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Female serial killers in the United States: means, motives, and makings

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Most studies that have focused on female serial killers (FSKs), although informative, have examined limited sample sizes. We consulted mass media reports of demographics, motives, methods, mental health, and victim characteristics of 64 FSKs who committed their crimes in the US from 1821 to 2008. Consistent with other studies, our data showed that FSKs were typically White, educated, have been married, and held a caregiving role (e.g. mother, health care worker). Nearly 40% of FSKs in this sample experienced some form of mental illness. Their most common motive for murder was financial gain, and their most common method of killing was poisoning. FSKs knew all or most of their victims, and most were related to their victims. In all cases, FSKs targeted at least one victim who was a child, elderly, or infirm – those who had little chance of fighting back. We interpret these killers' behaviors from clinical and evolutionary angles.

Keywords: female; serial killers; FSK; motives; background; mental health

Introduction

Jeffrey Dahmer. John Wayne Gacy. Ted Bundy. These men's names conjure horrifying imagery; indeed, a male serial killer typically attracts and fascinates the public. This morbid concept even makes its way into entertainment media (e.g. movies *Se7en*, *The Silence of the Lambs*; the television show *Dexter*). In contrast, few are familiar with Belle Gunness, Nannie Doss, Dorothea Puente, or other women who committed serial murders in the US (Holmes, Hickey, & Holmes, 1991). The public is not typically aware that female serial killers (FSKs) have indeed committed murders in the United States (US) for about as long as the US has been a nation. As an example, from 1802 to 1829, Martha 'Patty' Cannon, called a 'she demon' by newspapers of the time, killed men, women, and children by beating, shooting, and burning them. She also kidnapped and sold people into slavery (American National Biography Online,

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2008; Newton, 1993). There is one exception; FSK Aileen Wuornos did receive considerable attention in the US when the movie *Monster* depicted her homicidal journey. Interestingly, however, her pattern of behavior, killing methods, and victims are not consistent with those of other FSKs (Silvio, McCloskey, & Ramos-Grenier, 2006).

Whereas criminal profiling of male serial killers is common, in the past, murder by FSKs has been misconstrued, overlooked, and underestimated. At one time, definitions of 'serial killer' were limited to criminal acts of a sexual nature, which is not typical of FSKs. Moreover, previous definitions referred to male perpetrators only (Farrell, Keppel, & Titterington, 2011). As noted by Holmes et al. (1991), some experts have even argued that 'there are no FSKs.' Although we now have evidence that about 16% of all serial murderers are women (Hickey, 2010; Kelleher & Kelleher, 1998), arguably little contemporary research focuses on elucidating their entire stories. The aim of the present study therefore is to document and interpret motives, means, and backgrounds of FSKs who committed their crimes in the US.

There is a general misconception that women in our society are, by their very nature, incapable of multiple murders. Schurman-Kauflin (2000) posited that 'no one believes that a woman could kill multiple victims' (p. 13) and that this disbelief results in undetermined or unsolved murder cases. This misconception is literally a deadly mistake; mirroring general homicide trends, as stated earlier, about 1 in 6 serial killers are women. This diverges from the common portrayal of serial killers as White men like Bundy and Dahmer who commit sex crimes (Vronsky, 2004). It appears that serial killings violate social norms for females and feminine gender roles, and Pearson (1998) speculated that our culture is in denial of women's proclivity for aggression. This likely contributes to FSKs going undetected for a longer period of time compared to male serial killers (Hickey, 2010; Kelleher & Kelleher, 1998) or even getting away with murder (Pearson, 1998). This underscores the importance of researching and understanding this phenomenon.

Previous research

There is a paucity of research regarding the behaviors and histories of FSKs. Previous studies often focus on single case studies (Frei, Völlm, Graf, & Dittmann, 2006; Orstrosky-Solis, Velez-Garcia, Santana-Vargas, Perez, & Ardila, 2008). While idiographic research provides rich details on serial killer development and may generate hypotheses about the background and *modi operadi* of FSKs, it may lack generalizability. Thus, below we report largely on group-based studies, and we organize our discussion loosely by date of study.

Hickey (1991) (with updated results in 2010), conducted one of the most comprehensive studies of FSKs to date. He examined the histories and crimes of 64 FSKs who committed their murders in the United States. He studied case reports and conducted interviews when possible. He found that 98% of FSKs

were White, about age 31 when they began their crimes, and killed between 7 and 10 victims (he did not report exact statistics in his book). Their most common means of murder was poisoning, and their most common motive was financial gain. Further, these women killed more people familiar to them than they did strangers, and more than a third killed children. The latter fact certainly contrasts with the general perception of serial killers as only targeting strangers.

Kelleher and Kelleher (1998) detailed an international sample of 100 FSKs that included US perpetrators. Their findings were largely consistent with Hickey's (1991, 2010). Kelleher and Kelleher documented that FSKs most frequently used discrete methods of killing, such as poison, suffocation, and staged accidents. They noted profit to be among the primary motives for murder, with those who did murder for profit enjoying the longest amount of time before getting caught. They reported that FSKs tended to target helpless victims (children and elderly) as well as their own committed partners, with their victims most likely to be people familiar to them (e.g. friends, significant others, and other relatives).

Other studies have made admirable efforts but did not examine as large of a sample size as Hickey's (2010) and Kelleher and Kelleher (1998)'s did. Schurman-Kauflin (2000) interviewed a sample of seven White FSKs. These women killed 36 known victims. She noted that they were all employed in stereotypically feminine occupations/roles, as three out of seven were in nursing or babysitting professions, one was a stay-at-home mother, one was a secretary, and two were prostitutes. Most were located within the Southern US (vs. male serial killers, who tend to operate in the Northwest US). The mean age at which they began killing was 32.5 with great variability (ages ranged from 17 to 58). Further, they killed female and male victims with equal frequency. Their mean number of victims was six, and the average victim age was 48.5 (older than the average victim age of male serial killers). Schurman-Kauflin commented that the older victim age was not surprising due to the number of nursing home killings perpetrated by these FSKs.

Schurman-Kauflin (2000) further reported that FSK victims typically were defenseless – either elderly people or infants and children who could not fight back due to age or illness. The author pointed out that whereas male serial killers tend to render their victims immobile by tying them or binding them in some manner, FSKs tend to select those who are already powerless, increasing the FSK's perceived sense of control (p. 62). Of note, female serial murderers do not generally inflict mutilation damage, engage in victim torture, or stalk their victims, in contrast to male serial murderers (Hickey, 2010; Keeney & Heide, 1994). Indeed, as Farrell et al. (2011) noted of FSKs, 'it is unlikely you would find a woman sexually assaulting a corpse or engaging in cannibalistic or vampiric activities' (p. 230).

Acknowledging methodological limitations and noting that FSKs are 'an elusive population to study' (p. 228), Farrell and colleagues (2011) perused

media reports and obtained detailed, descriptive data on 10 female serial murderers who committed their crimes in the US. All were White, consistent with results from older studies (e.g. Keeney & Heide, 1994). They began committing murders at a mean age of 37.6 years but were caught at a mean age of 45.3 years, indicating a substantial period of going undetected. This is similar to previous findings by Hickey (2010), and as noted by Kelleher and Kelleher (1998), known FSKs have been shown to murder over a time span twice as long as that of male serial killers (about eight years compared to about four years) before getting caught. A factor that may be contributing to this is that FSKs typically do not discuss their crimes, vs. male serial killers, who may brag (Vronsky, 2004).

In addition, Farrell and colleagues (2011) showed that FSKs murdered nine victims on average, generally murdered within their local area (44.29%), and infrequently travelled to kill. As a means they tended to use methods such as poisoning (52%), asphyxiation (7%), or shooting (7%). These results are consistent with earlier studies, including one by Wilson and Hilton (1998) who found poisoning to be the primary means of murder for a sample of 105 serial killers. In fact, evidence suggests that women are four times more likely than men to drug their victims (60 vs. 15%), as it may be easier for them to subdue their targets in this way (White & Lester, 2012). Further, Farrell and colleagues thoroughly documented victim characteristics and found that 80% knew their perpetrator personally. Also, in terms of occupation, nearly a third of the FSKs in their sample were nurses, similar to the findings of Schurman-Kaufman (2000).

Interestingly, Farrell et al. (2011) reported that most female serial murderers from their sample were not actually charged with homicide. This supports the notion that Western society is reluctant to convict FSKs (Kelleher & Kelleher, 1998) and that our society tends to view female criminals as victims themselves (Pearson, 1998).

But what *makes* a FSK? Whereas the above research paints a disturbing yet converging picture of demographic profiles and powerless victims of FSK, literature is curiously sparse on their mental health histories, although ample literature can be found on mental illness of male serial killers (see Morana, Stone, & Abdalla-Filho, 2006, for review), particularly on sexual sadism (e.g. Hickey, 2010; Johnson & Becker, 1997).

Twenty years ago, Keeney and Heide (1994) studied a sample of 14 FSKs via mass media reports and found that the majority were diagnosed with a pathological disorder including histrionic personality disorder, borderline personality disorder, bipolar disorder, or dissociative disorders. In addition, Frei and colleagues (2006) conducted a case study of a FSK in which they determined the perpetrator met ICD criteria for a mixed-personality disorder with borderline, schizoid, narcissistic, and dissocial features as well as some autistic spectrum traits (p. 175). However, the actual examiners did not consider this subject to be mentally ill. Although these efforts can inform our understanding,

this small sample pool limits generalizability. Further, as both Schurman-Kaufman (2000) and Farrell and colleagues (2011) stated, mental illness may be ascribed after the perpetrator is caught and scrutinized by the public, e.g. the perception arises that only a mentally ill person is capable of such heinous acts. We thus have to interpret the FSK mental health history with caution.

In addition to mental illness, it has been suggested that one factor underlying the behavior of many serial killers is a past history of experiencing abuse or violence (Hickey, 2010; Keeney & Heide, 1994). While this theory has been widely circulated among male serial killers, it is not well understood whether or not this holds true for FSKs. Keeney and Heide (1994) obtained abuse history for eight FSKs and found that five reported sexual abuse (e.g. raped and molested) and five reported physical abuse (e.g. beaten and slapped). Yet another case study of a FSK by Frei et al. (2006) revealed no physical or sexual childhood abuse history, although the FSK very likely experienced childhood maltreatment in the form of neglect. Similarly, Orstrosky-Solis and colleagues (2008) documented a case of a FSK who did report a history of childhood physical and psychological abuse. Again, generalizability is limited due to these small sample sizes, but these results do suggest a disruption of normal development that warrants further exploration.

The aforementioned research does elucidate some patterns of FSK behavior and background, informing the need for detailed, continued study. These studies also evince differences between male and FSKs. For example, FSKs tend to carry out their crimes over a longer period of time, have more victims, target familiar victims, are frequently nurses or serve some other caretaker role, and have a different type of victim compared to male serial killers (Farrell et al., 2011). They also have different motives and use different means for killing (Hickey, 2010), ranging from smothering their own children, to killing successive spouses for insurance money, to acting as ‘angels of death’ administering lethal injections to helpless people in their care. Because FSKs diverge from male serial killers’ *modi operandi* in their crimes, it is important to note that, as Farrell, Keppel, and Titterington (2013) contend, FSKs are not easily categorized into the dimensions developed from extensive study of male serial killers. It is prudent, then, to see what information can be yielded with a larger, more current sample of FSKs.

The present study

Farrell and colleagues (2011) speculate that ‘what we know about female serial murderers may be significantly outweighed by what we do not know’ (p. 248). Interestingly, many books that detail profiles of FSKs tend to gather information primarily from the aforementioned forensic study by Hickey (2010) (e.g. Vronsky, 2004), and large, current, empirical endeavors are scarce. The purpose of the present study is therefore to document the means and motives of FSKs in the US as well as their demographics and mental health histories.

Nomothetic approaches are needed to examine general trends and shared histories or traits to allow for possible prediction and prevention.

Method

There is no agreed-upon definition of ‘serial killer.’ The Federal Bureau of Investigation of the US (FBI, 2005) considers serial murder to be ‘the unlawful killing of two or more victims by the same offender(s), in separate events.’ However, academics such as Farrell et al. (2011), Hickey (1991, 2010), and Holmes et al. (1991) define serial murder as *three* or more deceased victims. We therefore defined serial murder as cases of the intentional killing of three or more victims, with a cooling-off period between killings of at least one week (compared to mass murders that have none) (FBI, 2005).

In the present study, because we were interested in examining *female* motives, we focused upon FSKs who acted alone or in a team in which they were the primary planner or an equal participant in murderous events.

We used *Murderpedia.org* to compile a list of perpetrators in the US to 2014 (the present date). We verified that each met our definition by perusing reports from reputable news sources (e.g. Associated Press, Reuters, television networks, and local newspapers). We then compiled profiles of 64 FSKs whose crimes dated 1821–2008. This approach follows that Harrison and Bowers (2010) who consulted verifiable media for information about mass murderers, that of Messing and Heeren (2009) who examined cases of domestic homicide and those of Keeney and Heide (1994) and Farrell et al. (2011) who similarly examined verifiable media reports to study FSKs.

Of note, we made it a point not to mention or discuss names of FSKs where possible, as a desire for notoriety may motivate some murderers. One writer exclaimed that the names of murderers are names ‘we’d much rather not know’ (Brin, 1999).

Results

We present the results below regarding FSK demographics, FSK history, crime antecedents, means, motives, and victim characteristics. As information for all variables was not available for all 64 FSKs, we present a mix of percentages and absolute numbers.

Demographics

Birthplace

Our sample consisted of 64 FSKs who committed their crimes in the US, with 63 (98.4%) born in the US.

Ethnicity

We documented ethnicity for 62 out of the 64 cases and determined that, consistent with previous research, the majority of FSKs ($n = 55$) were White (88.7%). In addition, six (9.7%) were Black and one (1.6%) was Latina.

Religion

Information about religious affiliation was limited. Within the 18 cases in which it was indicated, 100% were Christian.

Relationship status

Data on relationship status were available for 59 cases. At the time of acts, 54.2% were married, 15.3% were divorced, 13.5% were widowed, 8.5% were in long-term, committed relationships, and 8.5% were single. For those who were married, divorced, or widowed (81.4%; $n = 48$), they averaged two marriages ($M = 2.06$, $SD = 1.52$), with a range from one to seven marriages. Nearly a quarter (22.9%) were married three or more times.

Socioeconomic status

In cases for which we were able to gauge SES ($n = 47$), most FSKs were middle class (55.3%), with somewhat fewer being lower class (40.4%). Upper class (4.3%) was infrequently represented.

Age

FSKs ($n = 61$) were mean age 32 ($SD = 11.68$) at the time of first act. At the time of their first killings, they ranged in age from 16 to 65, evincing considerable variation. Nearly half were in their 20s (49.2%), and nearly a quarter were in their 30s (24.6%). Some were in their teens (6.6%), yet some were older, in their 40s (9.7%), 50s (3.3%) and even their 60s (6.6%). Further, FSKs were mean age 39.25 ($SD = 12.32$) when the serial murders ceased. This portrays a mean killing time span of 7.25 years ($SD = 7.90$), ranging from all murders committed in the same year to murders committed over a 31-year period.

Academic achievement

Academic achievement information was available for 40.6% ($n = 26$) of our sample. Of these FSK, 34.6% had college or professional degrees, 19.2% had some college or post-high school professional training, 15.4% were high school graduates with no education beyond, and 30.8% were high school dropouts; indicating considerable variation in the academic histories of FSKs.

Estimated intelligence

Sources reported on intelligence for 25% of our FSK sample. Of these, 50% ($n = 8$) were said to be of average and 12.5% ($n = 2$) of high intelligence. Further, 28.6% ($n = 6$) were said to be considered to have intellectual disabilities/classification as intellectually deficient or challenged due to low IQ scores.

Occupation

We could document occupation for 51 FSK. They had a wide variety of jobs ranging from nursing to Sunday school (religious) teaching to prostitution. A large proportion of FSKs (39.2%) worked in health-related positions (e.g. nurses, nurses' aides, and health administration). Many (21.6%) worked in other, direct caregiving roles (e.g. babysitter and stay-at-home mother/wife). The remaining 39.2% held a myriad of other jobs such as farmer, gang leader, custodian, prostitute, psychic, drug dealer, and waitress. In addition to these, reports indicated that 1 FSK was unemployed.

Appearance

Reports availed physical appearance information for 25 cases. Ten were described as normal, seven as attractive (e.g. one was compared to actress/model Elizabeth Taylor), five as overweight, and three as unattractive (e.g. 'remarkably ugly,' 'not particularly attractive').

History

Information on FSK histories was limited. We must stress that it is impossible to determine whether the absence of information indicates the absence of these experiences or unrecorded events for undocumented cases. These data must necessarily be interpreted with a degree of caution.

Childhood issues

We found six cases (9.4% our total sample) reported to have experienced severe illness in childhood (head trauma, scarlet fever, seizure disorder, polio, blood poisoning and thyroid issues, and measles resulting in poor vision). It is estimated that in the last 50 years between 2 and 7% of children in the US have had chronic diseases (Centers for Disease Control, 2009). Although this estimate does not even approximate covering the entire time span of our sample's childhood, our data do show a prevalence greater than the upper limit of chronic illness estimates, particularly considering that the US prevalence of chronic disease has increased over time.

With respect to childhood behavior, in six cases (9.4%), FSKs exhibited symptoms consistent with conduct issues (e.g. lying, stealing, violence, and cruelty to others). Although not diagnosed with conduct disorder per se, this is nearly a third higher than the estimated 7.1% prevalence for girls in the US (Nock, Kazdin, Hiripi, & Kessler, 2006). We also found three cases (4.7%) in which the FSK was pregnant at age 16 or younger and three cases (4.7%) where the FSK was married as a teenager.

Parental and familial issues

Only about a third of FSK reports ($n = 21$) elucidated FSKs' relationships with their parents and siblings when FSKs were children.

With some overlapping experiences, two FSKs had mothers who were alcoholics, and four FSKs had fathers who were alcoholics. If we consider our entire sample of 64 FSKs, this is 6.25% prevalence for fathers and 3.13% prevalence for mothers. This is about the same as one sees in the general population of the US for men (5.48%) but higher compared to women (1.92%) (World Health Organization, 2012). However, we stress that contemporary prevalence may not be an accurate comparison for those who were children across the last two centuries.

In addition, in these 21 reports, we found several familial issues, with overlap in experiences. Five FSKs had mothers who were overly controlling, and four had fathers were overly controlling. In addition, two had mother figures that were severely insulting and denigrating to them. Further, five had a mother who was absent or deceased, one had a mother who was a prostitute, and one had a father who was absent or deceased. We also found instances of parental abandonment ($n = 4$), strict religious upbringing ($n = 2$), parental remarriage ($n = 2$), being one of many (five or more) brothers and sisters ($n = 6$), mental and severe physical illness among family members ($n = 2$), and severe poverty ($n = 2$).

Physical and sexual abuse

We found 20 cases in which the FSK was physically and/or sexually abused; this is nearly one third of our sample (31.5%). In five of these cases, the FSK experienced both. In 14 cases, the abuse occurred during childhood; and in 6 cases the, abuse occurred during adulthood. Abuse (e.g. beaten, burned with cigarettes, and denied food) was perpetrated by fathers, mothers, grandparents in childhood, and by husbands or other long-term partners in adulthood.

Substance abuse

Drug and/or alcohol abuse was reported for 15 FSKs (23.4% of our sample). Of these, seven abused drugs (illegal and prescription), five abused alcohol, and three abused both.

Mental health history and treatment

In 25 cases, FSKs were reported to have a severe mental illness (39.1% of our sample). We considered prevalence rates recognized by the National Institute of Mental Health (n.d.) for comparison.

Two individuals were diagnosed with Munchausen's syndrome by proxy (MSBP), while another was comorbid for MSBP and schizophrenia. Considering that the prevalence of factitious disorders is not well known but estimated to be between .05 and 2% (Pope, Jones, & Jones, 1982), a 4.7% confirmed prevalence in our sample is more than twice the upper limit estimate of that of the population. Since 25 out of 64 (39.1) killed children in their care, it is possible that additional FSKs may have met the criteria for MSBP.

In addition, two FSKs were diagnosed with schizophrenia. Also including the aforementioned individual with comorbidity, schizophrenia was observed in 4.7% of our 64 FSK, which is more than four times the 1.1% prevalence of the US adult population (Regier et al., 1993).

Further, two FSKs were reported to have antisocial personality disorder (ASPD), and another was comorbid for ASPD and posttraumatic stress disorder. Considering the 1.0% prevalence rate for ASPD for women in the US (American Psychiatric Association, 2000; Lenzenweger, Lane, Loranger, & Kessler, 2007), the 4.7% prevalence for FSK in our sample represents a nearly fivefold risk.

Moreover, three (4.7%) FSKs exhibited major depressive disorder and/or suicidal ideation (one was comorbid for dissociative fugue). This is below the 6.7% prevalence of major depressive disorder in the US (Kessler, Chiu, Demler, & Walters, 2005). This contrasts with the findings of Schurman-Kauflin (2000) who found the overwhelming majority (87%) of FSKs in her sample to be suffering from depression. All mental health issues that we were able to note for our sample are listed in Table 1.

Interestingly, reports indicate that only in nine out of 25 cases of mental health issues did FSKs receive treatment for mental illness, and in most (six) of those cases the treatment came before crimes were committed.

Sexual adjustment

Reports for eight (12.5%) FSKs commented on sexual behavior. One was a rapist, two were known to engage in peculiar sexual acts (e.g. autoerotic asphyxiation and barking like a dog during sex), three were known to be promiscuous, and two were known to use sex as a tool to earn drugs and money.

*Antecedents**Environmental stressors*

For seven (10.9%) FSKs, we found reports of environmental stressors allegedly contributing to their criminal activities. These were: stress from a husband's

Table 1. Mental health issues present in FSKs ($n = 25$).

Anxiety	1
Antisocial personality disorder	2
Bipolar disorder	2
Borderline personality disorder	1
Dissociative disorder	1
Hypochondria	1
Mental illness undefined	2
Mixed-personality disorder	1
Mental retardation	1
Major depressive disorder/Suicidal ideation	2
Munchausen's by proxy	2
Postpartum	1
Psychosis	1
Schizophrenia	2
<i>Comorbidity</i>	
Mental retardation & Dependent personality disorder	1
Antisocial personality disorder & PTSD	1
Depression & PTSD	1
Depression and dissociative fugue	1
Schizophrenia & Munchausen's by proxy	1

societal position; reported stress of living in a gated community; ridicule by family; giving children up for adoption; being pregnant multiple times in one year; claiming that doctors were unresponsive to children's medical issues; and being unmarried.

Recent crises

In 15 (23.4%) cases, we found mention of crises in close temporal proximity to the offenses. FSKs experienced relationship problems in nine cases; family problems (e.g. maternal pressure) in two cases; unexpected pregnancy in two cases; and there was one case each of job stress and financial hardship.

Mental decompensation

There was evidence of mental decompensation prior to murderous acts for six FSKs. These cases revealed two psychotic breaks, two instances of losing control and worth, one attempt at suicide, and one who entered a fugue state.

Demeanor

The available information allowed us to categorize the demeanor of 31 FSKs. They were *angry* ($n = 1$); *bizarre* ($n = 6$), e.g. attributing murderous ideas to 'the devil,' or going to her own victims' funerals and sobbing; *depersonalized*

($n = 1$), e.g. 'I had no control'; having *flat affect/withdrawn* ($n = 8$); *arrogant/flippant* ($n = 3$), e.g. 'You can dig up all the graves in the world and you won't get anything more on me'; *grandiose* ($n = 2$), e.g. described self as 'a very giving person'; *hyperactive* ($n = 1$); *serene* ($n = 1$); *sociopathological* ($n = 7$) e.g. court described as 'sociopath and degenerate,' or liking death and going to funerals of people she did not know; and *unstable* ($n = 1$).

Crime time and place

Timeframe

We found 9.4% of cases from the 1800s, 84.4% from the 1900s, and 6.3% from the 2000s. This is not surprising, as media reporting and criminal science investigative techniques became exponentially more sophisticated over the twentieth century, and currently we are only in the second decade of the twenty-first century.

Noting that some reports contend that female-perpetrated serial killing is increasing over time (cf. Hickey, 2010), we broke down data from the last 100 years (1914 to the present; $n = 53$) into 50-year increments. We found 15 FSKs from 1914 to 1964 and 38 FSKs from 1965 to the present. While this is likely due, in part, to increasing sophistication of detection methods, it does indicate a statistically significant increase of greater than 150% in the past 50 years [$\chi^2 (1, N = 53) = 9.98, p = .002$].

Geographic area

Information was available for all 64 FSKs with respect to the geographic areas in which they committed their murders. Of our cohort, 28.1% murdered only in urban areas, 9.4% murdered only in suburban locations, and 17.2% murdered only in rural areas. Still others spread their killings across areas, as 23.4% murdered in both urban and suburban areas, 21.9% murdered in suburban and rural areas. Stated another way, more than half of the FSKs in our study committed killings in suburbia.

State

The 64 FSKs in our sample committed crimes in 31 states, with some committing their crimes in more than one state: Alabama (2), Arizona (1), Arkansas (2), California (4), Colorado (1), Connecticut (1), Delaware (1), Florida (3), Georgia (4), Idaho (2), Illinois (8), Indiana (3), Iowa (1), Kansas (2), Louisiana (1), Maine (1), Maryland (3), Massachusetts (2), Michigan (2), Missouri (3), Montana (1), Nebraska (1), Nevada (1), New Jersey (1), New York (6), Nevada (1), North Carolina (3), Ohio (4), Pennsylvania (4), South Carolina (1), and Texas (8). We should interpret this with caution; however, as some

states did not join the US until later in the time period under investigation (1821–2008) and therefore some events may have gone unreported.

Means

Table 2 depicts means, number of cases, and example tools and weapons. When considering the primary means of murder, consistent with other studies (e.g. Hickey, 2010), we that found the most common (50%) means was poison. (This may serve to maintain a low profile; see Wilson & Hilton, 1998). Arsenic was used in 21 cases (62.5% of poisonings). Of note, 17.2% of FSKs used mixed means of killing (e.g. strangulation and stabbing; bludgeoning and suffocation), but we report on primary means in Table 2.

Victims

Number

We documented confirmed number of victims. It is possible and also speculated that these women murdered more victims, but we chose to document certain victims. There were 331 victims confirmed killed by these women. The 64 FSKs in our sample averaged 6.1 (SD = 4.84) deceased victims, with a wide range of 3–31 victims.

Sex

The sex of those murdered was identified for most perpetrators ($n = 55$) and most killings ($n = 267$), revealing 155 male and 112 female victims, which is a statistically significant difference, $X^2(1, N = 267) = 6.93, p = .008$. However, FSKs most frequently murdered *both* men and women (67.3%), followed by male victims only (20.0%) and female victims only (12.7%), $X^2(2, N = 55) = 28.95, p = .000$.

Table 2. Primary means of killing by female serial murderers.

Means	FSK cases	%	Tool/weapon examples
Poisoning	32	50.0	Arsenic, Bleach, Succinylcholine
Asphyxiating	17	26.6	Blanket, Towel, Pillow
Shooting	7	10.9	.22 pistol, 9 mm pistol
Stabbing	3	4.7	Knife
Beating/blunt force	2	3.1	Fists, Hammer
Drowning	2	3.1	Basin of water
Neglect	1	1.6	Turning off medication device
Total	64	100	

Age

Of these 64 FSK, 45% killed adults only (mean number of victims = 6.10, SD = 5.34); 23.4% killed children only ($M = 4.53$, SD = 1.88); and 31.3% killed both adults and children ($M = 7.25$, SD = 5.45). Although those who killed both adults and children had more victims on average, there were no statistical differences between groups with respect to the number of victims, $F(2, 61) = 1.37$, $p = .263$. We stress that it is very difficult to determine mean age of victims, as many cases were reported with general descriptors (e.g. ‘all elderly patients’), and in some cases authorities could not determine the age of recovered, decomposing victims.

Victim vulnerability

As mentioned, more than half (54.7%) of FSK in our sample killed children, and 25% killed those explicitly noted to be elderly or infirm. Considering overlap in the aforementioned, analyses showed that 46 (71.9% of our FSK sample) killed at least one person who was powerless and in their care (e.g. children, elderly patients) – victims who had little or no chance of fighting back.

Familiarity

Similarly to the findings of others (e.g. Farrell et al., 2011), our reports show that almost all (92.2%) of FSKs knew all or most of their victims. With only 5 FSKs not documented to have known their victims, statistical between-group comparisons are not viable.

Relationship to victim

Most FSKs (62.5%) were related to some or all their victims. Many FSKs (43.8%) killed their own biological children, with no difference in age at first kill between those who killed their children ($M = 29.19$, SD = 9.97) and those who did not ($M = 34.09$, SD = 12.5). As Kelleher and Kelleher (1998) discovered, we found that many FSKs (29.7%) killed their husbands, fiancés, or boy-friends. In addition, four FSKs killed their own mothers, two killed their mothers-in-law, and one killed her father and her mother-in-law. Other related victims were aunts, cousins, and nephews.

Motive

We found motive reported for 63 cases (out of 64; one was simply reported as unknown). According to Holmes and Holmes’s (2010) typology, serial killers can be classified via motive as *hedonistic* (i.e. for comfort/profit, lust, or thrill,

e.g. 'black widows'), *power-seeker* (e.g. 'angels of death'), *visionary* (e.g. following command hallucinations), and *missionary* (e.g. murdering to rid the world of 'undesirables'). We attempted to categorize FSKs following these criteria. Consistent with other studies, we found the most common motive to be *hedonistic* (49.2%), followed by *power-seeking* (20.6%), *visionary* (3.2%), and *missionary* (3.2%). In addition to these, we found cases that did not fit well into the aforementioned categories: 7.9% of FSKs murdered for *revenge*, 4.8% murdered to protect their reputation or interests, i.e. what we term *maintenance killer*; and 11.1% murdered due to *unspecified mental illness*.

Interestingly, we found no statistical differences, $F(6, 53) = 1.33, p = .262$, in age of first kill between women who killed for different motives: missionary ($M = 39.00, SD = 31.11$); hedonistic ($M = 36.87, SD = 13.17$); visionary ($M = 32.00, SD = 11.31$); power-seeking ($M = 28.16, SD = 6.35$); revenge ($M = 27.80, SD = 11.30$); maintenance ($M = 26.67, SD = 4.93$); and unspecified mental illness ($M = 26.33, SD = 7.26$). However, these differences may be significant with a larger sample size, and may be clinically meaningful, e.g. hedonistic killers are nearly nine years older than power-seekers.

Outcome

Of our sample of 64 FSKs, 79.7% ($n = 51$) went to prison for their crimes, and over a quarter of those who did go to prison (27.5%) received the death penalty (21.9% of the total sample of FSKs). In addition, 12.4% were committed to mental health institutions, and 3.1% were not caught before they died. Further, one FSK served time only in a local jail, one remained on house arrest, and one committed suicide before serving time.

Discussion

Since large-scale research on FSKs is fairly rare, we attempted to contribute to the body of knowledge using available media reports as a data source. Interestingly, our results are very similar to Hickey's (2010) prominent study of serial killers, although we approached our research with a different methodology. We independently generated a sample of 64 FSKs, exactly the sample size in Hickey's work, although we could not verify if our FSKs sample was comprised of the same women as Hickey's sample.

Consistent with previous research, we found that these women killed for money, power, revenge, and even notoriety and excitement. They used both passive and active methods, but most commonly poison. Many were trusted with caretaker roles ('angels of death' and 'lethal caretakers') which they used to disguise their heinous acts (cf. Vronsky, 2004), and some were 'black widows,' killing husband after husband for financial gain. Almost all FSKs murdered people they knew, and most killed family members. FSKs most frequently killed both men and women as opposed to targeting one sex only,

but in terms of sheer numbers they killed more men. Like Hickey (2010) and others, we found victims typically to be weaker than the perpetrator (i.e. children, elderly, ill individuals).

Although we sought to gather information about the histories of FSKs, newspaper reports were limited in this regard. It cannot be over-emphasized that missing information for some cases does not necessarily indicate the absence of these traits and experiences, and therefore these data need to be interpreted with caution. Notably, we found the *Murderpedia.org* entries we used to be error-free (i.e. verifiable by legitimate sources 100% of the time in our sample).

With respect to the women behind the crimes, most FSKs were married at some point. Among those who were, these serial killers were serial monogamists, married on average twice and as many as seven times. About half were documented to have biological children.

Where data were available, two-thirds of these women had average to above-average attractiveness. This may be a quality the FSK uses to her advantage, allowing her to elude suspicion, as we tend to ascribe positive attributes to those with a pleasant appearance (Dion, Berscheid, & Walster, 1972). Although about a third of FSK were reported to be overweight or unattractive, we stress that this may not accurately portray the typical appearance of these women. A reverse halo effect may taint media perception of attractiveness, and the stress of arrest and trial and the wearing of prison garments can arguably detract from criminals' appearances.

We found that nearly one in ten FSKs experienced severe childhood illness or trauma. We also found several cases of parental death and absence. Conversely, we also found instances of overly controlling parenting. Moreover, we found physical and sexual abuse to be overrepresented in the histories of FSK. Although we acknowledge the limitations of our data collection method, considering our sample size of 64 FSKs, this speaks to at least a 14.1% prevalence of childhood physical abuse and a 14.1% prevalence of childhood sexual abuse. If we consider estimates that about 9% of children in the US are physically abused and 1% are sexually abused (Finkelhor, Turner, Ormrod, & Hamby, 2009), consistent with Hickey's (2010) research, FSKs experienced a much higher prevalence. Notably, these numbers may underestimate due to the absence of information in the media. Further, most of the FSKs in our sample were children before the 1974 Child Abuse Prevention and Treatment Act was passed, and physical abuse in their eras likely went underreported and possibly even unrecognized, even by a victim herself. Child abuse has long been known to contribute to alienation and revictimization (cf. Summit, 1983). To wit, half the FSKs described as having a withdrawn demeanor had histories of abuse.

Substance abuse appears to be a factor underlying the behavior of FSKs. About a quarter of our sample abused drugs and alcohol at some point in their lives, although we cannot ascertain if this was a driving force in the murders or only another symptom in their cluster of dysfunction.

Nearly 40% of our sample experienced some form of mental illness. Compared to estimates that about one out of four people in the US experience mental illness (Kessler et al., 2005), this is substantially higher. We interpret these data with caution; without a thorough interview and psychological testing with the actual individual it is difficult to assess mental state and potential pathology. Nonetheless, our data suggest that MSBP, schizophrenia, and ASPD, although not common, are overrepresented (i.e. statistically) in FSK histories. With respect to the MSPB, despite the fact that FSKs typically murder children, this condition has not been extensively documented. Of no surprise, there is a high mortality rate of those in the care of individuals with MSBP due to the repeated and often lethal harm inflicted on their victims (Perri & Lichtenwald, 2010). Further, reports described FSKs as sociopathological; bizarre and hyperactive, with a range of affect from flippant to angry.

Even in the absence of documented mental illness, dysfunctional personality characteristics (lying, manipulation, insincerity) are evident in many FSKs. The following quotes by five FSKs in our sample serve to illustrate this. (Quotes are taken from Clarkprosecutor.org, as cited by Murderpedia.org, 2014a; Sioux City Journal, as cited by Murderpedia.org, 2014b; Douglas & Olshaker, 1999; History.com, 2014; Newton, 1990, respectively).

- I robbed them, and I killed them as cold as ice, and I would do it again, and I know I would kill another person because I've hated humans for a long time.
- They [the children] bothered me, so I decided to kill them.
- I killed the bitch and I don't give a damn. I had fun out of it.
- I like to attend funerals. I'm happy when someone is dying.
- That is my ambition, to have killed more people – more helpless people – than any man or woman who has ever lived.

The tendency to murder known acquaintances hints further at potential pathology, as being able to gain the trust of individuals for the purpose of killing them demonstrates a lack of emotional empathy and attachment to others. Although our data suggest that FSK still predominantly choose to murder those known and even related to them, Hickey (2010) reported that since 1975, women have started to target strangers more frequently. Only five FSKs in our sample did *not* know their victims, but those five women committed their crimes after 1975. Perhaps a new type of FSK is emerging; future research may address this phenomenon.

So, what makes a serial killer? Our data and those of previous studies (Farrell et al., 2011; Hickey, 2010; Kelleher & Kelleher, 1998; Schurman-Kauflin, 2000) cannot predict with certainty which women will become serial killers, but from these collective data we can garner an informed guess at a description of the 'typical' FSK in the United States:

She is likely White, has been married, and perhaps has had multiple marriages. She is probably in her 20 or 30 s, and may be middle class, Christian, of average intelligence, and likely of average or above-average attractiveness. She is likely legally employed and may be a health-care worker or hold another stereotypically feminine job. She is likely in charge of caring for helpless others (children, patients). She may have been physically or sexually abused when she was younger, and she may have had issues with her parents (e.g. they were overly controlling or absent/deceased, mother was an alcoholic). She may have a history of conduct issues, sociopathological, or bizarre behavior and may have a history of mental health issues. She may appear arrogant, while she may also appear withdrawn. She may engage in atypical sexual behavior. She may have experienced a recent crisis, such as a relationship issue. Those familiar to her – even those related to her – are at risk, especially vulnerable individuals, e.g. children, ill, elderly. She may murder for money or power, most likely by poisoning or asphyxiating her victims – methods that mimic natural death – perhaps to avoid detection. She would likely kill in a suburban area.

Caveats to classifying FSKs by motive

As stated by Dryer-Brees (2012), there are numerous classification systems that attempt to provide a framework at understanding the types and motives of serial killers, none of which are accepted as doctrine. Ressler and colleagues (1986) differentiated between organized (intelligent and socially competent) and unorganized (of low intelligence and social incompetent) serial killers. Although this schema is widely used, as pointed out by Dryer-Brees (2012) and evinced by Sewall, Krupp, and Lalumiere (2013), this schema has reliability and validity issues (cf. Holmes & Holmes, 2010; Fox & Levin, 2011). Nonetheless, some evidence supports a literal interpretation of the organized killer. FSKs with financial motives are organized and meticulous in the use of outlets such as the reimbursement of life insurance policies and/or social security checks (Holmes et al., 1991). However, Keeney and Heide (1994) found that FSK crime scenes demonstrate evidence of both organized and disorganized killings. We did not find sufficient data available in newspaper reports to make conclusions regarding organized vs. disorganized female-perpetrated serial murders.

According to Holmes and DeBurger (1988) and Holmes and Holmes (1998, 2010), serial killers can be classified as *hedonistic*, *power-seeker*, *visionary*, and *missionary*. We sought to categorize our sample of FSKs per this schema. Evidence suggests that hedonistic serial killers are the most prevalent of all female serial offenders. They seek profit, comfort, and/or thrill, and target relatives or those that are particularly vulnerable, such as children or the elderly (Farrell et al., 2013; Holmes et al., 1991). Our data are consistent with this, as financial gain/comfort was the motive of nearly half of FSKs in our sample.

Holmes and DeBurger (1988) and Holmes and Holmes (2010) described the power-seeker serial killer as one where the murderer dominates by ending lives or by making others ill, such as seen with 'angels of death' or with those who have the mental disorder Munchausen by proxy. One out of five FSKs in our sample appear to fit this category. Interestingly, the power-seeker FSK and the power-seeker male serial killers differ in *modi operandi* in that male serial killers tend to torture their victims. The power-seeker is arguably recapitulated by Kelleher and Kelleher's classification of angel of death FSK. These women systematically murder individuals in their care (see Grine, 2003, for review).

Holmes and colleagues' next category is the visionary serial killer, who has experienced psychosis and kills under command hallucinations. We found few in our sample (3%). Last is the category of missionary serial killer, who murders to 'rid the world' of those whom they deem undesirable and view their actions as benefitting society. We also found few of these killers in our sample (3%).

In addition to these, we found that 7.9% of FSKs murdered for revenge, 4.8% murdered to protect their reputation or interests, or what we call *maintenance killers*; and 11.1% murdered due to unspecified mental illness.

Taylor, Lambeth, Green, Bone, and Cahillane (2012) argued that there is no evidence in research literature on female killers for the validity of the commonly cited four typologies (visionary, mission, hedonistic, and power/control). Indeed, Kelleher, and Kelleher (1998) argued that FSKs appear to be more driven by monetary motives rather than power as encompassed by the four FBI types and divided typologies of FSKs into the categories of *black widows*, *angels of death*, *sexual predators*, *revenge killers*, *profit or crime killers*, *team killers*, *killers of questionable sanity*, *unexplained murderers*, and *unsolved murderers*, although these do not from the outset appear mutually exclusive. Our sample of serial killers thus suggests that a bridging of the frameworks from Holmes and Holmes and Kelleher and Kelleher may serve to categorize FSK types. We did observe differences in age at first kill between several of the different types of FSKs (e.g. hedonistic vs. power-seeker). This may validate categorization, but a larger number of FSKs per category is needed to determine statistical differences. Still, it may be clinically meaningful that women who killed for profit were nearly a decade older than women who killed for power when they began their crimes, as perhaps they were at a life stage where financial security was eluding them and sought to take action to solve their problems. Not surprisingly, a *post hoc* analysis shows that hedonist killers are greatly overrepresented (57.9%) among those with lower-class SES.

Importantly, the present study focused on women who were primary orchestrators of these crimes. While many FSKs commit their crimes solitarily, some FSKs also choose to work with a partner or in teams. Kelleher and Kelleher (1998) estimated that one-third of FSKs murder in teams and discussed differences between women who work alone and those who work with others. FSKs who act alone are generally more calculated, mature, and methodological,

while FSKs who work with a partner are often younger, more disorganized, and more reactive.

Perceptions challenged

Contrary to preconceived notions about women being incapable of these extreme crimes, the women in our study poisoned, smothered, burned, choked, shot, bludgeoned, and shot newborns, children, elderly, and ill people as well as healthy adults; most often those who knew and likely trusted them. Interestingly, although we did not conduct a formal analysis, in line with the theory that female serial murderers do not fit expected gender roles and norms, we observed that the nicknames ascribed to FSKs frequently highlighted that the killer was a woman vs. highlighting the brutality of the crime committed; these names included 'Lady Bluebeard,' 'Death Row Granny,' 'The Giggling Grandma,' and 'Tiger Woman' Compared to 'The Forces Of Evil,' 'The Brooklyn Strangler,' 'The Classified Ad Rapist,' and 'The Warwick Slasher,' media monikers for male serial killers, those for FSKs seem less imposing or deadly. Although FSK crimes are not typically sexual as are the crimes of male serial killers (Hickey, 1991, 2010; Keeney & Heide, 1994), these crimes are no less pathological. Establishing an understanding of the characteristics and circumstances that facilitate incubation of FSK tendencies will not only help decrease murder but will also serve to allow for treatment of these women who likely experienced atypical or aversive development.

Limitations and challenges to future pursuits

Our data are fairly consistent with those from studies that used alternative methodology. Nonetheless, as stressed throughout our work, there are limitations to the generalizability of our data. Certainly, the representativeness, availability, and accuracy of news reports on FSKs must be considered when interpreting our results. As an example, we found that female-perpetrated serial murder appears to be escalating, with a 150% increase in the number of reported cases since 1975. It is difficult to ascertain if there are indeed more FSKs, or if the increase is a byproduct of more advanced criminal detection, or advances in media dissemination of information.

Data in the present study were based on retrospective information published by media sources, and because over time many individuals fail to believe that women can be killers, let alone serial killers, older accounts of FSKs may be underrepresented.

Along these lines, the present work, consistent with other research, profiles FSKs who have been caught. It may be that another typology altogether eludes capture with an entirely different historical profile and *modi operandi*.

Moreover, we concentrated solely on FSKs in the United States, as more information was available to us about these murderers compared to those in

other countries. Additional studies should follow the direction of Kelleher and Kelleher (1998) and with a more recent sample attempt a comparison of the histories, traits, and crimes of US FSKs and those from abroad.

It is important to understand factors that contribute to the development of FSKs, although this is a difficult task. Notably, merely defining *serial killer* is problematic. Farrell and colleagues (2011) concurred, stating, 'Unfortunately, defining serial murder can be as vexing as the problems of defining pornography: You think you know it when you see it' (p. 230). Even though a plethora of research exists on male serial killers, it is still challenging to determine exactly what factors 'act as an incubator' for these criminals (McKenzie, 1995, p. 4). For example, some researchers contend that the childhood Macdonald triad of enuresis, animal cruelty, and fire setting is a predictor of male adulthood violence and serial murder (Holmes & DeBurger, 1988; Norris, 1988), but evidence supporting this is questionable (Levin & Fox, 1985; McKenzie, 1995). Neurologically, Raine (2013) reported underdevelopment in the brains of serial killers. Similarly, from a review of clinical literature, Allely and colleagues (2014) concluded that more than 10% of serial killers and mass murders have an autism spectrum disorder, and about 10% have had a head injury, evincing neurodevelopmental issues. However, at the present time, there are no established neurodevelopmental biomarkers that guide professionals in identifying men or women who may be on the verge of such crimes (cf. Keeney & Heide, 1994). As Raine stated, 'We cannot use brain imaging as a high-tech tool to tell who's normal, who's a one-off serial killer, and who's a serial killer. It's just not that simple' (p. 76). Nonetheless, research should endeavor to explore this topic more thoroughly.

Evolutionary considerations

In addition to the above experiences and traits that may be risk factors, we may view the motives of female and male serial killers via an evolutionary lens. The fact that such women primarily kill for resources and such men primarily kill for sex (Hickey, 2010) follows evolutionary prediction of sex-specific fitness-maximization tactics based on differential reproductive potential. That is, due to differential reproductive potential (i.e. unlimited sperm production vs. very limited ova), in the environment of evolutionary adaptedness, it would have been reproductively beneficial for men to seek multiple sexual opportunities and for women to seek a stable, committed partner with sufficient resources (Trivers, 1972). Evidence suggests that men and women worldwide still seek mates according to this strategy (Buss & Schmitt, 1993). That fact that male serial killers typically commit their crimes for sex and FSKs typically commit their crimes for money thus follows evolutionary theory. However, although an evolutionary framework can offer understanding, we stress that these heinous acts are a vicious extension of unconscious drives and are not therefore 'normal' or

'excused,' and a discussion of the nature vs. nurture forces underlying the creation of the FSK is beyond the scope of this work.

Conclusion

In sum, the acts of female and male serial killers are equally untenable in any civilized society. Ultimately, further research is needed to identify genetic vulnerabilities and develop a greater understanding of the psychosocial risk factors towards the goal of prevention. Increasing our understanding of serial killers may minimize the number of victims potentially lost in the future while maximizing the effectiveness of interventions to prevent vulnerable individuals from taking a killing path.

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