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Family Mass Homicide: An Investigation

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FAMILY MASS HOMICIDE: AN INVESTIGATION

by

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ABSTRACT

Operationalizing mass murder consistently has yet to be achieved. Mass homicide definitions often use time and space, but other key factors (e.g., victim count) vary widely across literature and agencies. Because of this, the current study argues for a mass family homicide definition of two or more victims, not including the offender, with no method of killing requirement. The purpose of using this victim count derives from the average family size and how many victims can be killed before an entire family annihilation. Next, using the suggested definition, three exploratory logistic regression models were run to further the understanding and achieve consistency on a topic of research that is underexplored, given its relatively large occurrence. Each model uses SHR data from 2010 to 2016.

The first model determined significant characteristics associated with family mass homicide. Findings lend support that two or more victim family mass homicide does have significant and important results. The second model compared two victim family mass homicide with three or more victims to try and determine if the suggested definition is significantly different than a standard definition from the FBI. Though the current study does not find support for this, future studies should continue to assess different victim counts using different data and methods. Finally, model three assessed characteristic differences between family mass murder with primary minor victims compared to family mass homicide with primary adult victims. This is important because minors are a unique subgroup in family violence that may play a significant role. Significance was found that suggests further studies continue to assess the unique role of child victims in family mass homicide. It is important to note that the current study is an initial

exploration into a topic previously understudied that warrants further research to help establish

proper and consistent findings for comparison.

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CHAPTER 1: INTRODUCTION

The conceptualization of mass murder[1] has been a topic of debate for some time. Yet there is still little agreement among researchers, officials, and those who work in applied sectors (Smart, 2018). The idea that a mass homicide event can be similar temporally and spatially has received some support (Johns et al., 2010), but there are also bifurcated incidents (Hickey, 2013). Outside some agreement regarding space and time, consensus varies considerably regarding a variety of different factors related to mass homicide events, including the number of victims (two or more, three or more, four or more). Additionally, mass murder definitions fail to include all types of crime. The National Center for Victims of Crime (2018) indicates that the Federal Bureau of Investigation (FBI) does not include family occurrences within their definitions, even if the defined victim count of three or four is met. This occurs even though research has shown that mass homicides are most common within the family context as family members are both victims and perpetrators (Abolarin, McLafferty, Carmichael, & Velopulos, 2019; Duwe, 2004; Lankford, 2015, 2016; Taylor, 2018), and mass murders have increased in both the number of cases and the number of deaths in recent years (Krouse and Richardson, 2015).

Due to a lack of consistent conceptualization, research tends to be scattered across multiple domains, including familicide, mass homicide, and family annihilation, among others. Additionally, because family killings are excluded from definitions of mass homicides, real standards do not exists for its evaluation, which makes evaluation and assessment nearly

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[1] Murder and homicide will be used interchangeably.

impossible. A standard definition is essential in order to create a better understanding regarding mass family homicide and generate more comprehensive contributions to research and policies.

For the current study, the definition used for family mass homicide has a victim count of two or more, not including the offender. Currently, the FBI's definition for a mass event is three or more victims, excluding the offender (ALERRT & Federal Bureau of Investigation, 2018; Federal Bureau of Investigation, 2016). A reason for dropping the minimum number from three to two is that the average family household size was 3.14 in 2018 (United States Census Bureau, 2018), which means that on average, there can only be two victims (minus the perpetrator) and the entire family is destroyed. Furthermore, studies have shown that the most common victim count in family homicides is two when excluding single incidents (Finkelhor & Ormrod, 2001; Tosini, 2017), with an average familicide victim count between 2.3 and 2.81 (Liem, Levin, Holland, & Fox, 2013; Tosini, 2017). The majority of the time, the two victims are a child/adolescent and an adult (Finkelhor & Ormrod, 2001). This suggests that using a definition of three or more victims, excluding the offender, would result in many family mass murders not being included, as research has shown most familicides include the death of the intimate partner and the child(ren) present (Liem et al., 2013).

The fact that many of the victims of multiple family homicide tend to be a child or adolescent (Finkelhor & Ormrod, 2001) creates a path for a tertiary analysis involving the characteristics of the child victim of a two-plus victim family mass homicide. This is important because homicide against a child is the apex of child violence in the United States (Stockl, Dekel, Morris-Gehring, Watts, & Abrahams, 2017). It is also important to consider the characteristics of child victims in family mass homicide because the minors, in these

circumstances, often produce differing offender motivations such as retaliation against the adult victim or violence against the child's behavior (Cavanagh, Dobash, & Dobash, 2007). In this way, the children in the offense represent a unique group of victims who may produce unique characteristics associated with family mass homicide.

The literature surrounding the topics of mass murder and different types of family homicide have examined variables that include, but are not limited to, victim and offender demographics, method of killing, and victim-offender relationship (see Duwe, 2004; Fridel, 2017; Lankford, 2015, 2016). Within the literature on multiple family homicide, consistency has been found regarding weapon use and victim and offender gender and age. Generally, family homicides have victims who are females (Fridel, 2017; Liem et al., 2013; Tosini, 2017), and the offenders who are most often male (Abolarin et al., 2019; Liem & Koenraadt, 2008b; Liem et al., 2013). Literature surrounding the age of a victim and offender of family homicides is also generally consistent, showing mid to late thirties (Fridel, 2017; Krouse & Richardson, 2015; Liem & Koenraadt, 2008b). Perpetrators of family and mass homicides choose a firearm most often to kill their victims (Duwe, 2004; Fridel, 2017; Krouse & Richardson, 2015; Lankford, 2015; Taylor, 2018).

However, literature regarding the victim and offender's race and the victim-offender relationship is either inconsistent or lacking depth. Additionally, the majority of the literature is not studied under the realm of family mass homicide. Instead, it is either studied through different types of family homicide or as the general topic of mass homicide.

The current study is an exploration into these, and other demographic and contextual factors associated with family mass homicide. This exploration will be accomplished first

through the lens of a suggested definition of two or more victims. The next goal of the current research is to answer what the characteristics are of a family mass homicide, using the new definition of two or more victims. Therefore, the main model examines the effects of offender and victim age, race, sex, victim-offender relationship, method of killing, and geographical region of the event on family mass homicides with two victims. A secondary model comparing two or more victims to a standard definition provided by the FBI, three or more, will accompany the primary model as a way to compare and contrast potential similarities and differences among the standard and new numerical definition.

Lastly, the second research question will examine how the factors vary for family mass homicide with minor primary victims (under the age of 18) and family mass homicide with adult primary victims. The importance of this question stems from the dynamic role children play in the family unit. To accomplish these exploratory tasks, the current study uses the Supplementary Homicide Reports (SHR) for seven years: 2010 through 2016. The overall goal is to produce a potential new standard and bring awareness to a major subset of mass murder that is under-researched due to a preoccupation with the public mass murder events.

CHAPTER 2: MASS HOMICIDE DEFINITIONS

<u>Definitional Issues</u>

Before examining what previous research has done regarding mass family homicide and child victims of mass family homicide, it is essential to start with the definitional issues. First, it is important to note that mass homicide is studied under varying victim count definitions. Multiple family homicide is studied most often under the terms familicide, filicide, family mass homicide, or IPH. This is because multiple family homicide has not been, to date, studied under the singular heading of family mass homicide. What makes any occurrence of homicide a mass event has been debated for some time and still does not have a generally agreed upon consensus (Huff-Corzine & Corzine, 2020; Smart, 2018). Additionally, Smart (2018) goes a step further to point out that, in many ways, a mass event has yet to receive its own distinction from the government as its own type of crime. The issue with not having a commonly agreed upon definition, especially considering victim number, is that research findings will be unable to be consistently viewed together and compared for a better understanding of the subject matter. Without solid definitional agreement, there are also reliability issues that come up across research. Therefore, any potential benefit either through future research or policy, for example, will preclude researchers from being able to come to reliable conclusions due to the lack of consistent data.

Differing definitions of similar phenomena, mass events, produce a situation where findings vary (Krouse & Richardson, 2015) and this variation may be artificially produced and

influenced simply by an inconsistent victim count. For example, what is now considered the old definition for a mass event by the FBI, included a need for four or more victims where the offender was not a victim, and the event took place within 24 hours and at the same or close location (Johns et al., 2010). The former definition from the FBI changed in 2012, and now mass homicide is defined as an event with three or more victims not including the offender and across similar time and place in a public place that does not include family members (ALERRT & Federal Bureau of Investigation, 2018; Federal Bureau of Investigation, 2016). Regardless of the different requirements for a specific number of victims used in the definition of a mass killing, certain types of crimes have been argued to either not be included or listed as separate (Smart, 2018).

The FBI, for example, does not include gang homicide, drug homicide, or family homicide in their definition, even if the total number of victims needed to fit the definition of mass killings is present (The National Center for Victims of Crime, 2018). The focus for the FBI's definition is mostly in the public sphere, including the workplace and schools, for example (ALERRT & Federal Bureau of Investigation, 2018; Federal Bureau of Investigation, 2016).

This change was not due to the FBI's goal of creating a standard definition that more parties would agree with. It was also not a change made by examining data to determine how the events and characteristics varied from four victims to three victims. Rather, the change in definition that occurred in 2012 for mass killings was created to enable the FBI and other government agencies to provide help and become involved in cases with three victims, but only for mass homicides that occurred in public places (Federal Bureau of Investigation, 2016). As noted by the Federal Bureau of Investigation (2016), this change in definition was a response to

the Sandy Hook shootings, which would allow local law enforcement to mobilize quicker. Even before the new definition of three victims, the FBI's four victim definition for mass homicide was not meant to aid researchers in their goals involving collecting and analyzing data (Ressler, Burgess, & Douglas, 1988). The problem for researcher's pre-shift and post-shift with the FBI's definitions is that neither standard solved the definitional issues still present throughout the literature today.

Though a wide variety of definitions for mass homicide exist, the movement from the old definition to the new definition for mass killings, according to the FBI, is important to consider because many researchers default to one of those two standards for their research (Krouse & Richardson, 2015; Smart, 2018). Merely decreasing the number of victims from four to three creates more cases, but, in turn, it also may mean factors, such as the method of killing, look different between these two standards. This may be the case simply because a four or more victim count cut off may be significantly different or a special case compared to another minimum victim count in some way.

Interestingly though, the definitional ambiguity, for research purposes, does not end with the number of total victims or the type of victim. For many definitions that exist, whether from the FBI or another source, there are additional requirements. For example, when referring to a mass event, most definitions and data stipulate the event to include a firearm, making it a mass shooting (The National Center for Victims of Crime, 2018). Additionally, the National Center for Victims of Crime (2018) notes that the FBI specifically most often refers to these events as an active shooter. This is also seen in many of the FBI's resources on mass events (see ALERRT & Federal Bureau of Investigation, 2018; Federal Bureau of Investigation, 2016). Similarly, the

definition used by the Congressional Research Service (CRS) is also focused mostly on mass

shootings, specifically with four or more victims of a firearm in similar time and space (The

National Center for Victims of Crime, 2018). The problem with the limiting nature of all these

definitions is that now not only is it not a mass homicide if the specific victim threshold is not

met, but many times victims will not be counted if a firearm was not their method of death

(Smart, 2018). Additionally, Smart (2018) notes that because of this, when one of the two FBI

standards is not used by researchers, some other alternative is chosen. The problem with using an

alternative approach is similar to defaulting to the FBI definitions. There is no consistency that

exists for a continued and better understanding of all types of mass homicide, including family

mass homicide.

Though mass homicides that occur in the family setting are different than the public cases

most often considered, the point is that these phenomena are not included. What this means is

that the arbitrary victim count present in definitions geared toward public mass homicide may

not be appropriate for family mass homicide, for example. What is interesting to note is that

though family mass homicide is not included in many definitions, including the FBI's, it occurs

at a much higher rate than public events given the same victim definitional parameters, even

when limiting the definition to only shootings (Krouse & Richardson, 2015).

Definitional Impact

The most important question to ask after "Why do these definitional issues matter?" is

"How do these definitional issues impact research results?" The definitions adopted by

researchers range from extremely restrictive to very broad. Both of these scenarios create issues.

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Research that uses a restrictive definition is more specifically operationalized but fails to include potential key pieces of information (Smart, 2018). As noted above, this means that the focus may be on the public sphere, and family mass homicide would not be included (ALERRT & Federal Bureau of Investigation, 2018; Federal Bureau of Investigation, 2016; The National Center for Victims of Crime, 2018). Examples of what is meant by the public sphere include places where people work, attend school, attend church, gather to use transportation, etc. (Federal Bureau of Investigation, 2016). On the other hand, broader definitions may be more inclusive but fail to take into account differential context (Smart, 2018). In this scenario, a family mass homicide may be treated the same as a mass school shooting. This is a problem because these events are significantly different enough that outside of mass murder research, they are considered separately. For example, one occurs in a private space with known family members; whereas, the other occurs in a public space with some known acquaintances and other relatively unknown acquaintances. This is why although family mass homicide should be considered separately, a definition including victim count needs to be specifically operationalized.

A restrictive versus a broad definition can simply impact the total number of mass homicide cases. When using the Mother Jones' restrictive definition, for example, which states that there must be three or more victims of a firearm who died in a public place, there were a total of 87 mass shootings since 1990 and 11 in 2017 (Mother Jones, 2019). Another restrictive example using the new FBI definition of three or more victims yielded 20 mass shooting homicides between 2016 and 2017 (ALERRT & Federal Bureau of Investigation, 2018). These first two examples are likely quite similar in total number per year, as their definitions are similar. Going even broader though, for example, the Mass Shooting Tracker, which includes

four fatal and/or nonfatal victims including the perpetrator as a definition, recorded 427 mass

shootings in 2017 alone and over 2,500 since 2013 (Mass Shooting Tracker, 2019). If the total

number of cases varies so widely, it is plausible to assume that the characteristics and contextual

factors may also vary widely. In turn, it is hard to understand mass homicide, much less mass

family homicide that is so often not included in definitions. Rather, family homicide is most

often studied under the premise of either intimate partner homicide (IPH) or familicide, for

example, but is not considered a mass event.

CHAPTER 3: FAMILY MASS HOMICIDE

Because there is a lack of research examining mass family homicide in the context of a mass event or defining it as two or more victims, the work highlighting what has been done in each section following will come from studies on familicide, other family homicide, general homicide, and mass homicide. The definitions will vary somewhat, but this, paired with the few mass family homicide studies, will provide a clearer picture of what is known demographically and contextually about these types of crimes and specifically about child victims of these types of crimes. It is important to note that because each area of research does not adhere to a singular definition or even to mass homicide events only, as defined by the FBI, the following literature is meant to provide a clear picture of many different areas where mass events may take place.

Homicide is an immense problem in the US. According to the Federal Bureau of Investigation (2017) statistics, there were over 15,000 known cases of homicide in 2017. The FBI statistics also show that family homicides are the largest single category outside of an unknown homicide relationship or the grouped category called other known homicide relationships that include multiple categories, such as acquaintance. Throughout mass murder representation in US society, public mass killings have been the primary focus in many arenas, including media representation. This creates a false sense of what is happening in mass homicide events. For example, Krouse and Richardson (2015) noted that not only does the most common form of mass homicide as a whole happen in the family, but mass homicides that occur with a firearm are more than two times as common in family situations than public ones. This idea is reiterated by another study that found around 43% of all mass homicides occurred in the family context (Lankford, 2016). Another study explicitly using the National Incident-Based Reporting

System (NIBRS) found that the majority, 62.1%, of mass homicides occurred in the home (Huff-Corzine et al., 2014).

Since family context homicides are often studied under various headings, the following is a layout for some of the definitions of these subtypes. Much of the literature in the rest of chapter 3 and chapter 4 comes from family context events studied in these different realms to examine prior research on what could be considered family mass homicide, using a definition of two or more victims.

- Corollary IPH Victims – other victims, besides the intimate partner, who are killed as a result of the IPH (Smith, Fowler, & Niolon, 2014)

- Domestic Homicide – the killing of someone as the potential result of violence in the home (Jaffe, Campbell, Hamilton, & Juodis, 2012)

- Familicide – the killing of more than one person in the family, often the intimate and at least one child (Liem & Koenraadt, 2008b; Liem et al., 2013)

- Filicide – death of one or more child victims, generally at the hands of a parental figure (Mariano, Chan, & Myers, 2014)

- Homicide-Suicide – killing of a person and then one's self (Flynn, Gask, Appleby, & Shaw, 2016)

- Multiple Family Homicide – when more than one person in the family is killed (Liem & Reichelmann, 2014)

- Neonaticide – killing of a newborn infant (Stockl et al., 2017)

Victim and Offender Sex

Sex of the offender and victim of mass murder, family mass homicide, familicide, and other family homicide is relatively consistent within each area. A study by Taylor (2018) noted that the sex of the offender did not show any significant differences regarding the total victim count or other demographics. Regarding mass murder, the majority of offenders are male, with many of these studies showing males to be the perpetrator between 91% and 94% of the time (Duwe, 2004; Fox, Brook, Stratton, & Hanlon, 2016; Lankford, 2015, 2016; Taylor, 2018). A study comparing the FBI's two standard data sets, SHR and NIBRS, shows that men are more often offenders of mass homicide (Huff-Corzine et al., 2014). Studies on mass murder have also shown that the victims are most often male (Duwe, 2004; Huff-Corzine et al., 2014), though not as high a percentage as the offenders.

Other multiple family homicide studies, including studies on familicides, have also shown the offender to be more often male (Abolarin et al., 2019; Liem et al., 2013). This finding also holds true for familicides that are committed exclusively with a firearm (Krouse & Richardson, 2015). Along with United States research, international research shows most familicide offenders are male (Liem & Koenraadt, 2008b). For familicides specifically, this may be because most often, it is a male family member killing their spouse and children (Duwe, 2004).

In family multiple homicides, victim sex shows a different trend than what research on mass murder finds. A study on family mass murder specifically, showed the victims were most often females (about 57%), and nearly half were child victims (those under 18 years old) (Fridel, 2017). This finding was mimicked by a study on familicide that indicated that the most common

adult victim was a female (Liem et al., 2013). This is further shown by a study in Italy on familicide, which noted females were the most likely victims (Tosini, 2017). Conversely, one study on multiple family homicide found that around 63% of the victims were male (Abolarin et al., 2019). Another study on additional victims of IPH, not including the intimate partner victim, found that most victims tended to be male (Smith et al., 2014). When one's children commit the familicide, one study found the most common offender to be male, with only one female offender (Fegadel & Heide, 2017), though this study's sample was limited.

Victim and Offender Race

Research on race has generally been inconsistent. A few studies on mass homicide noted it is more often committed by White individuals with a prevalence between 43% and 67% (Duwe, 2004; Taylor, 2018). However, another study found offenders to be more often Black, though the findings from these authors did not match the FBI data used as a comparison in the study (Fox et al., 2016). Additionally, another study examining the SHR and NIBRS showed that general mass homicide offenders tended to be Black a little more often than White (Huff-Corzine et al., 2014), which meant that Black individuals were overrepresented among the mass murder offenders. Lankford's (2016) study using data on mass homicide found Black offenders tended to perpetrate mass homicide less often compared to other types of homicide, but Asian offenders tended to perpetrate more often compared to other forms of homicide. All of this said a study using a mixture of data from SHR and media reports by Taylor (2018) found that potential differences among offender races was often insignificant. Taylor (2018) also noted that when multiple perpetrators were involved in a mass event, the original offender was more likely to be

Black, and the Other racial category (which included Asians) had more victims. For most studies, victims of mass murder as a whole tended to be White (Duwe, 2004; Huff-Corzine et al., 2014), even though one study on multiple homicide showed the numbers of White individuals (40.9%) and Black individuals (40.7%) to be relatively similar (Abolarin et al., 2019). This illustrates that Black victims of mass homicide are overrepresented, as the US population for this race is around 13% (Rastogi, Johnson, Hoeffel, & Drewery Jr., 2011).

For family killings specifically, the racial and ethnic breakdown of perpetrators is more even across all categories, but the total victim count appears to be significantly different across racial lines (Lankford, 2016). Lankford (2016) noted that Asians had the highest averages for victim count (6.88), followed by White, Black, and Latino. However, a study by Fridel (2017) noted that offenders of a family mass event were most often White, followed by Black. This finding is mimicked by studies on familicide which find the offenders of this crime to be most often White (Liem et al., 2013), even when the perpetrator is one's children (Fegadel & Heide, 2017).

Ethnically, mass murder is rarely committed by Hispanics (8.7%) (Fox et al., 2016). Research, including Latino mass murderers, found the percentage of these offenders to be comparable to Latino homicide offenders in general (Lankford, 2016). That said, Hispanic mass killers tended to offend with other people more often than a White mass killer (Taylor, 2018). Lankford (2016) noted that over a third of Latino mass homicide offenders tended to commit against the family. Finally, a study on multiple homicides found that Hispanic victims made up around 11% of all victims (Abolarin et al., 2019).

Victim and Offender Age

Demographically, when including all types of mass murderers, mass homicide perpetrators tend to be older than other homicide offenders. Studies have shown that the average age of perpetrators of mass homicide is early-to-mid thirties, though the offender's age may have a wide range from adolescents to in their seventies, for example (Duwe, 2004; Fox et al., 2016; Lankford, 2015, 2016). One study comparing two data sets (SHR and NIBRS) between 2001 and 2010, run by the FBI, found that the largest category for age range of mass homicide perpetration was between 21 and 30 years of age (Huff-Corzine et al., 2014). For a study specifically focused on mass family perpetrators, the average age was 34 to 35 years old (Fridel, 2017; Krouse & Richardson, 2015). A familicide specific study showed that though the range for perpetration can be wide, nearly all offenders fell between 26 and 65 years old (Liem et al., 2013). One study on female perpetrators of family annihilation noted similar results with offenders averaging around 32 years old (Scott & Fleming, 2014), though these data were more limited due to the low number of female perpetrators.

A study from the Netherlands, regarding familicide or filicide, shows that the average age of perpetrators span a similar range, 37 years old for familicide, and 32.1 years old for filicide (Liem & Koenraadt, 2008b). One study from Italy, specifically on male familicide offenders, showed an older average age of around 46 years old (Tosini, 2017). Specifically, regarding children who commit familicide, it has been shown that many are not actually under the age of 17 at the time of perpetration; rather, the average age for these offenders was about 25 years old (Fegadel & Heide, 2017). What is interesting to note is that in families, when pairing sex and age together, men are somewhat older than women, with one study showing a three year age gap

when a family first begins, and this pattern has remained constant over time (Stykes, 2011). For those married, this may be represented because of the age difference reflected in marriage. Those mass killers who were Latino tended to be younger than both Asian and White perpetrators (Lankford, 2016). Moreover, Lankford (2016) noted both White and Asian mass murderers tend to be older than their Black counterparts.

Regarding age of victimization, when talking about multiple homicide in its general sense or the additional victims of an intimate partner homicide (IPH), the average age was around 29 years (Abolarin et al., 2019; Smith et al., 2014). Mass murder studies have found similar results, with the average age falling to around 27.5 years old (Duwe, 2004). The most common age category in two FBI run data sets (SHR and NIBRS) being 21-30, though children (10 and under) and adolescents or young adults (11-20) make up a significant part (Huff-Corzine et al., 2014). When talking about family type mass killings, the ages for victimization can vary from this depending on the type of crime. One study on familicide showed that the range for victimization varied from infancy through adulthood; yet, over half (57%) of the victims were younger than 17 years (Liem et al., 2013). Another study on mass familicide committed with a firearm, had the average age of victimization at around 27 years (Krouse & Richardson, 2015). A study on female family annihilation, specifically, noted that the child victims in all cases spanned the entire childhood (up to 17) but averaged around 11 years (Scott & Fleming, 2014), though the number of offenders was limited. Another study on familicide committed by those with children noted that the average age of all victims was 39.5 years, with the non-parental victims averaging in the mid-twenties and the parental victims averaging around 50 (Fegadel & Heide,

2017). Finally, a study in Italy on familicide noted that adult victims, specifically, were around 38 years old on average (Tosini, 2017).

Victim-Offender Relationship

The victim-offender relationship is a demographic area that is lacking in depth for different types of mass murder, family mass homicide, and other family killings. The lack of depth is in research determining the specific relationship status between victim and offender. For starters, it is interesting to point out that studies have shown the average number of victims for mass homicides is between 4.85 and 5.39 (Duwe, 2004; Lankford, 2015, 2016; Taylor, 2018). This average shifts when talking about the family, with research on familicide showing the average number of deaths to be between 2.3 and 2.81 (Liem et al., 2013; Tosini, 2017). The vast majority of mass homicide perpetrators committed the offense alone, nearly 88% of the time (Taylor, 2018). Research has found that the most common mass murder victim is a family member between 42% and 45% of the time (Abolarin et al., 2019; Duwe, 2004; Lankford, 2015, 2016; Taylor, 2018). One study noted that for nearly every decade from 1900 to 1999, people in the family were the most common victim of mass violence (Duwe, 2004). When the offender of a mass event is a female, it is even more likely that the family members are the victims (Taylor, 2018). For multiple homicides as a whole, often, at least one person from the family was a victim, and the most likely type of multiple homicide was the killing of an intimate partner and at least one child (Abolarin et al., 2019).

Familicides, specifically, follow this trend, and these types of crimes account for nearly 50% of mass incidents (Fridel, 2017). When a familicide occurs, male perpetrators are normally

in a domestic relationship with at least one of the victims (Krouse & Richardson, 2015), and the offender often shares the house with every victim in the case around 69% of the time (Liem et al., 2013). Research has shown that the most common reason for perpetrating a mass event is relationship issues, especially for older offenders (Taylor, 2018), with studies on family mass homicide or familicide noting this to be the reason between 46% and 74% of the time (Fridel, 2017; Liem et al., 2013). This was the case for a familicide study in Italy as well (Tosini, 2017). Most cases of familicides (76%) included the death of both the offenders intimate other and their biological children (Liem et al., 2013), with a study in the Netherlands showing the familicide or filicide offender to be biologically related in most cases (Liem & Koenraadt, 2008b). In a limited study of female annihilators, the majority of victims were children, with the intimate partner not often killed in addition to the children (Scott & Fleming, 2014).

Additionally, most familicide offenders from a study in the Netherlands and a study in Italy were married (Liem & Koenraadt, 2008b; Tosini, 2017). For cases of IPH where there were corollary victims, nearly half of the time, those victims were children (Smith et al., 2014). Furthermore, when the offenders of a familicide were a person's children, biological parents were victimized nearly half of the time and for those victims that were not parents, nearly all were still related biologically (Fegadel & Heide, 2017).

Method of Killing

Method of killing was generally consistent between mass homicide, familicide, and other family homicide (e.g., IPH with corollary victims, family annihilation, etc.) with a few exceptions. Studies have shown that mass homicide perpetrators most often use a gun, between

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65% and 76% of the time (Duwe, 2004; Lankford, 2015; Taylor, 2018). One study on mass homicide still found firearms to be used most often but only at 39.1%, with knives and strangulation or suffocation also being quite common (Fox et al., 2016). When talking about firearms of mass homicide, more specifically, one study noted that the most common type between both SHR and NIBRS was a handgun (Huff-Corzine et al., 2014). A few significant differences by gender and race for mass homicide show females and Black individuals more likely to use fire as a method of killing (Taylor, 2018).

Family mass homicide follows these findings with one study showing a firearm as the method of killings in nearly 68% of cases (Fridel, 2017). In a study regarding IPH cases, the non-primary victims were most often killed with a firearm (Smith et al., 2014). Offenders of familicide also most often used this method of killing (Krouse & Richardson, 2015; Liem et al., 2013). Even in a study from Italy, where firearms were used less often at 45% and sharp objects at 36%, a firearm was still the most common weapon (Tosini, 2017). A limited study on female family annihilators showed that most often, a firearm was used (Scott & Fleming, 2014). In a study on familicide committed by offspring, Fegadel and Heide (2017) found guns were the most common method of killing. Finally, for multiple homicides, more generally, firearms were still the most common weapon choice (around 75%), but there were some (7%) killers who used more than one weapon (Abolarin et al., 2019).

Geographic Region

Finally, research on geographic region for family mass homicide is quite limited. One study did find that the South accounted for around 46% of family mass homicides, followed by

the Midwest (about 24%), West (about 23%), and the Northeast at around 6% (Fridel, 2017). An older study on mass murder as a whole from 1900 to 1999 found a different result with relatively similar findings across regions; Midwest 27%, East 26%, South 26%, and the West 21% (Duwe, 2004). Statewide, one study noted that familicide is generally dispersed somewhat evenly across different US regions, outside of Texas (Liem et al., 2013).

On a micro-level, research has found that the majority of familicides occurred in the home between 62.1% and 91% of the time (Huff-Corzine et al., 2014; Liem et al., 2013). This general trend holds true for both a limited study on female annihilators (Scott & Fleming, 2014) and for additional victims of IPH incidents (Smith et al., 2014). Additionally, a study in Italy on familicide of male offenders found that the home was the most commonplace of death (Tosini, 2017).

CHAPTER 4: FAMILY MASS HOMICIDE CHILD VICTIMS

Homicide committed against children is the most severe type of child violence (Stockl et al., 2017), and child homicide is a problem in the US. As Jaffe and Juodis (2006) noted, domestic incidents not only put children at risk of death but also significantly increase the likelihood that a child death will occur. Additionally, another study noted that homes, where domestic issues occur, are more likely to have children present, especially young children, than homes where domestic issues do not occur (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997). The issue is that limited research has been done to investigate how homicide in the household connects with the death of children (Jaffe et al., 2012). Moreover, these authors note that current research has found that domestic incidents in the home may put children at a higher risk of death, but currently, understanding this risk and the characteristics associated with it are lacking. As Osofsky (2003) noted, violence and homicide in the home is not a rare occurrence.

Victim and Offender Sex

There is inconsistency concerning to the sex of offenders and victims due to the different avenues of research used to study the topic. In regards to family multiple homicides, males are the most likely offender (Liem & Koenraadt, 2008a). Finkelhor and Ormrod (2001) take this one step further by noting that around 60% of the time, the offender of a family homicide with multiple victims is either a father or step-father. This holds true for a study on adolescent femicide, where nearly nine out of ten offenders were male (Coyne-Beasley, Moracco, & Casteel, 2003). Similar findings are shown in a study on homicide-suicide, noting that slightly

more than three-quarters of the offenders were male (Holland, Brown, Hall, & Logan, 2018). A study on familicide, specifically, showed that nearly every offender was a male (Liem & Koenraadt, 2008b). This pattern changes when examining filicide. In a worldwide study of parents who killed children, females were slightly more likely (around 58%) to be the perpetrator (Stockl et al., 2017). Additionally, these authors found that this was even more likely (around 72%) for extremely young kids, under one year of age, and for neonaticides (i.e., killing of newborns), where males rarely perpetrated. A study in Finland on filicide mimicked this pattern by showing mothers also offended around 61% of the time (Vanamo, Kauppi, Karkola, Merikanto, & Rasanen, 2001). Continuing this trend, Liem and Koenraadt (2008a) noted that female filicide offenders are slightly more common unless the offender was a step-parent. Conversely, a study on filicide-suicide noted an opposite effect where the majority of offenders were male, compared to offenders of filicide alone (Hedlund, Masterman, & Sturup, 2016).

Studies on child homicide and family homicide with multiple victims tend to find that victimization of children is spread evenly across males and females (Abolarin et al., 2019; Cavanagh et al., 2007; Finkelhor & Ormrod, 2001). For example, one study on homicide-suicide shows the breakdown of child victimization to be around 53% male and 47% female (Holland et al., 2018). The same holds true for a study on filicide, which found 55% of the victims to be male (Liem & Koenraadt, 2008a). Another study in Finland noted that nearly 60% of the victims of child homicide, filicide, or other, were male, and this was even more likely when a male offended (Vanamo et al., 2001). Yet, another study on familicide shows a similar trend of child victims being spread evenly with 52% female child victims and 48% male (Liem et al., 2013), though the breakdown in this study was opposite on which sex was killed a little more often. A

worldwide study on children killed by parents mimicked this finding showing slightly more female child victims (Stockl et al., 2017). Finally, a study in Italy also found slightly more female child victims of familicide, with the stipulation that the offender was male (Tosini, 2017).

Victim and Offender Race

There has been a lack of literature regarding the race of child victims and perpetrators, and this seems to be an area that is especially limited. For adolescent mass homicide killers, a vast majority were found to be White at nearly 80% of the time, followed by Hispanic and then Black (Meloy, Hempel, Mohandie, Shiva, & Gray, 2001). A study on adolescent femicide in North Carolina showed 57% of these female victims and 59% of the offenders to be Black (Coyne-Beasley et al., 2003). Finally, a study of family homicide with more than one victim noted that the adolescent victims of these crimes tended to be White more often, compared to adolescent victims of homicide more generally (Finkelhor & Ormrod, 2001).

Victim and Offender Age

Children as victims are not often studied under the term mass murder; rather, the majority are labeled familicide, some other type of family homicide, or simply child homicide. Additionally, limited studies follow the same parameters, making findings a little more varied. Demographically, for perpetrators of child victims, nearly all from a study on homicide-suicide were adults, most often parents, with an average age of nearly 37 years (Holland et al., 2018). Another study using data from Great Britain found the perpetrators of child murder ranged from

21 to 32 years of age (Cavanagh et al., 2007). A study on adolescent femicide, specifically from

11 to 18 years of age, noted that the average age for perpetrators was around 25 years of age

(Coyne-Beasley et al., 2003). For filicide specifically, male perpetrators tended to offend against

older children, compared to their female counterparts (Liem & Koenraadt, 2008a). Additionally,

these authors noted that male filicide offenders tended to be older than their female counterparts

(34.2 years old versus 30.5 years old, respectively). Finally, a study in Finland noted that for

filicides, mothers tended to kill younger children than fathers; yet, fathers predominantly killed

those aged 5 to 14 years (Vanamo et al., 2001). Furthermore, these authors noted that over half

(60%) of the female offenders and under half (40%) of male offenders were between 20 and 29

years of age, but females more often perpetrated between the age of 20 to 24.

Homicide in 2017 alone was one of the top five causes of death for children and

adolescents (Kochanek, Murphy, Xu, & Arias, 2019). Child victims aged 11 or younger account

for nearly two in five family homicide deaths, and this number increases to nearly half of all

victims when the child is aged 17 or younger (Smith et al., 2014). Another study on family

homicides found the vast majority of child victims were 12 years of age or younger (Finkelhor &

Ormrod, 2001). Internationally, a study in Italy found familicide victims of a male offender were

children (under 18) around 38% of the time, and the average age of the children killed was

around 8 years of age (Tosini, 2017). Additionally, a study in Finland on child family homicide

found that nearly 80% of children in the study were killed before the age of 5 (Vanamo et al.,

2001).

Regarding domestic homicide with multiple victims (more than one), eight years old was

the median age for children killed (Abolarin et al., 2019). This is similar to another study of child

victims of homicide-suicide perpetrators, which found the average age of children to be 7.8 years old (Holland et al., 2018). Additionally, these authors noted that almost three in four homicide-suicide victims were children (below the age of 18). A study in North Carolina on adolescent femicide found that the majority of victims were between 15 and 18 years of age (Coyne-Beasley et al., 2003). Other research finds that over a quarter of the time, the additional victims of IPH are children (under 18 years of age). Another study found when all of the victims are family members, almost 50% of the time they are children (Smith et al., 2014). Filicide, by nature, is somewhat different with one study showing victims to be younger than one year nearly half of the time (Liem & Koenraadt, 2008a). Moreover, these authors noted that regardless of age, the victims are most often male.

Victim-Offender Relationship

Similar to the section on family mass homicides and victim-offender relationship, the victim-offender relationship for child victims lacks research on details regarding the specific relationships involved. Research has shown that children who are killed in the context of an intimate or family situation often die due to retaliation from the offender or as a bystander to the crime (Smith et al., 2014). One study on intimate partner homicide-suicide noted that often, the parents of the deceased children had a current relationship, and over half of the time, these individuals were married (Sillito & Salari, 2011). In a worldwide study on homicides against child victims, over half of the time, the offender was a parent, and this was even more often true (almost 78%) when the child victim was under one year of age (Stockl et al., 2017). Furthermore, Stockl et al. (2017) noted that when adolescents are killed, family members are the second most

common perpetrators. A study on intimate partner homicide-suicide noted that nearly 90% of the child victims were killed by a biological parent (Sillito & Salari, 2011). Another study on familicide found similar results where there was a biological connection between offender and child in over 78% of cases (Liem & Koenraadt, 2008b) and a biological connection in 86% of the filicide cases (Liem & Koenraadt, 2008a). Additionally, in regards to filicide, a study from Sweden noted the majority of perpetrators were biological parents (Hedlund et al., 2016).

A study conducted in Finland noted that nearly 70% of the time, the offender of a child homicide was either a parent or step-parent (Vanamo et al., 2001). However, a worldwide study noted that step-parents, especially step-mothers, were least likely to perpetrate only representing just over 7% of offenders for children who were killed (Stockl et al., 2017); although, there is some disagreement regarding this finding. A limited study on 26 child homicides using data from various other countries, other than the US, found that over 60% of the children killed were stepchildren, and over 70% of the time, the killer was a step-father (Cavanagh et al., 2007). The risk for a child to die was more than three times as likely if there was a biological relationship, and when children were killed as a part of intimate partner homicide-suicide, nearly all cases resulted in every child of the family dying (Sillito & Salari, 2011). This idea is further reiterated in a study from Italy that found nearly all children (93%) who were victims of familicide were killed (Tosini, 2017).

When the crime was a neonaticide, parents were exclusively the offenders (Stockl et al., 2017). A study in North Carolina on adolescent femicide, noted that the female victim was killed over 50% of the time by either family or an intimate other (Coyne-Beasley et al., 2003). Additionally, these authors noted that age played an important role because when family

members killed, the victims were generally those who were younger. A study on homicide-suicide noted that the majority of victims present (65.6%) during the event were either children or step-children of the perpetrator (Holland et al., 2018). Moreover, these authors noted other victims may include the current or former intimate other and additional family. A study in the Netherlands noted that when the crime is filicide, only around one in ten times is the offender an adolescent (Liem & Koenraadt, 2008b) and only around one in ten times is the current or former intimate also killed (Liem & Koenraadt, 2008a). Another study conducted in Sweden noted that filicide-suicides often included more than one victim (Hedlund et al., 2016). Mass homicide perpetrators who were adolescents generally annihilated their family, and often came from a split family 37% of the time (Meloy et al., 2001).

Method of Killing

The research available on the method of killing regarding child victims is limited compared to the literature on mass homicide, family mass homicide, and other family homicide more generally. Despite the lack of available research, from 2012 to 2014, around 1,300 children died in the US due to a firearm, with over half of those cases attributed to homicide (Fowler, Dahlberg, Haileyesus, Gutierrez, & Bacon, 2017). Additionally, these authors note that a firearm death to a young child was often due to an intimate partner situation. This finding is similar to a study on intimate partner homicide-suicide, which found children who die under this circumstance most often are killed by firearms (Sillito & Salari, 2011). Moreover, those mass homicides carried out by adolescents most often involved the use of a firearm as the method of killing (Meloy et al., 2001). Another study regarding family homicide with multiple victims

noted that the offenders in these cases used firearms most commonly (Finkelhor & Ormrod, 2001). A study in North Carolina on adolescent femicide continued this trend, noting that firearms, followed by sharp instruments, were the most common weapon choice (Coyne-Beasley et al., 2003).

These findings do not seem to hold up when studies have been conducted in other countries, and when filicide studies are discussed, even in the US. For instance, a study from Sweden found the most common method of killing in both filicide and filicide-suicide was asphyxiation (Hedlund et al., 2016). Furthermore, these authors noted that firearms were only used in the filicide-suicides and were still a common method of killing. Another study on filicide noted that the three most common modes of killing involved strangulation, physical maltreatment, and a sharp object (Liem & Koenraadt, 2008a). Additionally, Liem and Koenraadt (2008a) noted these three modes of killing were most common for both male and female perpetrators, only that the order was altered slightly. Finally, a study conducted in Finland on child homicide found the most common methods of killing were drowning or suffocation, followed by head injuries (Vanamo et al., 2001).

Geographic Region

Geographic location has rarely been assessed regarding child victims. At the macro level, a worldwide study noted that children killed by their parents happened more often in countries with higher incomes, such as the US, Canada, and the UK (Stockl et al., 2017). However, Finkelhor and Ormrod (2001) noted that the killing of a child or adolescent in the US is not evenly distributed across the country. One study on child victims under 5 showed the South to be

the most common region, followed by the Midwest, West, and Northeast (Clifford et al., 2017).

Another study found the West to have the highest proportion of child homicide at 41% (Sillito &

Salari, 2011). Yet, these authors noted that in cases of intimate partner homicide-suicide,

children were at the most risk for death in the South, followed by the West. At the micro-level,

child victims of family-related homicide often are killed in their residence (Cavanagh et al.,

2007; Coyne-Beasley et al., 2003; Hedlund et al., 2016), with one study on intimate partner

homicide-suicide noting that the location with the greatest risk of death for a child was in the

residence (Sillito & Salari, 2011).

CHAPTER 5: CURRENT STUDY

<u>Definitional Argument</u>

The first question to consider is how to determine a mass family homicide by definition so that research can be consistent, comparative, and informative as a whole. Chiefly, mass family homicide should retain the rule whereby the event takes place in similar time and space because that is one of the central ways in which mass murder is separated from other events like spree and serial murder, for example (Johns et al., 2010). Note that the phrase similar time and space is used, meaning that it does not have to be at the exact same time and at the exact same location.

An area where the definition can be considered open for interpretation relates to the number of victims, especially because mass family homicide is generally not included in either of the FBI standards (The National Center for Victims of Crime, 2018). As noted above, family homicide is often studied under the concept of IPH or familicide, depending on the circumstances involved. An intimate partner homicide includes the killing of a current or former intimate by their partner (Catalano, Smith, Snyder, & Rand, 2009). This means that commonly, IPH is a single victim-single offender crime. On the other hand, familicide is the killing of more than one person in the family (Liem et al., 2013). This idea is closely linked with how the Bureau of Justice Statistics (BJS) identifies family violence as committed against anyone of relation, biologically or legally (Durose et al., 2005). The definitions that should be closely mirrored are the familicide or BJS definition, due to this definition mentioning relation and identifying multiple victims who are part of the family unit. Lacking in these definitions is a specific number of victims, which is not defined, the crimes themselves are not considered a mass event, and the

relational stipulation (biologically or legally) precludes those in a relationship outside these two parameters.

The importance of a mass family homicide definition is chiefly because currently this type of crime is often studied under varying dimensions (i.e., familicide, family annihilator, or family homicide) that are not often considered a mass event. This is true even though many of these cases often destroy a large number of individuals. It is equally important to establish a definition since no field of criminology has yet to agree on what constitutes a mass homicide (Fridel, 2017). The definition for mass family homicide proposed here includes a two or more victim count where the offender and victims are related (biologically or legally) or in an intimate relationship. The addition of a relationship element is important because it permits the inclusion of a boyfriend or girlfriend relationship status (Szalewski, Huff-Corzine, & Reckdenwald, 2019). This relationship type is important to consider because a family dynamic can still be present even if a couple is not legally married. An example of this would be two people who are dating or who live together and have children. A two or more victim count is equally as important because the average household size in America was 2.53 for all households and 3.14 for family households in 2018 (United States Census Bureau, 2018). This helps illustrate that using the old FBI definition of four or more victims (Johns et al., 2010) or the new FBI definition of 3 or more victims (ALERRT & Federal Bureau of Investigation, 2018; Federal Bureau of Investigation, 2016), may not adequately fit the context for a mass family homicide. The reason is that if an average family unit is just over three members, then there can only be two victims with one perpetrator which is below both victim count thresholds mentioned by the FBI.

Another reason for the consideration of two or more victims for a mass family homicide is that in family homicides with more than one victim, over half (59%) of the cases had only two deaths (Finkelhor & Ormrod, 2001). Additionally, these authors noted that when there were only two victims, over half the time, it was a child/adolescent and an adult. This suggests that potentially the immediate family in many of these cases may have only encompassed the perpetrator and both victims. This is also supported by a study showing that 76% of familicide victims included biological children, and the intimate partner killed (Liem et al., 2013). Another study in Italy found that two familicide deaths occurred in 73% of the cases studied (Tosini, 2017). Add into this logic that annihilating or killing multiple people in a family unit fits the idea of a mass event. These killings are not commonly considered to be a mass event today, but a new standard definition is needed to incorporate the present contexts. Few scholars have noted a need for new classifications because so many mass events take place in the family (Dietz, 1986; Huff-Corzine & Corzine, 2020). Without a definition of mass family homicide set at a two or more victim count, there is a huge loss of data on families. The current study uses a definition of two or more victims, not including the offender, where the family includes those legally or biologically related and intimately involved (dating).

Examination

Research on mass homicide indicates that it is extremely common for these events to occur in the family context (Krouse & Richardson, 2015; Lankford, 2016), with family members being the most common victims and offenders (Abolarin et al., 2019; Duwe, 2004; Lankford, 2015, 2016; Taylor, 2018). Additionally, Krouse and Richardson (2015) note that family mass

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homicide that occurs with a firearm has increased in prevalence and total deaths in recent years. Yet, many studies and much of the general media does not consider the family context as a mass event, even though Dietz (1986) pointed out the need for new standards more than three decades ago. What this creates is a false sense of understanding. For example, the FBI does not include family homicide in either of their definitions for a mass event, even if the victim count is met (The National Center for Victims of Crime, 2018). Additionally, contributing to this false sense of understanding is that the idea of mass homicide generally has yet to be agreed upon (Fridel, 2017).

Because studies on what would be family mass homicide have been divided between or included in general mass homicide, familicide, family annihilation, and other family homicide most often, understanding the specific demographic and contextual factors is a difficult task. Currently, with this separation, research on the topic of family mass homicide is minimal, given its prevalence. The division across multiple domains also means that comparison and consistency cannot be achieved. The current study is an exploration analyzing family mass homicide, as previous work on this topic is limited. One author went so far as to state that their quantitative analysis on family mass homicide is the first attempt in the field (Capellan, 2019). Using the definition of two or more victims argued above, the current work will first look to assess the factors associated with family mass homicide.

The main purpose of this research question will be to examine the characteristics of family mass homicide, given a set definition. The definition used is two or more victims killed, compared to cases of single victim family homicides. Therefore, the primary model for the current study is an assessment of family mass homicide characteristics (model 1). A second

model will be analyzed, examining the characteristics of two victim family mass homicide compared to three or more victim family mass homicide (model 2). Both models are assessing the same demographic and contextual factors but with a different dependent variable. The three-or-more victim definition, from the FBI, is what many researchers in the field of mass murder default to, no matter the type of mass event under study. The definition of four or more victims is still the most often used today but cannot be looked at with the current data due to the number of cases. The secondary goal of this comparison is to develop an understanding of just how impactful the current study's recommended definition of two or more victims is, compared to the FBI's definition that may not be well suited for family mass homicide. It is predicted that by adjusting the definition away from the research standard to better fit the topic will produce significantly different results.

The second research question will also be answered using the proposed definition of the family mass homicide of two or more victims. This part of the research is also an exploration into a nearly unexplored area of research and attempts to assess the factors associated with family mass homicide with primary minor victims compared to family mass homicide with primary adult victims (model 3). The purpose of this exploration is to determine the role minor victims play in a family mass homicide event. This is important because minors are a significantly different subgroup generally and when it comes to family mass homicide. Research has shown this to be true with child victims often producing different offender motivations, including retaliation due to some form of jealousy or resentment, or the violence occurring due to the child's behavior (Cavanagh et al., 2007). The current study predicts that family mass homicide with minor primary victims will be significantly different characteristically than family

mass homicide with adult primary victims. Both research questions will be analyzed using data from the SHR from 2010 to 2016. The demographic characteristics that will be assessed for each question include the victim and offender sex, race, and age. The contextual factors that will be assessed for each question include the victim-offender relationship, the method of killing, the geographic region of the family mass homicide, and the presence of a minor victim (for models 1 and 2 only).

CHAPTER 6: DATA AND METHODOLOGY

<u>Data, Method, & Sample</u>

The current study analyzes data obtained from the Supplementary Homicide Reports (SHR) for the years 2010 through 2016. These data were retrieved from the Inter-university Consortium for Political and Social Research (ICPSR) and comprise a cross-sectional dataset. SHR data are compiled by the FBI on a yearly basis (the United States & Federal Bureau of Investigation, 2016). The FBI uses the SHR system as an extension of the Uniform Crime Reporting Program (UCR) as a way to obtain, collect, and compile more specific types of data based on only homicides known to police. These homicides include murder, non-negligent manslaughter, and justifiable homicide. This compilation of data stems from police reports of only known cases, though agency participation is not mandatory. Due to the specific types of data available in the SHR, the unit of analysis for this dataset is the homicide incident. The information that one can gather using the SHR includes victim and offender homicide specifics, relationship status, method of killing, locational data, and circumstances of the homicide (the United States & Federal Bureau of Investigation, 2016).

The 2010 through 2016 years were chosen for the current study to ensure enough cases for analysis. Additionally, it also accounts for any outliers that may appear when using fewer years, and it helps reduce the chance of bias. Although the SHR is not mandatory and not every location or state reports, as a source of secondary data the SHR is representative of the US as a whole, with one study showing between 85% and 90% of known homicides are included (United States Department of Justice, 2014).

The current study is an exploration into investigating an old problem with a new lens. The unit of analysis for the current study is family homicide incidents, for model 1 and model 2. The unit of analysis for model 3 shifts from type of crime to the individual. Due to the nature of this study, the data set will be filtered out by the type of homicide to include only cases of "murder and non-negligent manslaughter." The purpose of this is to ensure that cases of "negligent manslaughter" and "justifiable homicide" are not included, as these are not intentional homicide offenses. This is a police descriptor character variable. Next, the data set will be filtered so that it only includes those cases that represent family homicides. This was done using the victim-offender relationship variable within the SHR, which is a character variable that shows the relationship only between the primary offender and the primary victim. Family homicide members include when the victim was a husband/wife, common-law husband/common-law wife, ex-husband/ex-wife, boyfriend/girlfriend, father/mother, stepfather/stepmother, son/daughter, stepson/stepdaughter, brother/sister, in-law, and other family. Only the primary victim's relationship status to the offender can be determined in the SHR.

Extended family (e.g., boyfriend and girlfriend) were included because many cases of family violence/homicide stem from these types of relationships (Szalewski, Huff-Corzine, & Reckdenwald, 2019) and these individuals may live together with children. Homosexual relationships were not included as this is a very different relationship type that has also not been subject to inaccurate coding in the SHR. The purpose of these classifications is to fit the focus of the two main research questions on family mass homicide and child victim family mass homicide. The dataset created will only incorporate types of family homicide. To align with the

study's proposed definition, those cases that are family mass homicide will include a victim count of two or more.

Finally, for model 1, single victim family homicides were used as the reference to establish characteristics of two or more victim family homicide. A sample was drawn because there were too many single victim family homicide incidents to use as a comparison to two or more victim family mass homicide between 2010 and 2016. The sample of single victim homicides was needed because the percentage split between the categories of the dependent variable was too large for regression analysis and was too large for proper and meaningful comparisons. A random sample of single victim homicides was drawn using STATA commands that decreased the total from 14,805 single victim cases to 1,480 single victim cases. The random sample taken was 10% to help even out the categories in the dependent variable of model 1 to make logistic regression possible. All missing or unknown information was removed from the total sample for all three models. Missing or unknown cases occurred in one of two ways: a) one or more of the variables of interest did not have information inputted, or b) a category was labeled in a way that no proper identification could be made that would be useful (i.e. a label of "unknown"). In either of these two scenarios, no meaningful or accurate interpretation could be made.

The current study produces a contextual setting to study one of the most common types of mass homicide that is yet to garner much consideration. To the author's knowledge, two victims has not often been considered a mass event in the literature. The purpose of this extension and examination is twofold: a) killing two people in a family of three, for example, is a mass event because the entire family, outside of the offender, has been eliminated, and b) family

homicides generally make up a large number of all mass killings in the US, regardless of the definition used. The most significant issue here is that a family annihilation, for example, must be considered a mass event at the household level because no potential victims remain. Arbitrarily limiting all mass events to either a minimum of three or four victims does not take into account the context or scale of the event.

Mass Family Homicide Research Question: Model 1

The current methodological structure described above and variable layout discussed below (other than the dependent variable) was used identically to assess and answer the two separate yet related research questions, with three total models, analyzed. The first investigation focused on factors associated with mass family homicide. The purpose of this analysis was to initially assess the demographic and contextual factors using the new definition of two or more victims suggested in this study, compared to cases of single victim family homicides to analyze those initial differences. The total sample size consisted of 2,371 family homicide cases for model 1.

Mass Family Homicide Research Question: Model 2

Model 2 examined the differences present between mass family homicides with a differing number of victims. Though the FBI's official definition of mass homicide does not include the family (The National Center for Victims of Crime, 2018), many researchers still default to either three or more or four or more victims when studying any type of mass murder

(Krouse & Richardson, 2015; Smart, 2018). In this instance, the second model compares two victim family mass homicide with three or more victim family mass homicide[2]. The sample size was 946 mass family homicide cases for model 2.

<u>Minor Victims in Mass Family Homicide Research Question: Model 3</u>

The second investigation only examined one model using the definition suggested by the current study of two or more victims. This analysis will focus on factors associated with mass family homicide with primary minor victims. Specifically, the purpose of this section of the research will be to assess the differences between mass family homicides with minor primary victims both demographically and contextually, compared to mass family homicide with adult primary victims. This is important because children play a significant role as victims of family homicide, and their dynamic within the event should not be ignored. For example, often, children as victims are used as a means of retaliation against the spouse due to some form of jealousy or resentment, or the children's behavior is a provoking measure for the violence (Cavanagh et al., 2007). Whether a victim is a minor will be determined by the age in years at death, not based on the relationship between the victim and offender, or other victims in the family homicide. For instance, any victim who is over the age of 17 will not be considered a child, regardless if they were someone's child in the family; however, any victim under the age of 18 would be considered a minor. The unit of analysis for the current investigation is family mass homicide with a primary minor victim versus a primary adult victim, and only the primary victims were

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[2] Initially, the author wanted to do a multinomial logistic regression including four or more victim cases but unfortunately the small case counts prevented further analysis.

used due to listwise deletion because of how the SHR variables are set up. The sample size for the current investigation was 946. As previously mentioned, missing or unknown cases were removed.

<u>Dependent Variable(s)</u>

Mass family homicide. Two dependent variables were calculated for the examination of mass family homicide based on the number of victims in the case, not including the offender. The first model includes mass family homicide cases disaggregated by cases with two or more victims (coded 1=yes) and single victim family homicide (coded 0=no). In the second model, mass family homicide is disaggregated by cases with two victims (coded 1=yes) and three or more victims (coded 0=no). To calculate the number of victims, the additional victim count variable in the SHR was used to obtain the total number of victims in the family homicide incidents.

Minor victims in mass family homicide. A single dependent variable was calculated for the examination of mass family homicide based on the number of victims in the case and whether the victim in the mass family homicide was a minor or adult. These cases were disaggregated by minor victims (coded 1) or adult victims (coded 0), within the definition of two or more victims. For purposes of the current study, victims over the age of 17 who are related to the offender are not analyzed as children because this study is to assess the differences between minors and adults rather than just relationship status. Cases of parents and their adult children killed would fit into the mass family homicide analysis (coded 0). This analysis is focused on minor victims in mass family homicide (17 years of age or younger) versus adult victims in mass

family homicide. To code a variable for the presence of minors in mass family homicide, the primary victim's age was coded as its own value in a new variable and then recoded into two categories of under 17 (minor) and over 18 years of age (adult).

<u>Independent Variables</u>

The independent variables for both analyses were split into two separate subgroups that include demographics of the victim and offender and case characteristics of the offense. Note that only the primary victims are examined. The demographics variables for both the victim and offender include sex, race, and age. Victim sex included two categories: Female (1) and Male (0). Offender sex also included two categories: Male (1) and Female (0). Victim and offender race were split into three categories: White (1), Black (2), and Other (3). The Other category includes American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander[3]. For the multivariate analyses, dummy variables were created through STATA with White as the reference group for both victim and offender. The two dummy variables included Black (1) with all other categories (0) and Other (1) with all other categories (0)[4].

For both offender age and victim age, the values were coded in actual years, with "99" representing any person over the age of 98. Victim age also had additional categories that represented children from "birth to 6 days old" (coded 0) and "7 days old to 364 days old"

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[3] Ethnicity, e.g. Hispanic, is not available in the SHR race category. The ethnicity variable in SHR is not reliable.
[4] A different race variable was initially considered that would be created to represent the racial dynamic of the family. Racial dynamic would have been coded "1" for intraracial and "0" for interracial, but the data would not allow this as a vast majority of cases were intraracial (around 93%).

(coded 0.5). These categories were left in the present analysis, as children this young are an important consideration as victims in family homicide.

The case characteristics of the offense included victim-offender relationship, method of killing, geographic region, and child victim (with the exception of model 3). Child victim was not included as an independent variable in model 3 because it was the dependent variable. Victim-offender relationship contains one variable in SHR, as this dataset only allows for the relationship to be known between the primary offender and the primary victim. The first victim listed is determined by the official report. Additionally, with the dataset previously limited to family victims, the categories present in this variable include Boyfriend (1), Brother (2), Common-Law Husband (3), Common-Law Wife (4), Daughter (5), Father (6), Girlfriend (7), Husband (8), In-Law (9), Mother (10), Other Family (11), Step Daughter (12), Step Father (13), Sister (14), Step Mom (15), Son (16), Step Son (17), Wife (18), Ex-Husband (19), and Ex-Wife (20). These categories were condensed into four new categories: Current or Former Intimates (1), Dating (2), Immediate Family Members (3), and Other Family (4). The first category included those who were husband, wife, ex-husband, ex-wife, common-law husband, and common-law wife. The second category included a boyfriend or girlfriend. The third category included brother, daughter, father, mother, stepdaughter, stepfather, sister, stepmom, son, and stepson. The final category included in-laws and other family members.

For the multivariate analysis, dummy variables were coded, with Current or Former Intimates as the reference group. An example of this coding was Dating (1), with all other categories being "0." Immediate Family Members and Other Family followed this same pattern as the remaining dummy variables.

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Method of killing for the offender against the primary victim included a range of potential weapons. The method of killing variable was coded Firearm (1), Knife (2), Blunt Object (3), Personal Contact, e.g., hands, fists, feet (4), and Other Method (5). The Firearm category included "firearm, type not stated," "handgun – pistol, revolver, etc.," "rifle," "shotgun," and "other gun." The Other Method category included "poison – does not include gas," "pushed or thrown out window," "explosives," "fire," "narcotics or drugs, sleeping pills," "drowning," "strangulation – hanging," "asphyxiation – includes death by gas," and "other or type unknown." Strangulation and asphyxiation are not coded separately even though they are important in family homicide (see Glass et al., 2008, for example), because there is not enough information to keep them separate. Whether this is due to reporting error or truly low numbers is unknown. These five categories were used to create four dummy variables for purposes of the multivariate analyses. The reference category for these dummy codes is Firearm. An example of these dummy variables is Knife (1), with all other categories as "0." Blunt Object, Personal Contact, and Other Method of Killing followed this same pattern for dummy variables.

Geographic region was coded according to the Census regions. The value for "Possessions" was removed from this variable. Therefore, geographic region was coded as South (1), West (2), Midwest (3), and Northeast (4). These four categories were then used to create three separate dummy variables with South as the reference group. The dummy variables were West (1) with all other categories being "0," Midwest (1) with all other categories being "0," and Northeast (1) with all other categories represented as "0."

A minor victim variable was created for inclusion as an independent variable for model 1 and model 2. To create this variable, a new variable was created. The primary victim's age was

given its own value in the new variable. Once all victim's ages were recorded, this variable was recoded to place the age categories into two new values of "Minor" and "Adult." Minors were considered those 17 years of age and younger.

Data Analysis Strategy

The data analysis strategy is the same for both the analysis of the two family mass homicide models and the minor victims in family mass homicide model. STATA was chosen as the data analysis tool for the current study. The first step was to clean and recode many of the variables present in SHR because a large portion of the variables present in SHR are coded using letters or an awkward numbering system. Next, frequencies and descriptive statistics were conducted to get an overview of the data. This also helps to determine if there is anything seemingly off or wrong about the data before proceeding. Once this initial assessment was complete, associations between the dependent and independent variables were completed. To accomplish this task, bivariate chi-square tests were conducted because the dependent variable for all three modes is discrete. With a bivariate chi-square, the only independent variables that can be assessed for associations also must be at the discrete level of measurement. Therefore, any independent variable that was continuous, e.g., age, could not be assessed for an association. There is no real bivariate analysis that can be done between a discrete dependent variable and a continuous independent variable to test for associations.

Multicollinearity was tested to ensure that there was not issues in any of the models. STATA checks for multicollinearity when it runs regressions, and no issues of multicollinearity were present. At this point, multivariate analyses were run to help first determine what the

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characteristics of this crime look like using a definition of two or more victims. Next, additional tests were run to determine how characteristics of mass family homicide may be similar or different across varying definitions of victim total. In total, two separate models were used to account for these different definitions of mass murder. Multivariate analyses were also run to help determine if minor victims in mass family homicide varied characteristically to adult victims in mass family homicide. In total, one model was run to assess the potential similarities and differences. The multivariate method used for all models across both research questions was a binary logistic regression. This data analysis method was chosen due to both dependent variables being coded in a binary format. Model 1 assessed the odds of a two or more victim family mass homicide compared to a single-family mass homicide across demographic and case characteristics. Model 2 assessed the odds of a two victim family mass homicide compared to a three or more victim family mass homicide across demographic and case characteristics. Finally, model 3 assessed the odds of a minor being the victim in family mass homicide compared to an adult across demographic and case characteristics.

CHAPTER 7: DATA AND RESULTS

Descriptive Statistics: All Family Homicide

     Table 1 shows the descriptive statistics for all family homicides and mass family homicides, representing two or more victims of family homicide. The sample size for all family homicide is 2,371 cases, with 60% representing single-family homicide and 40% representing two of more victim family homicide. Over half of the primary victims from the total sample are females at 61%, with males representing 39%. In comparison, most of the primary offenders of family homicide are males (81%). Females who offenders only comprised 19% of the sample. Racially, both the primary victim and primary offender are overwhelmingly White (68% and 66% respectively). The second-largest racial category is Black, representing 26% of victims and 29% of offenders. This shows that both Black victims and offenders are overrepresented in the current sample (Rastogi et al., 2011). The other race category had few cases for both victims and offenders, at about 5% each. The mean age of primary victims of family homicide is 36.93 (SE=0.45), and the mean age of primary offenders of family homicide is 38.52 (SE=0.31).

     When looking at the victim-offender relationship for model 1, the largest category is immediate family members at 37%, followed by current or former intimates (25%), dating partners (24%), and other family members (14%). The killing method is overwhelmingly firearms at 54%. The remaining categories represent much lower totals with knife representing 19%, followed by other method (14%), personal contact (8%), and blunt object (5%). Geographic region shows that a large majority of the cases in model 1 take place in the South (44%), followed by the West (25%), the Midwest (19%), and the Northeast (13%). This trend

follows closely with the overall regional homicide trend, though West and Midwest would switch positions (FBI, 2018). Finally, minors as victims represent 21% of the sample, and adults represent 79%.

Descriptive Statistics: Mass Family Homicide

The sample size for only mass family homicide is 946 cases, with 77% representing two victim family mass homicide, and 23% represents three or more victim family mass homicide. Demographically, the primary victim in this model is female 64% of the time, with males representing 36% of victims. Conversely, the primary offender of family mass homicide in the current sample was overwhelmingly male at 88%, with females representing about 12% of the cases. The primary victim's and offender's race are most often White (73% and 72% respectively). This is followed by 21% of the primary victims being Black and 24% of the primary offenders being Black. Once again, both Black victims and offenders are overrepresented (Rastogi et al., 2011). The other race category only represents about 5% each for primary victims and offenders. The mean age of the primary victim in model 2 is 35.52 years old (SE=0.74), and the mean age of the primary offenders is 37.63 years of age (SE=0.45).

When looking at the victim-offender relationship, the vast majority of cases are immediate family members at 48%. The other relationship categories fall drastically below with current or former intimate representing 19%, followed by other family and dating (18% and 15%, respectively). The killing method was overwhelmingly a firearm at 68%. The other methods of killing include knife (15%), other method (12%), blunt object (3%), and personal contact (1%). Geographically, the South is the region with the most cases (43%). The other

regions represent 25% (West), 20% (Midwest), and 12% (Northeast) of the cases, respectively.

Finally, minor victims were killed in about 30% of the sample of cases, with the other 70% being

above the age of 17.

Table 1: Descriptive Statistics of Family Homicide, N = 2,371 (All) & N = 946 (Mass).

Demographics	Values	Proportion/Mean(SE)	
		All Family (model 1)	Mass Family (model 2)
Two or More Victims	Single	.60	---
	Two or More	.40	---
Three or More Victims	Two	---	.77
	Three or More	---	.23
Primary Victim Sex	Male	.39	.36
	Female	.61	.64
Primary Offender Sex	Male	.81	.88
	Female	.19	.12
Primary Victim Race	White	.68	.73
	Black	.26	.21
	Other	.05	.05
Primary Offender Race	White	.66	.72
	Black	.29	.24
	Other	.05	.05
Primary Victim Age		36.93(.45)	35.52(.74)
Primary Offender Age		38.52(.31)	37.63(.45)
Case Characteristics			
Vic-Off Relationship	Current/Ex Intimate	.25	.19
	Dating	.24	.15
	Immediate Family	.37	.48
	Other Family	.14	.18
Killing Method	Firearm	.54	.68
	Knife	.19	.15
	Blunt Object	.05	.03

	Personal Contact	.08	.01
	Other Method	.14	.12
Geographic Region			
	South	.44	.43
	West	.25	.25
	Midwest	.19	.20
	Northeast	.13	.12
Minor Victim	Adult	.79	.70
	Minor	.21	.30

Comparison of Demographics and Characteristics for Model 1

Bivariate statistics were conducted to investigate potential associations between each of the 3 models dependent variables with each independent variable. Table 2 displays the differences in association for model 1, two or more victims of mass family homicide compared to single victim mass family homicide. Nearly every discrete variable in the current chi-square was significant, except geographic region. Females, as the primary victims, are more common in number for both two or more and single victim incidents. Interestingly males are much more likely a victim in single victim cases (about 63%) then in multiple family homicide. The primary offender is most often male; however, when females were the primary offender, a single victim case was the most common (about 74%). Racially, the primary victim and offender were most often White. Interestingly, the primary victim and offender being Black occurred more often in single victim cases (about 68% and 67% respectively) than in multiple family homicide cases.

Regarding the victim-offender relationship chi-square for model 1, current or former partners and dating is a status most often found in single victim cases (about 69% and 76% respectively), compared to multiple victim cases. Conversely, the immediate family category and other family category are nearly even, leaning to multiple victim family mass homicide (about 51% each). Killing method shows a trend where firearms are used nearly the same between each category (about 50% each). Every other method of killing seems to show considerable usage in single victim cases compared to multiple victim cases. For example, out of all the knives used, about 67% of those knife cases were single victim incidents. The same trend follows for a blunt object, personal contact, and other method (about 76%, 93%, and 64%, respectively). Personal contact specifically is used much less often in this sample of mass family homicide (14 total versus 186 total for single victim cases). Finally, minor victims seem to be more often killed in mass family homicide (about 56%), compared to single victim family homicide (about 44%). Conversely, a majority of those older than 17 were killed in single victim incidents (about 64%).

Table 2: Comparison of Demographics and Characteristics across Two or More Victims (model 1).

Demographics	Chi-Square	Two or More % (n)	Single Victim % (n)
Primary Victim Sex	3.99*		
Male		37.43% (359)	62.57% (600)
Female		41.48% (623)	58.52% (879)
Primary Offender Sex	45.30***		
Male		43.14% (859)	56.86% (1,132)
Female		26.23% (123)	73.77% (346)
Primary Victim Race	20.57***		
White		42.56% (709)	57.44% (957)

Table 2: Comparison of Demographics and Characteristics across Two or More Victims (model 1).

Black		32.29% (206)	67.71% (432)
Other		42.06% (53)	57.94% (73)
Primary Offender Race	21.51***		
White		43.07% (699)	56.93% (924)
Black		32.86% (229)	67.14% (486)
Other		37.50% (45)	62.50% (75)
Case Characteristics			
Vic-Off Relationship	145.80***		
Current/Former Intimate		31.21% (191)	68.79% (421)
Dating		24.26% (140)	75.74% (437)
Immediate Family		51.38% (483)	48.62% (457)
Other Family		50.60% (170)	49.40% (166)
Killing Method	168.17***		
Firearm		49.85% (658)	50.15% (662)
Knife		33.40% (158)	66.60% (315)
Blunt Object		24.39% (30)	75.61% (93)
Personal Contact		7.00% (14)	93.00% (186)
Other Method		35.53% (124)	64.47% (225)
Geographic Region	3.71		
South		38.50% (412)	61.50% (658)
West		40.48% (251)	59.52% (369)
Midwest		43.51% (201)	56.49% (261)
Northeast		38.51% (119)	61.49% (190)
Minor Victim	70.64***		
Minor		56.21% (294)	43.79% (229)
Adult		35.89% (689)	64.11% (1,231)

*p < .05; **p < .01; ***p < .001 (Note: Percentages add across)

<u>Comparison of Demographic and Characteristics for Model 2</u>

Table 3 displays the differences in correlation for model 2, two victim mass family homicide compared to three or more victim mass family homicide. Unfortunately, none of these chi-square analyses are significant except the minor victim variable. This chi-square shows that more minors and those over 17 years of age are killed in the two-victim family mass homicide category (about 81% and 67% respectively), compared to the three or more category.

Table 3: Comparison of Demographics and Characteristics across Two versus Three or More Victims (model 2).

Demographics	Chi-Square	Two % (n)	Three or More % (n)
Primary Victim Sex	0.22		
Male		76.04% (273)	23.96% (86)
Female		77.37% (482)	22.63% (141)
Primary Offender Sex	0.02		
Male		76.95% (661)	23.05% (198)
Female		76.42% (94)	23.58% (29)
Primary Victim Race	3.22		
White		78.42% (556)	21.58% (153)
Black		74.27% (153)	25.73% (53)
Other		69.81% (37)	30.19% (16)
Primary Offender Race	1.23		
White		77.54% (542)	22.46% (157)
Black		75.55% (173)	24.45% (56)
Other		71.11% (32)	28.89% (13)
Case Characteristics			
Vic-Off Relationship	2.35		
Current/Former Intimate		72.77% (139)	27.23% (52)
Dating		78.57% (110)	21.43% (30)

Immediate Family		77.85% (376)	22.15% (107)
Other Family		77.65% (132)	22.35% (38)
Killing Method	5.07		
Firearm		75.53% (497)	24.47% (161)
Knife		76.58% (121)	23.42% (37)
Blunt Object		90.00% (27)	10.00% (3)
Personal Contact		78.57% (11)	21.43% (3)
Other Method		81.45% (101)	18.55% (23)
Geographic Region	1.28		
South		77.43% (319)	22.57% (93)
West		75.30% (189)	24.70% (62)
Midwest		79.10% (159)	20.90% (42)
Northeast		74.79% (89)	25.21% (30)
Minor Victim	21.59***		
Minor		80.99% (558)	19.01% (131)
Adult		67.35% (198)	32.65% (96)

*p < .05; **p < .01; ***p < .001 (Note: Percentages add across)

Comparison of Demographics and Characteristics for Model 3

Table 4 displays the differences in associations for model 3, minor victims versus adult victims in family mass homicide of two or more victims. For this chi-square analysis, primary victim sex, primary offender sex, victim-offender relationship, and killing method are significant. Regarding primary victim sex, female minors and adults are killed in greater number than adult and minor males. Interestingly males are the victim much more often when they are not below the age of 18 (about 74%). The primary offender sex shows a clear picture, with most offenders overall being males. When a female is the offender; however, more often than not they

offended against minors (about 66%). Victim offender relationship categories show that immediate family is most substantial relationship status in either category (157 for minor victim and 325 for adult victim).

The other family category is almost exclusively a status when a minor was not involved (about 89%). Finally, the killing method shows that overall firearms are most often used in both categories. However, knives and blunt objects were more often used against those over 18 (about 66% and 83% respectively); whereas, other methods were used more against those under 18 years of age (about 56%). Technically personal contact was used more against those under the age of 18; however, the total number between both categories is only 8 and 5.

Table 4: Comparison of Demographics and Characteristics across Minor Victims versus Adult Victims (model 3).

Demographics	Chi-Square	Minor % (n)	Adult % (n)
Primary Victim Sex	4.90*		
Male		25.70% (92)	74.30% (266)
Female		32.42% (202)	67.58% (421)
Primary Offender Sex	88.74***		
Male		24.68% (212)	75.32% (647)
Female		66.39% (81)	33.61% (41)
Primary Victim Race	2.21		
White		28.67% (203)	71.33% (505)
Black		33.98% (70)	66.02% (136)
Other		28.30% (15)	71.70% (38)
Primary Offender Race	2.86		
White		28.22% (197)	71.78% (501)
Black		34.06% (78)	65.94% (151)
Other		31.11% (14)	68.89% (31)

Table 4: Comparison of Demographics and Characteristics across Minor Victims versus Adult Victims (model 3).

Case Characteristics

Vic-Off Relationship	35.51***		
Current/Former Intimate		36.65% (70)	63.35% (121)
Dating		34.29% (48)	65.71% (92)
Immediate Family		32.57% (157)	67.43% (325)
Other Family		11.18% (19)	88.82% (151)
Killing Method	59.25***		
Firearm		24.16% (159)	75.84% (499)
Knife		33.54% (53)	66.46% (105)
Blunt Object		16.67% (5)	83.33% (25)
Personal Contact		61.54% (8)	38.46% (5)
Other Method		55.65% (69)	44.35% (55)
Geographic Region	4.63		
South		26.52% (109)	73.48% (302)
West		33.07% (83)	66.93% (168)
Midwest		30.35% (61)	69.65% (140)
Northeast		34.45% (41)	65.55% (78)

*p < .05; **p < .01; ***p < .001 (Note: Percentages add across)

Binary Logistic Regression for Model 1

Three separate logistic regressions were conducted. The first model was used to help determine if the independent variables could help predict the odds of two or more victims of family mass homicide (coded 1) compared to single victim family mass homicide (coded 0). Results in Table 5 show that many of the indicators help predict the outcome. The significant variables in model 1 include primary victim sex (female), primary offender sex (male), immediate family, other family, knife, blunt object, personal contact, other method of killing, and minor victim. Two other variables were borderline significant at the 0.05 level. These two

variables were Black primary victim race and other primary victim race, at the 0.053 and 0.056 level, respectively. All of the odds of multiple family homicide hereafter are compared to single victim family homicide for model 1.

The first significance found the odds of two or more victim mass family homicide, compared to single victim, is higher by a factor of 1.81 when the victim is female, compared to when the victim is male. When a male is the primary offender, the odds of two or more victim mass family homicide is higher by a factor of 2.32, compared to female primary offenders. For victim-offender relationship, the odds of a two or more victim family mass homicide is higher by a factor of 4.55 and a factor of 4.21 when the relationship status is immediate family and other family respectively, compared to current or former intimates. Regarding the killing method, the odds of a two or more victim family mass homicide is lower by a factor of .45 when a knife is used, .18 when a blunt object is used, .03 when personal contact is used, and .31 when other methods are used compared to a firearm. When there is a minor victim, the odds of a two or more mass family homicide is higher by a factor of 4.24, compared to when it is a adult victim. Lastly, the models two categories that were nearly significant show the odds of a two or more victim mass family homicide is lower by a factor of .65 when the primary victim is Black and higher by a factor of 2.09 when the primary victim is another race, compared to White.

Table 5: Binary Logistic Regression Predicting Two or More Victims (1) versus Single Victim (0) (model 1), N = 2,371.

Variables	Odds Ratio	SE	95% Conf. Interval
Demographics			
Primary Victim Sex			
Female	1.81***	.22	1.42-2.29

Table 5: Binary Logistic Regression Predicting Two or More Victims (1) versus Single Victim (0) (model 1), N = 2,371.

Primary Offender Sex			
Male	2.32***	.36	1.71-3.15
Primary Victim Race			
Black	.65+	.15	.42-1.01
Other	2.09+	.80	.98-4.44
Primary Offender Race			
Black	1.06	.23	.69-1.63
Other	.48	.20	.22-1.08
Primary Victim Age	1.00	.003	1.00-1.01
Primary Offender Age	1.00	.004	.99-1.00
Case Characteristics			
Vic-Off Relationship			
Dating	1.04	.16	.77-1.40
Immediate Family	4.55***	.68	3.40-6.10
Other Family	4.21***	.73	2.99-5.92
Killing Method			
Knife	.45***	.06	.34-.58
Blunt Object	.18***	.04	.11-.30
Personal Contact	.03***	.01	.01-.05
Other Method	.31***	.05	.23-.43
Geographic Region			
West	.95	.12	.75-1.22
Midwest	1.24	.16	.96-1.61
Northeast	1.11	.17	.82-1.50
Minor Victim			
Minor	4.24***	.65	3.15-5.72
Constant	.14***		

*p < .05; **p < .01; ***p < .001
+p nearly < .05 (Black = .053 & Other = .056)

<u>Binary Logistic Regression for Model 2</u>

The second model was used to help determine if the independent variables could help predict the odds of two victim family mass homicide (coded 1) compared to three or more victim family mass homicide (coded 0). Results displayed in Table 8 highlight that the majority of indicators are not effective to help predict the outcome. The significant variables in model 2 include primary victim age, immediate family, and minor victim. All factors in model 2 are compared to three or more victim mass family homicide hereafter. For victim age, the odds of a two-victim mass family homicide increases by a factor of 1.02 for every one-unit increase in primary victim age. Regarding victim-offender relationship, the odds of a two-victim family mass homicide is higher by a factor of 1.66 when the status is immediate family, compared to current or former intimates. Finally, the odds of a two-victim family mass homicide is lower by .51 when a minor victim is involved.

Table 6: Binary Logistic Regression Predicting Two Victims (1) versus Three or More Victims (0) (model 2), N = 946.

Variables	Odds Ratio	SE	95% Conf. Interval
Demographics			
Primary Victim Sex			
Female	1.25	.25	.85-1.85
Primary Offender Sex			
Male	.62	.17	.36-1.06
Primary Victim Race			
Black	.49	.20	.22-1.08
Other	.62	.36	.20-1.94

Table 6: Binary Logistic Regression Predicting Two Victims (1) versus Three or More Victims (0) (model 2), N = 946.

Primary Offender Race			
Black	1.75	.70	.80-3.82
Other	1.16	.74	.33-4.07
Primary Victim Age	1.02***	.01	1.01-1.03
Primary Offender Age	1.00	.01	.99-1.02
Case Characteristics			
Vic-Off Relationship			
Dating	1.54	.44	.88-2.68
Immediate Family	1.66*	.42	1.02-2.72
Other Family	1.06	.31	.60-1.87
Killing Method			
Knife	1.02	.23	.65-1.60
Blunt Object	2.14	1.39	.60-7.63
Personal Contact	1.52	1.06	.38-5.99
Other Method	1.69	.47	.98-2.92
Geographic Region			
West	1.03	.22	.69-1.55
Midwest	1.19	.27	.77-1.85
Northeast	.94	.24	.56-1.56
Minor Victim			
Minor	.51***	.10	.35-.73
Constant	1.61		

*p < .05; **p < .01; ***p < .001

Binary Logistic Regression for Model 3

The third model was used to determine if the independent variables could aid in the

prediction of the odds of a minor being the victim in two or more victim family mass homicide

(coded 1) compared to an adult victim (coded 0). Results displayed in Table 7 highlight that many of the indicators can help predict the outcome. The significant variables in model 3 include primary victim sex (female), primary offender sex (male), primary victim age, dating, immediate family, other family, knife, personal contact, and other method of killing. Every finding hereafter will be compared family mass homicide with an adult primary victim. The first significant variable shows that the odds of a minor being the victim of a two or more victim mass family homicide is higher by a factor of 1.58 when the primary victim is female, compared to male. Conversely, the odds of a minor victim in a two or more victim mass family homicide is lower by a factor of .20 when the primary offender is male, compared to female. The odds of a minor victim from two or more victim mass family homicide decreases by a factor of .96 for every one unit increase in primary victim age. Regarding the victim-offender relationship, the odds of a minor victim from a two or more victim mass family homicide decreases by a factor of .56 in a dating relationship, .30 for immediate family, and .18 for other family, compared to a current or former intimate relationship. Finally, the method of killing shows the odds of a minor victim to increase by a factor of 1.68 when a knife is used, 4.01 when personal contact is used, and 3.25 when other methods are used, compared to a firearm.

Table 7: Binary Logistic Regression Predicting Minor (1) versus Adult (0) (model 3), N = 946.

Variables	Odds Ratio	SE	95% Conf. Interval
Demographics			
Primary Victim Sex			
Female	1.58*	.35	1.03-2.42
Primary Offender Sex			
Male	.20***	.05	.12-.34

Table 7: Binary Logistic Regression Predicting Minor (1) versus Adult (0) (model 3), N = 946.

Primary Victim Race			
Black	.92	.35	.44-1.95
Other	.64	.42	.18-2.28
Primary Offender Race			
Black	.93	.35	.45-1.94
Other	1.62	1.15	.41-6.48
Primary Victim Age	.96***	.01	.95-.97
Primary Offender Age	.99	.01	.98-1.01
Case Characteristics			
Vic-Off Relationship			
Dating	.56*	.15	.33-93
Immediate Family	.30***	.08	.19-.50
Other Family	.18***	.06	.09-35
Killing Method			
Knife	1.68*	.39	1.07-2.66
Blunt Object	1.59	.88	.54-4.73
Personal Contact	4.01*	2.75	1.04-15.40
Other Method	3.25***	.84	1.95-5.40
Geographic Region			
West	1.31	.29	.85-2.01
Midwest	.87	.20	.56-1.36
Northeast	1.07	.29	.63-1.81
Constant	11.40***		

$*p < .05; **p < .01; ***p < .001$

CHAPTER 8: DISCUSSION

Overall, the current study adds to the current body of literature surrounding family mass homicide, even in ways not originally predicted. Each of the three models presented throughout the study yield important and unique findings. The major importance of this first lies in the fact that, as previously discussed, family mass homicide is not often consistently studied under this heading. When discussing mass homicide, generally, Smart (2018) notes that just the conceptualization has yet to be agreed upon. Unfortunately, this produces a situation where potential inconsistency can plague research due to varying definitions. Some of these inconsistencies include the threshold of the number of victims used and whether the weapon type must be a firearm (Smart, 2018). The plethora of definitions and conceptualizations for what is a mass event and why it is that way has produced a situation where a heavily significant crime is not as well understood as it could be.

Extending the issues with mass homicide to family mass homicide produces an even more ambiguous situation. One major issue is that the FBI definition is often used as the default (Krouse & Richardson, 2015; Smart, 2018); yet, the FBI does not include family homicide in their definition of mass killing (The National Center for Victims of Crime, 2018). Therefore, it is important to explore creating a consistent definition and conceptualization for family mass homicide. Family mass homicide, which is not often included in definitions, occurs at a much higher rate than the public mass homicides that many definitions try to focus on (Krouse & Richardson, 2015). What must be considered when deciding on a definition is how broad or restrictive you want to be. For example, some definitions require three or more victims who die by a firearm (Mother Jones, 2019); whereas, others require four fatal or nonfatal victims (Mass

Shooting Tracker, 2019). Most research agrees that family mass homicides occur in similar time and space (Johns et al., 2010). The current study suggests a victim count of two or more victims because the average family household in 2018 was 3.14 (United States Census Bureau, 2018). What this shows is that not counting the offender, on average there can only be two victims which would be an annihilation or near annihilation of the family unit. Additionally, studies have shown that most family homicide deaths involve only two victims (Finkelhor & Ormrod, 2001; Liem et al., 2013; Tosini, 2017).

Descriptive Statistics: All Family Homicide & Mass Family Homicide

Important descriptive statistics for family homicide and mass family homicide highlight consistency with prior research with females being the most common primary victims in family homicide events (Fridel, 2017; Liem et al., 2013; Tosini, 2017); whereas in mass homicide generally, some studies show males to be the most common victim (Duwe, 2004; Huff-Corzine et al., 2014). Only one study involving family homicide events found the opposite to be true (Abolarin et al., 2019), while another found males to be victims more often when they were not an intimate partner victim (Smith et al., 2014). Research is also consistent with the present study's descriptive analyses showing that males are the most common offender in mass murder (Duwe, 2004; Fox et al., 2016; Lankford, 2015, 2016; Taylor, 2018), and family homicide events (Abolarin et al., 2019; Liem & Koenraadt, 2008b; Liem et al., 2013).

Racially, the current study showed most primary victims and offenders are White. Previous literature on the topic has been quite inconsistent. Studies on mass homicide have shown both White (Duwe, 2004; Taylor, 2018) and Black (Fox et al., 2016; Huff-Corzine et al.,

2014) offenders to be more common. However, the victim being more often White in mass

homicides was more consistent (Duwe, 2004; Huff-Corzine et al., 2014), with only one study

showing a near even split (Abolarin et al., 2019). There is more consistency in research on

family homicide perpetrators, showing White offenders more often (Fidel 2017; Liem et al.,

2013). Regarding age, primary victims and offenders are shown to be in their mid-to-late thirties,

on average. This finding was consistent with what prior research has found, though the range can

be a bit wider. For example, family homicide event research has shown the average age for

perpetration to be mid-to-late thirties (Fridel, 2017; Krouse & Richardson, 2015; Liem &

Koenraadt, 2008b). For victims, mass murder and family homicide event studies have found the

average age to be in the later twenties (Abolarin et al., 2019; Duwe, 2004; Krouse & Richardson,

2015; Smith et al., 2014).

For victim offender relationship, the immediate family members, not including current or

former intimates, was the most common group of people in the incidents. Literature regarding

mass events and family homicide events is lacking. What is known is that a family member is the

most common victim of mass murder (Abolarin et al., 2019; Duwe, 2004; Lankford, 2015, 2016;

Taylor, 2018). Another piece of research shows that for all multiple homicide, a family member

is normally at least one of the victims, and often an intimate and at least one child are the victims

(Abolarin et al., 2019). Regarding killing method, a firearm is used in over half of all the cases.

Prior research on mass homicide and multiple family homicide have shown some consistency

with this finding (Duwe, 2004; Fridel, 2017; Krouse & Richardson, 2015; Lankford, 2015;

Taylor, 2018). Regionally, the current study shows that the majority of cases occurred in the

South. Geographic region is somewhat scarce in the literature, but one study on family mass

homicide was consistent (Fridel, 2017). Conversely, an older study on mass homicide found that the four regions were split nearly evenly (Duwe, 2004). Finally, minors were about 30% of the deaths in mass family homicide. This shows that minors are overrepresented as the population of children (17 and under) in the US was only 23% in 2016 (National KIDS COUNT, 2019).

Comparison of Demographics and Characteristics for Models 1-3

Bivariate analyses for model 1 show nearly all the independent variables are associated with family mass homicide based on two or more victims. Model 2's bivariate statistics show only one significant association between the independent variables and family mass homicide (two versus three or more victims). Model 3's bivariate statistics show some significance between the independent variables and individual victim age based on minors versus adults. The chi-square statistics show that males were a victim much more often in adulthood, and minor victims were more often female. Females seem to offend much more often in single victim family homicides, compared to multiple family homicide. Additionally, males offend significantly more against those aged 18 or older; while, female offenders kill a minor more often. Black victims and offenders are much more common in single victim family homicides, with other races also being much more common in single victim family homicides.

Victim offender relationship shows that current or former intimates and dating partners killed occurred much less often in two or more victim mass family homicide. The immediate family and other family were nearly evenly split between the two categories. The other member status was nearly exclusive to adult victims killed. Killing method showed firearm usage to be nearly split between each category, while every other killing method was much less populous for

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two or more victim family mass homicide, comparted to single victim family mass homicide. Firearms were also used most often overall between minors and adults, but knives and blunt objects were used much more often against victims 18 years and older. Other methods of killing, e.g., "poison – does not include gas," "pushed or thrown out window," "explosives," "fire," "narcotics or drugs, sleeping pills," "drowning," "strangulation – hanging," "asphyxiation – includes death by gas," and "other or type unknown" were shown to be associated with victims 17 years and younger. Finally, for those victims who were not minors, a large majority were a part of single victim cases. Additionally, a large majority of minor victims occurred in two victim mass family homicide, compared to three or more.

Binary Logistic Regression for Model 1

Binary logistic regression results for model 1 show that compared to males, females were more likely to be killed in two or more victim mass family homicide compared to single victim family homicide. This is consistent with prior research on family homicide events. Fridel (2017) shows that in family mass homicide, female victims accounted for close to 60%, with almost half of those being children. At the same time, studies on other types of multiple family homicide show that females are the most common adult victim overall (Liem et al., 2013; Tosini, 2017). Next, model 1 shows that compared to females, males are more likely to be offenders of two or more victim mass family homicide. Prior literature on multiple family homicides is consistent with this finding (Abolarin et al., 2019; Liem & Koenraadt, 2008b; Liem et al., 2013).

Regarding victim-offender relationship, compared to current or former intimates, immediate family and other family relationships were more likely to be killed in two or more

mass family homicide. As previously mentioned, not much is known regarding victim offender

relationship as it relates to family mass homicide. The little that is known is that family members

are the most often killed in a mass murder (Abolarin et al., 2019; Duwe, 2004; Lankford, 2015,

2016; Taylor, 2018). An in-depth explanation for why immediate family and other family are

more likely killed could be explained by the fact that the immediate family are the people closest

to the offender outside of their current or former intimate. In a family mass homicide, it makes

sense that the other victims would be those closest to the offender. This is similar to how other

homicides operate, where the victim is generally known to the offender. To help tie this idea

together for immediate family, prior literature has shown that many multiple family homicides

include the deaths of an intimate and a child (Liem et al., 2013; Smith et al., 2014).

All methods of killing are significant, showing that compared to a firearm, knives, blunt

objects, personal contact, and other methods were all less likely to be used in two victim family

mass homicide (compared to single victim family homicide). This is reiterated by the general

finding in multiple family homicide literature that a firearm is the most often used method

(Fridel, 2017; Krouse & Richardson, 2015; Liem et al., 2013; Smith et al., 2014). The other

weapon types may be less commonly used in mass family homicide compared to single victim

family homicide because there are both more people and it could be viewed as less personal by

the offender compared to an IPH, for example. It is interesting to know that no other method was

more likely considering often it is known that children killed by family are not often killed with a

firearm, especially if young enough.

Compared to adult victims, minors were more likely in two victim family mass

homicides. This finding in and of itself makes sense because often single victim family homicide

is an IPH, which would not involve a child. Finally, the two borderline significant variables showed that compared to White primary victims, Black victims were less likely in two or more victim family mass homicide and other race victims were more likely. Prior research in mass murder generally shows that Whites are killed more often (Duwe, 2004; Huff-Corzine et al., 2014), but no family mass homicide literature was found to suggest why Black victims would be less likely and other race victims more likely killed compared to White victims.

Binary Logistic Regression for Model 2

The second binary logistic regression between two victims of mass family homicide and three or more victims of mass family homicide failed to yield many significant results. This could be due to a few key reasons. The data available did not provide an adequate number of cases, accuracy issues or recording error may have been present, and it may have underrepresented the number of child victims. For example, originally this model was supposed to incorporate a multinomial logistic regression including two victim, three victim, and four or more victims. This could not be done because a category with four or more victims did not yield enough cases for comparison. This will be discussed more later in the next chapter.

A few variables that were significant in this model included age, such that as victims get older it is more commonly a two-victim family mass homicide, compared to a three or more victim family mass homicide. Regarding victim-offender relationship, compared to current or former intimates, two-victim family mass homicide was more likely when the status was immediate family. Finally, two-victim family mass homicide is less likely when the victim is a minor. These two findings have little backing in literature and need to be further explored while

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trying to adjust for the limitations of the current model. Given the limitations of the data, the results here comparing two victims and three or more victims may not negate the argument for mass family homicide to be defined as two or more victims. Further explanation through research is needed first.

Binary Logistic Regression for Model 3

The third binary logistic regression between minor victims in family mass homicides and adult victims in family mass homicides showed that compared to males, a minor victim is more likely when the primary victim is a female. Prior studies on the topic of child victims generally have noted that the child victims of multiple family homicide tend to be about even across males and females (Abolarin et al., 2019; Cavanagh et al., 2007; Finkelhor & Ormrod, 2001). Conversely, when the primary offender is male, there is a lower likelihood of a minor victim. Prior research in multiple family homicide is once again split, with some showing that males more often kill children (Coyne-Beasley et al., 2003; Liem & Koenraadt, 2008b). Other studies, specifically on parents who killed children showed female offenders were more common (Stockl et al., 2017; Vanamo et al., 2001). The next finding showed that the younger the victim's age, the more likely a minor victim in family mass homicide.

Regarding victim-offender relationship, minor victims in family mass homicide was less likely when the primary victim and offender were in a dating, immediate family, and other family relationships, compared to a current or former intimate relationship. This may tie into intimate partner homicide-suicide literature where one study found the parents of the child victim(s) was married or in a current relationship often (Sillito & Salari, 2011). These authors

also noted that child victims were killed by their biological parents nearly 90% of the time. Even Stockl et al. (2017) notes that parents killed their child the majority of the time, especially the youngest children. Vanamo et al. (2001) showed that in Finland most of the time a child was killed, they were either killed by a parent or stepparent. Yet, this is an interesting finding because it has not yet been covered under the guise of family mass homicide. These are all good guiding results, but they are on studies of child homicide, not necessarily family mass homicide or multiple family homicide.

The final significant results in model 3 showed that compared to a firearm, use of knives, personal contact, and other methods were more likely to be used on minor victims. Research on method of killing for minor victims of family homicide is not as clear cut and in-depth as it is in homicide and multiple homicide generally. One study does note that children killed in a family circumstance are often killed by a firearm (Sillito & Salari, 2011). A second study noted that both firearms and sharp instruments were common in adolescent femicide (Coyne-Beasley et al., 2003). Yet studies focused on young children, e.g., filicides, show that the most common modes of killing involve strangulation, physical maltreatment, and a sharp object (Liem & Koenraadt, 2008a).

CHAPTER 9: CONCLUSION

The current study has implications for establishing consistency in research regarding family mass homicide. As this is an early exploration into the topic, the present results should be viewed with caution. However, it is important to continue trying to address the issue of family mass homicide through different methods, including a variety of datasets and variables to help aid in the development of a proper and consistent line of research relating to the topic. An essential goal for the current study was to initiate a discussion regarding a proper definition and assessing characteristics. In reference to the definitional argument of two or more victims, prior research highlights, on average, most families included 3.14 members in 2018 (United States Census Bureau, 2018). Therefore, when not including the offender, this means that on average, there may only be two victims, and the entire family is killed. The issue regarding the two or more victim's definition and the average family size highlights two important aspects. First, having any victim count above two, taking into account the average family size, would mean that many family mass homicides may not exist. Second, excluding single victim cases, with the killing of an entire family unit, then this must be considered a mass event because it is the annihilation of virtually an entire group. The arguments relating to these issues are supported by the data utilized in the study, which highlights that the majority of family homicide events involve two victims.

The major findings for the current study indicate that using a definition of two or more victims is significant and essential. Each model was used to view the consistency and definitional problems associated with family mass homicide in a defined and operationalized way. Furthermore, studying multiple family homicides through a mass murder lens is, to date,

unique. The three models utilized in the study highlight that a two or more victim mass family homicide is significantly unique, compared to non-mass family homicide.

Secondly, the current study was unable to produce many meaningful differences when assessing the potential differences between two victim family mass homicide and three or more victim family mass homicide (model 2). Nonetheless, it is important to understand that this was an initial exploration into a topic that needs further evaluation (see limitations and future research). The results are important because they emphasize new avenues for study. For example, although the number of victims may not be as important; as initially argued, it instead may be the type of killing that may be the most important. An example of this for future research studying mass homicide may be to utilize the multi-lenses of school, family, workplace, public, among others, as their own unique events. This avenue of research may have more policy implications as it could produce targeted approaches for specific crime types instead of a blanket approach based solely on the number of victims. Another reason for the lack of statistical differences found may be a consequence regarding how the SHR manages family mass homicides and mass homicides generally. For example, within the codebook, there is no variable for mass murder, and the FBI does not include domestic cases as mass murders (The National Center for Victims of Crime, 2018). Consequently, information may be missing because the data are not updated, and law enforcement is inconsistent in the methods of recording these incidents.

Lastly, the current study found support for minor victims in mass family homicide possibly being a special case that warrants not only combined, but also separate analyses to understand a particularly vulnerable subgroup in the family who plays a unique role in the violence. Often when dealing in the family context those under the age of 18 are uniquely

different than adults. This is important to understand because if true in family mass homicide, targeted policy approaches may have to be different when aiding in the protection of minors that are subject to this type of violence.

<u>Limitations</u>

Limitations for the current study include the use of SHR for studying a mass event. The SHR is an effective source of data for homicide, but it does have its limitations. For one, its use as a source of family mass homicide could be missing some information since the SHR does not directly code for mass homicide, and the FBI does not include the family in its definition of mass homicide (The National Center for Victims of Crime, 2018). This may be why a multinomial logistic regression between two victim, three victim, and four or more victims was not possible. The current data did not have enough cases of four or more victims for inclusion, so an analysis of these cases separately was lost. It may also be that there just are not many family mass homicides that involve four or more victims. Next, SHR data does not allow for enough variables and value classification. What this means is that the choice of variables for analyses are limited to a few types, and the categories within the variables are not encompassing enough. It would be interesting to try and tie more variables into the analyses, such as drug use, to see what impact that may have. Additionally, the categories in SHR variables may be either miscoded or may be used incorrectly. For example, divorced or separated as a relationship status should be coded as separate values. Cohabitation would also be good to know, especially with the inclusion of dating relationships. Finally, the relationship status variable and the weapon variable would

benefit from more diverse categories, such as grandparents and separation of gun types accurately.

Another limitation of the current study is the exclusion of homosexual relationships. Because of this, the current study can only determine impact on this broad categorization. It is, however, important to consider homosexual relationships in future work as this subgroup is already understudied. Next, the use of primary victims limits the overall understanding, especially in regard to the family mass homicide with primary minor victims compared to primary adult victims characteristics (model 3) as the researcher had to rely on who the report listed as the primary victim. Regarding SHR representativeness, though it nearly nationally represents the US as a whole in terms of homicide (US Department of Justice, 2014), some states such as Florida do not report data. This may have no impact, but it is worth noting.

Future Studies

Overall, the current study's statistical models were an initial exploration toward consistency for a type of mass homicide that is understudied, especially considering it is the most common type of mass homicide. Unfortunately, the SHR has limitations, which hindered some proposed avenues of research for the current study. Three or more victim incidents in the SHR may be smaller in total compared to what may be found searching through news articles. Future studies should consider this approach, as secondary data is not yet built for studying mass events. Adding more years using secondary data could also be a possibility. Additionally, one may try the National Incident-Based Reporting System (NIBRS) to get more in-depth information on mass family homicides. While NIBRS is not representative of the US as a whole, one study

comparing the accuracy of NIBRS to the SHR has found no significant differences between the

data sets regarding findings, specifically for mass murder (Huff-Corzine et al., 2014)[5]. It would

also be interesting to compare mass family homicide that includes IPH (when it meets the

definition) with mass family homicide that does not include IPH to help determine if those IPH

cases are uniquely different. Future research should also focus more on the role of minors in

mass family homicide. For example, including an examination of cases that include minors

versus cases that do not. It would also be interesting to assess the potential role of children as

minors versus children of any age, meaning whether those who are not adults yet (17 and under)

are different than those who are the offenders child but are adults (18 and over). Finally, future

studies should potentially control for regional populations.

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[5] After the COVID-19 crisis, additional data strategies could be applied but ultimately got cut short, and the models made were the ones that had to be used.

APPENDIX: UCF IRB LETTER

<u>NOT HUMAN RESEARCH DETERMINATION</u>

May 13, 2020

Dear Alec Szalewski:

On 5/13/2020, the IRB reviewed the following protocol:

Type of Review:	Initial Study
Title of Study:	Family Mass Homicide: An Investigation
Investigator:	Alec Szalewski
IRB ID:	STUDY00001819
Funding:	None
Grant ID:	None
Documents Reviewed:	IRB Faculty Advisor Review.pdf, Category: Faculty Research Approval;
	IRB Szalewski 1819 HRP-250 Not Human Subjects Form Updated.docx, Category: IRB Protocol;
	Public Secondary Data Variables for IRB Review.docx, Category: Other;

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving human in which the organization is engaged, please submit a new request to the IRB for a determination. You can create a modification by clicking **Create Modification / CR** within the study.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,
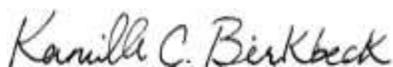
Kamille C. Birkbeck

Kamille Birkbeck

Designated Reviewer

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