Georgia, remained higher than other regions. This can largely be explained by the culture of the South and how the ideals in this part of the country differ from those in more Northern regions. Specifically, Harries maintained that there is more acceptance of violent behavior to settle disputes in the South, which results in more instances of homicide. While serial killers account for a small portion of the overall homicide rate, and their significance could only partially be explained by the culture of their environment, prior research does suggest that serial killing rates tend to follow overall murder rates in the Unites States, increasing in frequency when murder rates increase (Holmes and Holmes, 2010). While that research examined rates on a national scale, it might be possible that the same factors that are correlated to serial murder rates in certain geographical areas.

Other Factors

Homicide has also been studied by examining social context along with geographic patterns. Cubbin (2000) used national crime statistics, surveys, and death certificate information in order to gather data on homicides. Cubbin gathered an extensive amount of information, making it possible to identify hard data and describe geographic patterns, however, it proved

more difficult to pinpoint the social and economic conditions that could have an impact on homicide rates. Cubbin found that the level of urbanization was the leading predictor in homicides. The findings also suggested that income inequality was a huge factor in the level of homicides in an area. Cubbin reported that the greater the disparity between income of residents, the higher the homicide rates were. According to the author, the focus on several small areas, rather than entire regions, gave the study more detailed information to compare (Cubbin, 2000). This is important, as Holmes and Holmes (2010) have suggested that serial offenders are likewise attracted to areas of urban decay, poverty, homelessness, and areas of vagrancy and prostitution. The overall findings suggested that there is a greater chance of homicide in areas with adverse socioeconomic conditions.

The mobility of an offender is an important component of serial homicide (Lammers 2013). Rossmo (1987) spent considerable energy developing geographical profiling models which recognized that a majority (80%) of serial offenders tend to hunt for victims around their residence. Canter and Shook (2002) referred to these offenders as *marauders* – offenders who are psychologically limited to pursuing victims in a geographic area around where they live. Canter and Shook also discussed *commuters*, offenders who were more comfortable traveling to areas well beyond their residence. These offenders represented just 16% of the sample they tested and were considered geographically diverse. Many researchers (for example, Holmes and Holmes, 2010; Cantor and Shook, 2002; Rossmo, 1987) suggest that geographical dispersion over several police regions enables the offender to operate more freely and avoid suspicion in the areas where his or her crimes have occurred (e.g. Ted Bundy).

Sequential angulation is another factor defined as the degree of rotational movement around the home of the offender from one offense to the next (Goodwill and Alison, 2005). It

was revealed that serial murderers have higher angulation scores than rapists or burglars, meaning their offenses are more evenly distributed in a given area. Serial homicide accounts for only a minute portion of overall homicide rates in the United States, but these trends should be measurable. The structure of neighborhoods is a strong factor for determining homicide in general (Kubrin, 2003). As mentioned above, characteristics such as resource deprivation and affluence correlate with different types of murder, but Kubrin's (2003) exploratory study made another noteworthy discovery. She compared the victims of serial and single homicide offenses and found that serial homicide offenders target women more often than men and kill strangers rather than family or friends. Kubrin found that while single homicide offenders kill men and women in equal frequency, they kill family and friends more often than strangers. Victim selection and the nature of the geographic area in which victims are targeted are tied together for the serial offender (Holmes and Holmes, 2010), and turns our focus to victimology.

Victimology

The literature suggests that victimology is the largest factor influencing serial murder. Offenders who have an ideal victim type, tend to target victims who can fulfill their psychological needs and simultaneously pick victims who are easy "to access" in order to avoid capture (Douglas, 1995; Holmes and Holmes, 2012). Populations engaging in high-risk lifestyles were acknowledged to be the most prominent source of victims. Such factions of society are described as the destitute or itinerant and include prostitutes, runaways, and the homeless (Rossmo). The choice of victims contributes to the perception that the majority of serial murderers prey on strangers, or those whom they have had minuscule contact with (FBI). It is important to note that Serialists' choice of strangers does not mean victimology is random. In fact, is it anything but. According to Holmes and Holmes (2012) the Serialist may not choose a

victim they personally know, but most choose victims based on specific physical attributes, the ease the Serialist can gain control of the victims, and the Serialist's estimates of whether the victim will be missed. This suggests that geographic regions with large populations of high-risk victims would be particularly attractive to serial offenders.

Methodology

As previously mentioned, this project seeks to identify factors that are correlated with the location of serial killing, and if possible, determine whether any factors studied might help predict why serial offenders choose to operate within a preferred geographic area. To answer this question, I will use the Radford/Florida Gulf Coast University Serial Killer Database (SKD). Initiated in 1992, SKD forms the largest non-governmental serial murderer database in the world. The data set contains 5,630 subjects, comprised of serial killers, spree killers, and mass murderers. The database includes 14,773 victim profiles with over 185 variables per subject, including background information, victim preferences, and elements of the crimes. Dr. Michael G. Aamodt authorized access to SKD in support of further academic research. The factors discussed in the literature review suggest that empirically testing these components will also require using data from the United States Census Bureau. The United States Census Bureau is an agency of the United States Federal Statistical System that is responsible for producing data about the American people and the economy. Social Explorer, a website that allows users to create thematic maps using hundreds of variables from the United States Census, was used to aid in fleshing out this information. I used Microsoft Excel to perform my analyses, including calculations, organizing data points, and creating pivot tables to identify trends among the offenders and where they operated. I created reference maps using the American interactive data visualization software company, Tabluea Software.

Initial data from SKD included information about serial killers from all over the world across three centuries. I chose to analyze killers who operated in the 1990s, and therefore used 1990 census data to pull demographics and statistics from that time period. To ensure the parameters I set for analysis most accurately depicted that of the 1990 census, I narrowed the data down to serial killers who operated in the United States from 1986 to 1995. I decided to solely use 1990 census data in order to have a manageable sample to work with, as well as establish a base for other researchers. The SKD data in the 1990s was quite robust and promised to provide a healthy sample for analyses. After selecting the SKD data from 1986 to 1995, further filtering of the data meant disregarding any offenders who were *suspected, self-proclaimed*, or simply *accused* of serial crime. Instead, I included offenders with confirmed murders, as this focused on confirmed killers, who also happened to have been convicted of their crimes in a court of law. Those who operated as a *team* or part of a *gang* were discarded due to the distinct nature of both team and gang dynamics and how much they differ from a single offender operating in an area. Additionally, *commuters* were struck from the data to maintain the focus on those offenders who operated in one geographical area. The reason was twofold. First, the factors being analyzed rely on geographic stability of the offender. Second, commuters are rare among Serialists.

The original goal was to use information at the city level, but due to lack of data, I instead focused on counties. The geographical areas where offenders in my sample operated were narrowed to specific counties. For each county, Social Explorer provided United States Census data for *population, population density per square mile, the unemployment rate for the total population over 16 years and over*, and *the poverty status in 1989 for the 18- to 64-year-old population*. I used a number of variables for each offender (e.g. *type of killer, sex, race, location*

of kills, *the date of the first homicide*, and *occupation*). I also used variables related to the geographic region (*state*, *county*, *population*,) and variables that measured those attributes identified in the literature (*poverty rate*, *unemployment rate*, *national poverty and unemployment rates).* I performed descriptive statistics and frequency distributions to develop an overall picture of the data. Then I performed pivot tables to determine whether there were any trends in the data. Additionally, I mapped the data to aid in visualization.

Findings

My final sample consisted of 175 killers (1986 to 1995). The offenders identified in my 10-year sample killed in just a fraction of the 3,006 U.S. counties – 97 counties found across 30 states. The sample included 163 male offenders and 12 female offenders. On a limited number of the offenders, the sample included data on *marital status*. There was also a significant amount of information on the victims including their *sex*, *race*, and *occupation*. Figure 1 highlights states in red where these offenders were operating. Figure 2 marks the counties where offenders killed using red dots.

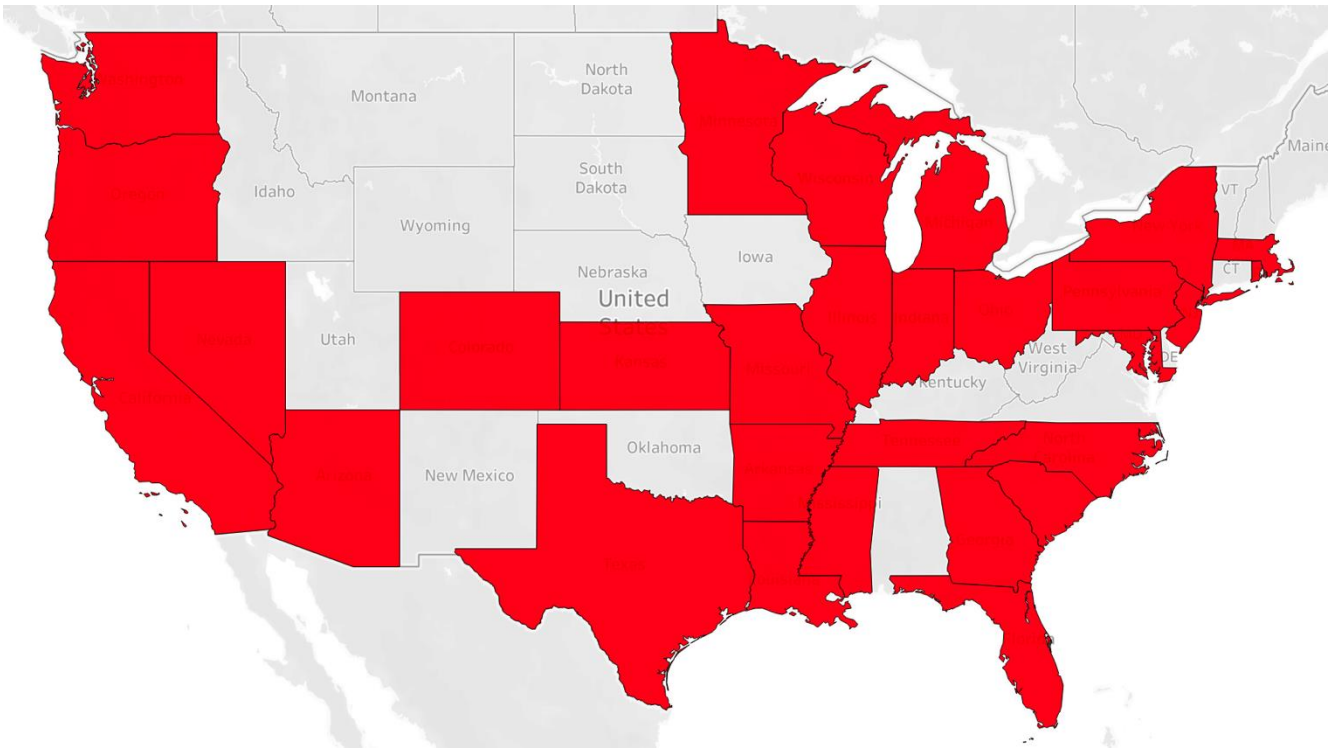

Figure 1

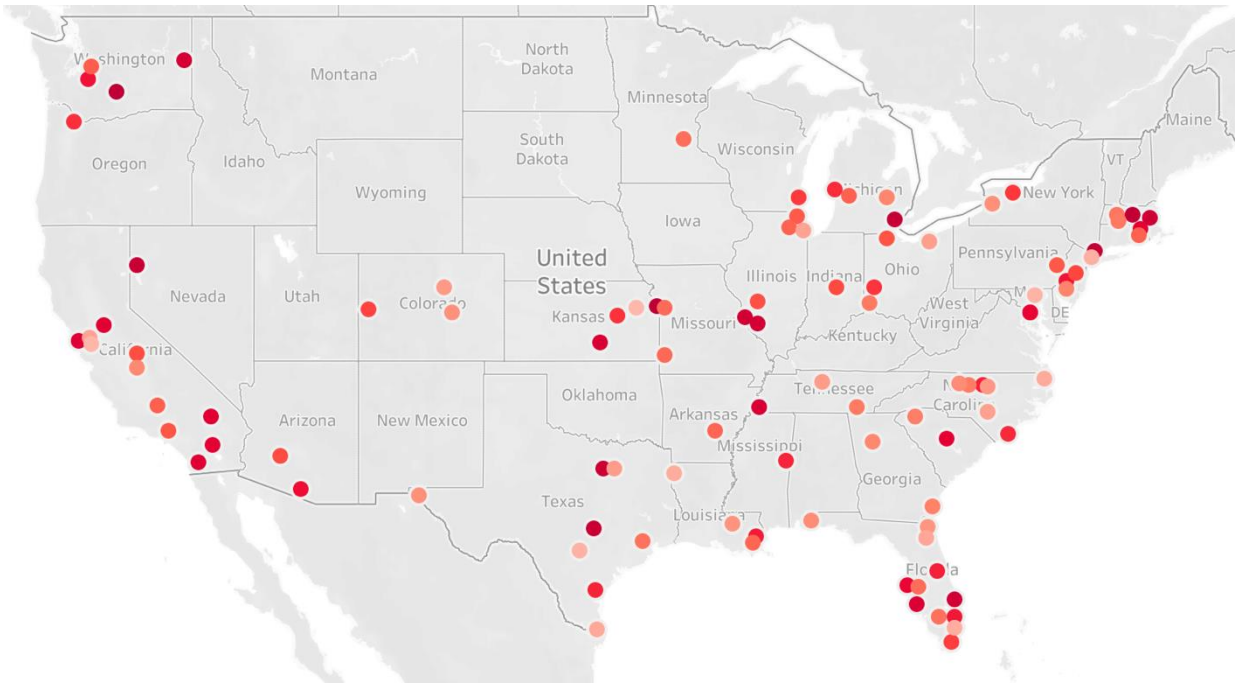

Figure 2

The mobility of an offender was an environmental factor identified in the literature, suggesting that the more mobile the offender, the more successful that offender would be.

Testing the mobility of the offenders in this sample was pertinent to determine whether this factor made it easier for them to kill. To accomplish this, I examined the 64 offenders who had job data available. The killers' occupations were separated and coded into five groups: *unemployed*, *driver* (to exclude long-haul truck drivers operating in multiple cities), *construction/factory*, *technician* (in-house access), *criminal*, and *other*. The occupations that gave greater freedom to offenders were focused on in this assessment of environmental aspects. 12 of the offenders were *unemployed*, 7 were *drivers*, 12 were *technicians (in-house access)*, 2 were *criminals*, and 31 fell into the *other* category. Figure 7 shows the breakdown of these offenders' occupations. Just over half (51.56%) of killers in this sample had occupations that offered them freedom and mobility in the area they worked in.

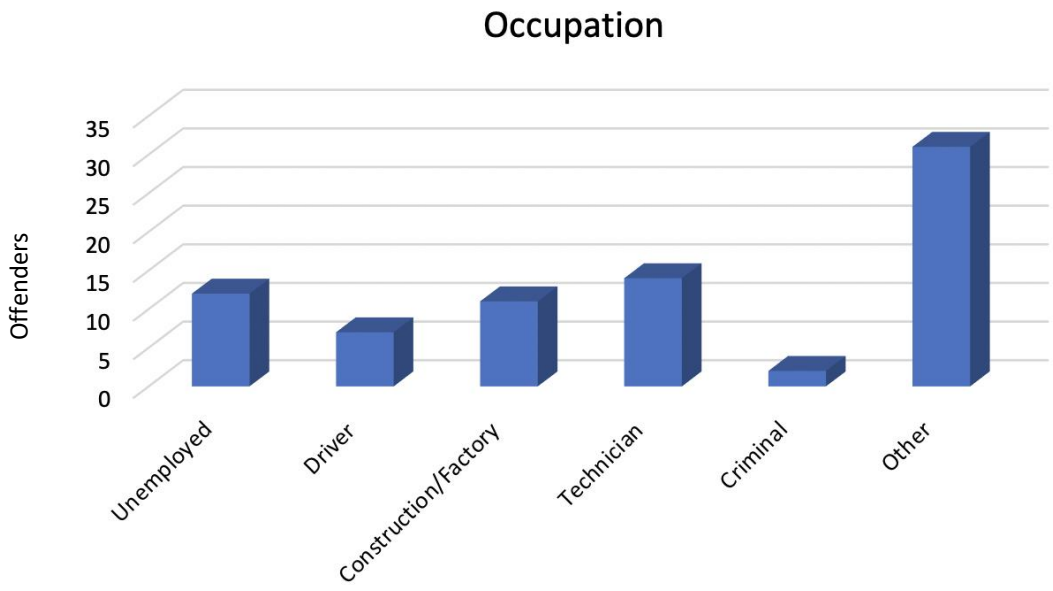

Figure 7

To further assess an offender's mobility within their environment, his or her marital status was taken into account. From the 64-person sample used for the occupation assessment, 49 provided information about their marital status. For the purposes of this assessment, I simply

determined whether or not the offender was married at the time of the murders. 71.43% of this sample were not married during the time they operated as a serial killer. 35 of the 49 offenders were not married, leaving 14 who were married while getting their start as serial killers.

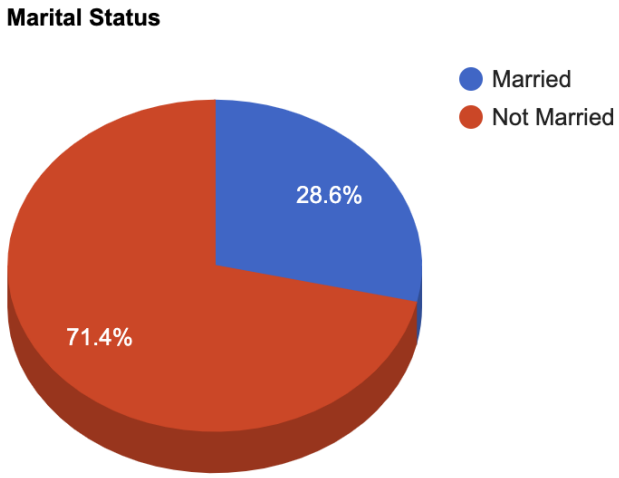

Figure 8

Recall that the literature suggests neighborhood demographics may impact the rates of serial homicide. In order to assess whether these demographics affect the serial homicide rate, I analyzed poverty and unemployment rates for each of the 97 counties using Social Explorer. I compared those percentages to the national rate of poverty and unemployment rates according the 1990 census using a pivot table in Excel. Figure 3 shows each county's poverty rates according to the 1990 census. I found that 54 of the 97 counties suffered poverty rates at or above the national average of 11% in 1990, while 43 of the counties being studied fell below the national poverty rate. These findings provide weak support for the proposition that the poverty rates of an area are associated with serial crime locations. My analysis of unemployment rates was similar. See Figure 4. To examine the unemployment rate across counties, I ran a pivot table

and found that 58% of the 97 counties had unemployment rates at or above the national unemployment rate (6.3% in 1990). Only 42.27% of the counties where a serial homicide took place had unemployment rates below the national rate.

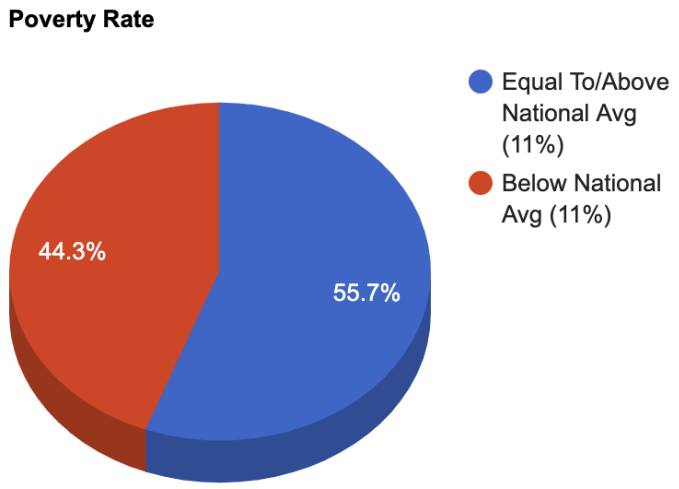

Figure 3

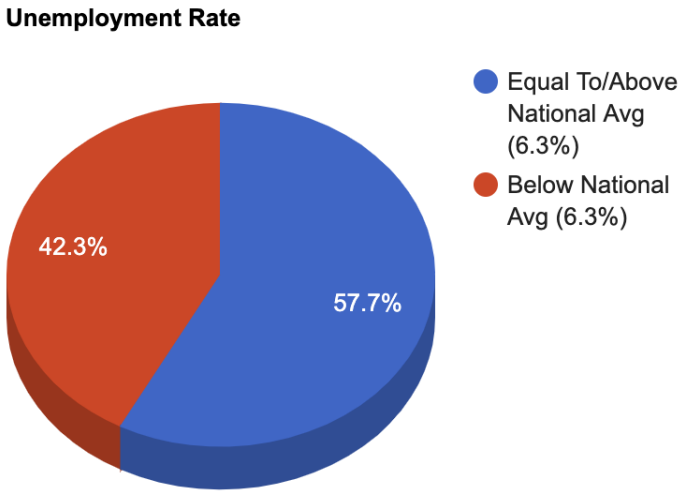

Figure 4

It has been suggested by many professionals in the criminal justice field that in most cases of serial murder, offenders hunt and kill within their own race (for example, see Douglas 1995, Holmes and Holmes, 2012). To test this, I analyzed *the race of the offender* against the race of their victims. Of the 175 killers in this study, 15 contained no data on their race. The remaining 160 subjects were coded and separated into the categories: *White*, *Black*, *Hispanic*, *Asian*, *Native American*, and *Aboriginal*. The results did not support the proposition that serial offenders most often hunt within their own racial group. The data examined in this study showed that serial killers were only 50% likely to kill within their own racial group. Exactly half of the sample (that I could analyze) were the same race as their victims. See Figure 5.

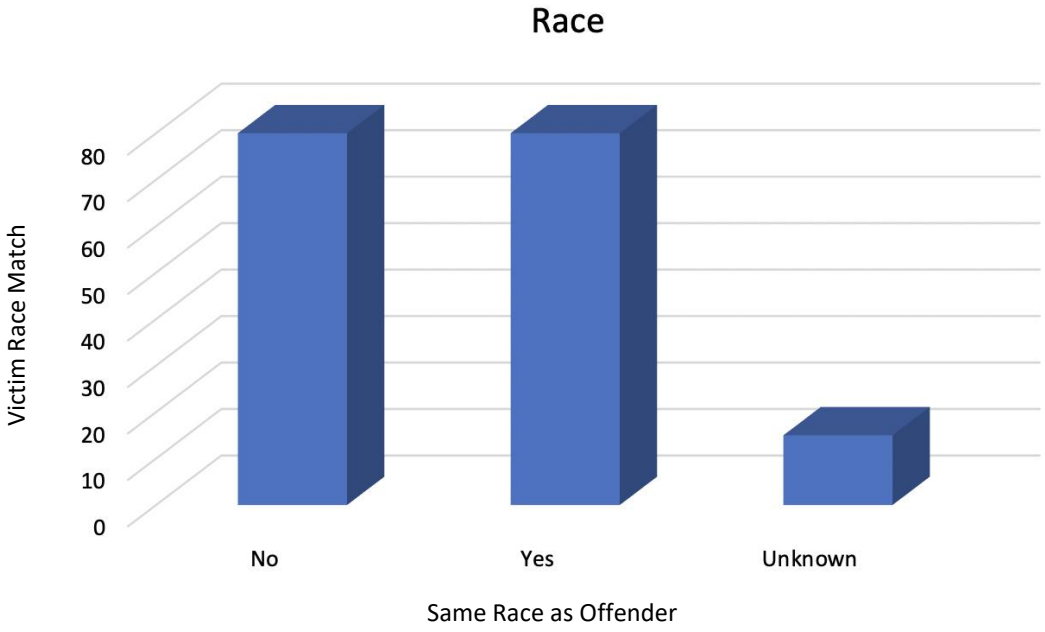

Figure 5

The literature suggested that homicide rates tend to be higher in more urbanized areas, and there was anecdotal speculation that serial offenders would similarly operate in more urban areas. Population density for each of the 97 counties was extracted from Social Explorer and compared to the national average of 70.3 people per square mile (Social Explorer: Census 1990).

The findings generally support the proposition, as 96.6% of the counties have population densities greater than that of the national average. Only 3.4% of the 97 counties in my sample had a population density of less than 70.3 people per square mile. See Figure 6.

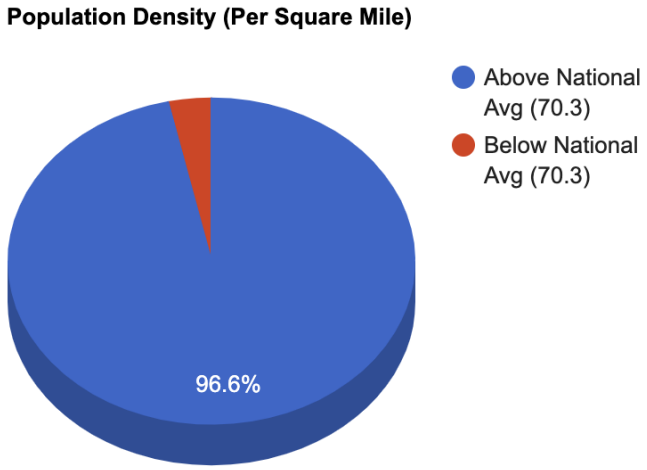

Figure 6

Victimology is believed to be the most important factor in a serial killer's decision to commit multiple murders. It is generally accepted that most victims come from a sub-section of society that engages in high-risk lifestyles. The victim types in the Radford/Florida Gulf Coast University Serial Killer Database are broken down into six categories: *street people, hitchhikers, Johns/sexual encounters, patients/wards, employees/customers, and family*. There were data on 161 of the original 175 offenders detailing what type of victims they killed. For this study, I focused on the victim subcategories that engage in high-risk lifestyles. Of the 161 offenders' victims, 13.3% were *female prostitutes*, 1.9% were *criminals*, and 17.4% fell into *multiple victim types* (this could include female prostitutes and/or criminals). 15.2% of the victims in this sample fall into high-risk lifestyles. While the details of the *multiple victim types* are unknown, there is

potential for 32.6% of the victims during the period between 1986 and 1995 to have been participating in actions that contribute to a high-risk lifestyle.

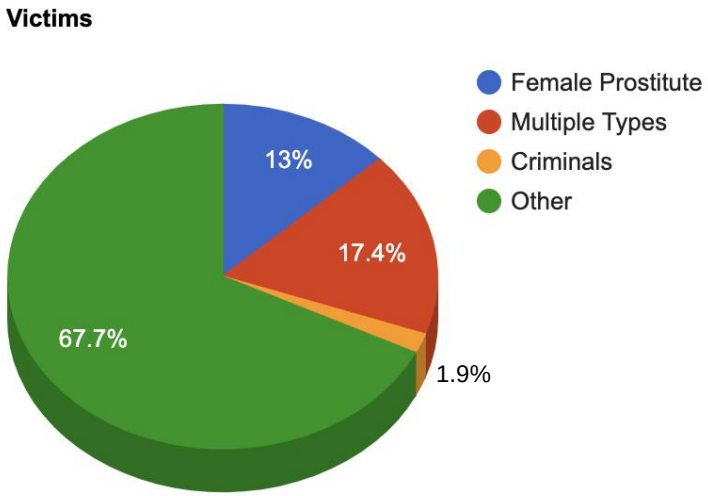

Figure 9

Discussion

The findings from this study have helped provide some answers to my research question. Some factors appear to be strongly correlated to where serial killers operate within the United States. The factors may be important in future studies on serial offenders' habits and movement as they kill. The scope of the project was primarily focused on whether factors identified in the literature were empirically relevant. First, it was important to understand a little about the killers analyzed in this study in order to put the other factors in context. Environmental factors such as the offender's occupation are a key to understand how the individual operates in his or her community. It is from these factors that the other components of the study make sense. The mobility of a serial killer is a component that contributes to their ability to traverse the area in which they live and work in. 51.56% of the 64 offenders who were studied had jobs that did not

isolate them in one place for the majority of their workday. The 12 unemployed and 2 criminal offenders had the most autonomy on how they spent their days. 7 Serialists were drivers, who had freedom during the day to explore hunting grounds and prowl for victims. Their occupations allowed them to cover a substantial amount of ground in the community compared to those isolated in fixed workstations. 12 Serialists were technicians who were able to enter properties and houses to do their jobs, giving them unique access to potential victims' homes.

Marital status was also measured. I had data on just 49 offenders, of which 35 (71.34%) were single when they carried out their homicides. While this smaller sample size was limited due to lack of data, it still provides an interesting finding. A large majority of the killers were not married, suggesting that marriage might create a barrier to operating as a serial killer. The ability to operate freely and in secret is an essential part being a serial killer and the factors discussed can greatly impact how this individual operates in a localized area. With that context, we turn to the rest of the findings.

Neighborhood demographics were the next set of factors that I examined. The literature suggests that areas of poverty suffer higher serial homicide rates because economic instability creates a large pool of potential victims. The finding supported this suggestion. 56% of the counties where a serial homicide took place suffered poverty rates at or higher than the national average. These 54 counties were at or above an 11% poverty rate suggesting a greater likelihood of the populace having fewer resources. Fewer opportunities for the inhabitants most likely lead to an increase of crime rates in that area, and may contribute to a larger victim pool for serial behavior.

Similarly, the unemployment rate for the majority of the 97 counties studied was also higher than the national rate. 58% of the counties had an unemployment rate equal to or above

the national average of 6.3%. With more than half of the counties falling into the category of both higher poverty and unemployment, there is some support for the literature that suggests neighborhood factors may play a role in where serial offenders tend to hunt. The higher the unemployment rate, the higher the chance that members of those counties will resort to criminal activity in order to survive, and high-risk activities may increase the victim pool for serial offenders.

Both the unemployment rate and the poverty rate are higher than the national rate in a majority of the counties in this study. This supports the notion that there are aspects about these areas that produce serial killer statistics. Future studies could perform more sophisticated multivariate analyses to determine how these factors influence where offenders choose to offend.

The racial makeup of a serial killer's victim pool is assumed to match that of the Serialist, and FBI profilers often report that as fact (see Douglas, 1995; Ressler, 1992). The literature review in this study did not reveal that this has been empirically tested, and my results indicate that there is little support for this notion. By studying the sample of 160 offender cases in which racial data was available, I observed that only half of the offenders killed within their own racial group. Although this is a smaller sample isolated to one span of time, this finding is still significant. The overwhelming assumption by those who study serial killers, and by those who publish anecdotal accounts of profiling, claim that in most cases the victim falls within the same racial group as him or her. The data here suggests that the race of the victim is not a compelling indicator. This is especially important to those who are working on serial homicide cases. Although detectives are trained to be objective and not assume the unknown, they also operate on their own and others' past experiences. Indeed, Petherick (2005) warns that serial profilers are often given too much credibility based on their presumed expertise, and even points to how the

DC Sniper investigation was led astray by an FBI profiler on the very issue of race. These results can aid in promoting the factual data from different eras in order to equip our law enforcement agencies with the most accurate depiction of how serial murderers operate and who they choose to kill.

Location is clearly very important. There are more than 3,000 counties in the USA, yet during a 10-year time period, Serialists were only active in 97. One of the more important factors in this study is population density. Population density is a geographic factor that provides context for the areas in which an offender is operating. In the 97 counties studied, less that 4% had smaller population densities as compared to the national average. The vast majority of Serialists killed their victims in counties with a density above 70.3 people per square mile. Serial killers do not typically target people they know, and the literature suggests that they prefer the kind of victims they can readily find and easily isolate. That means serial killers tend to appear in areas in which the population is closer together, poorer, and engaging in high-risk activities. Areas like this would provide a killer with greater camouflage when hunting, a greater number of potential victims, and offer more success at gaining control over his or her victims. Population density would appear to be a factor that contributes to where serial killers tend to operate in America.

Victimology accounts for several of the factors that offenders consider before killing. It is generally accepted to that a large portion of victims are targeted due to their high-risk lifestyles, therefore it would be assumed that a majority of a serial killer's victims would fall into this category. The 161-offender sample produced results that did not support this assumption. At most, only 15.2% of the victims engaged in high-risk lifestyles. The majority of the victims from 1986 to 1995 were actually rather ordinary citizens. The scope of this finding is narrow;

however, it is significant that it produced a result opposite to what is generally assumed by law enforcement.

The factors I have discussed are all key components of what results in a serial killer choosing to operate in a given location. This study focused more on geographical and environmental tendencies of offenders rather than their victim patterns. My research question asked if it was possible to identify what factors are correlated with the locale of serial killing, or if it were possible to predict why serial offenders choose to operate within a preferred geographic area. I framed the project by looking first at the offender's mobility factors, offender *occupation* and *marital status*, and discussed how those factors might have affected how much freedom the killer had to move about his or her local area. I then included several factors identified in the literature as important and discussed whether they contributed to the geographical tendencies of serial killers. The environmental factors, *poverty rates*, *unemployment rates*, and *population density,* were weak indicators, suggesting that offenders may come in contact with victims that have high-risk lifestyles. Finally, the victimology factors, the victim's *race* compared to that of that offender, and what *victim type* the offender targeted gave insight that there is more to a killer's preferences that simply the "right" victim.

Conclusion

This study focused on United States based offenders who began their serial homicide career between the years of 1986 and 1995. A comprehensive literature review revealed that while empirical data exists for different aspects of serial homicide, there are significant gaps in the research when it comes the geographical factors. Using the Radford/Florida Gulf Coast University Serial Killer Database and 1990 census data through Social Explorer, I was able to analyze key factors in 175 Serialists operating 97 different counties.

Community factors such as the poverty and unemployment rates were shown to be higher than the national average in a majority of the areas studied. This study found no support for the assumption that offenders target victims that have the same racial makeup as they do. The data revealed that victims were targeted at the same rate whether or not they belong to them same race as their killer. Population density was also a key factor in determining where offenders operated within the United States and may be the strongest determinant. Almost all of the counties studied had greater population densities than the national average, indicating that serial killers were more likely to kill in highly populated areas in and around the 1990s. An offender's heightened mobility was also found to be a key influence on whether or not they followed through with their murders. Introducing the marriage factor also impacted the offender's ability to traverse the localized area as it likely hindered their freedom. The type of victims that offenders murdered ranged greatly between a majority of regular people on the street to a minority being engaged in high-risk activity.

This thesis focused on offenders who started committing murders between 1986 and 1995. The results found have potential to be unique to the 1990s census era. The investigation revealed that the different aspects of a killer's location are predictive of where serial killers operate. Several environmental, mobility, and victimology factors contributed to the reasons for which killers operate in a certain geographical area. There is certainly more to a serial offender's preferences than solely the type of victim they desire.

Future studies on this topic should conduct an analysis spanning multiple decades in order to discover if the empirical findings from this study span further than what is included in the 1990 census. There were holes in this study's data that could be filled with extensive supplemental research. This study took a broader approach to solely analyze different counties in

order to attempt to find connections between greater sized areas. Future research should take a deeper dive into neighborhood factors within the specific cities using census data. Crime data should also be analyzed in conjunction with the geographical factors in this study. There was a gap in sociological research that leaves an opening to study the social aspects of our culture more in-depth to discover how these factors affect the way serial killers operate. This thesis purposefully veered away from studying the victimology aspect in depth in order to focus on geographic factors, however, supplemental studies should take into account all factors equally to create a more comprehensive view of the offender's tendencies. Future research could supplement this study by identifying factors not explored in this study.

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