

Original Paper

Cooling-Off Periods among Serial Killers

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Abstract

Theory and empirical research in criminology have paid less attention to intermittency in offending, that is, the brief lapses and sporadic episodes of crime that occur at sometimes unpredictable intervals (Piquero, 2004). This is mainly due to the problem of defining this phenomenon in a common operational way that can be tested empirically. This has thus led to its abandonment in most contemporary definitions of serial murder (Osborn & Salfati, 2014). Most up-to-date definitions have recognized the fact that serial murders are committed as discrete events (Adjorlolo & Chan, 2014). While psychological, sociological, and geographical theories of serial murder can be used to explain cooling-off periods, none of these theories have, thus far, been used in an empirical study. This article examines the phenomenon of cooling-off periods in relation to serial murder. Although definitions of serial murder have changed over the years, there is a consensus that between every two murders there must be a cooling-off period (Homant & Kennedy, 2014; Morton & McNamara, 2005). Unlike previous research, our study, which is based on the Encyclopedia of Serial Killers (Newton, 2005) found that the longest cooling-off period is between the first and the third murders (i.e., a series). We offer some theoretical psychological explanations for this pattern, although we were unable to study it empirically. We conclude that it is less important how different scholars define cooling-off periods; the important thing is that this phenomenon exists and has meaning for understanding, profiling, and even forecasting the time of the next murder.

Keywords

cooling-off, crime, serial murder, personality disorder, time interval

1. Introduction

Scant attention has been paid in theory and empirical research in criminology to the key component of intermittency in offending. Intermittency is generally defined or operationalized as the time between offenses. Barnett, Blumstein, and Farrington (1989) found that, in relation to the intervals between their offences, there are two kinds of offenders: “frequents” had a 1 in 320 daily chance of offending, whereas “occasionals” had a 1 in 913 daily chance of offending. In addition, other studies have shown that frequent or high-rate offenders tend to experience relatively short time intervals before reoffending (Barnett et al., 1989; Piquero, Farrington, & Blumstein, 2007). The average interval between offences decreases as the number of criminal events increases, meaning, as Raskin (1987) found, that the longest interval was between the first and the second offense transition (36 months) and the shortest was before the fifth transition and sixth transition (8 months). As will be discussed, these patterns are the same for serial murders.

Despite constituting only 1% of all murders, the issue of serial murder has attracted a lot of attention. There is, to date no consensus on the definition of serial murder, mainly because of the different worldviews of academia on the one hand and law enforcement agencies on the other (Bartol C. & Bartol A., 2013; Burgess et al., 1986; Douglas, Burgess, & Ressler, 2006; Edelstein, 2014; Fox & Levin, 2014; Homes R. M. & Holmes S. T., 1998; Morton & Hilts, 2008). One of the main debates, for example, is the number of victims (“bodies”) that define serial murder (Fridel & Fox, 2018; Yaksic, 2018). However, common to all studies is the understanding that a serial murder is a unique phenomenon due to the fact that there must be a cooling-off period between every two murders. Cooling-off periods or time intervals “are crucial factors in defining serial homicide” (Osborne & Salfati, 2014, p. 188). Various psychological, sociological, and geographical explanations have been offered for this time interval. The current article explores in more depth the reasons for the cooling-off period and presents an explanation based on my own empirical study alongside previous investigations. We also examine whether this phenomenon is common to all serial killers or whether they vary in their cooling-off periods.

2. Literature Review

2.1 Serial Murder

Serial murder is a rare event that has nonetheless received much attention within both law enforcement authorities and popular culture (Cater, 1997; Hickey, 2012; Jenkins, 2002; Seltzer, 1998). Serial murder tends to be defined as two or more incidents of murder, each with one victim, by one or more killers at different times and with a so-called “cooling-off” period of at least three days between incidents (Fox & Levin, 2005; Holmes & Holmes, 1998; Kraemer, Lord, & Heilbrun, 2004; Levin, 2008; Meloy & Felthous, 2004; Vronsky, 2004).

There is, however, a major problem with this definition, and there is much debate about its various

aspects. There are, for example, different theories about the number of victims required in order to define murders as serial. Some have argued that the dictionary definition of a serial pattern is when it appears in at least three cases that relate to each other and have some sense of order between them (Harbort & Mokros, 2001). Consequently, scholars have also relied on arbitrariness to define this concept. See, for example, the debate on defining a minimum numbers of victims (Edelstein, 2006; Egger, 1998; Gerberth, 1996; Giannagelo, 1996; Hickey, 2002; Holmes & Holmes, 1994; Skrapec, 2001; Turvey, 1999). Adjorlolo and Chan (2014) claimed that there are three groups of researchers on the topic of serial murders: those who prefer to remain silent on its definition; those who rely on others' definitions or refer to known serial murder cases; and those who propose or operationalize the term to suit their research focus and interest. Adjorlolo and Chan (2014) themselves proposed a new definition of serial murder in order to bridge between the legal and the theoretical definition: "Two or more forensic linked murders with or without a revealed intention of committing additional murder, the murders are committed as discrete event(s) by the same person(s) over a period of time, and where the primary motive is personal gratification" (p. 490).

2.2 Cooling-Off Period

What is the cooling-off period? The main difference between serial murder and other kinds of multiple victim homicide is the concept of a time interval know as a cooling-off period (Erdman, 2017). However, definitions of the cooling-off time also vary greatly, ranging from 72 hours to periods of years (Bartol C. & Bartol A., 2013; Douglas et al., 1986; Douglas, Burgess, & Ressler, 2006; Edelstein, 2014; Levin & Fox, 2014; Homes & Holmes, 1998; Morton & Hilts, 2008; Skrapec, 2001).

The confusion over the interpretation of serial murder led the National Center for the Analysis of Violent Crime (NCAVC) to define it as the unlawful killing of two victims or more by the same offender at "different times" (Morton, 2005). While this was an important attempt to overcome the problem of definition, it bypassed the meaning of the cooling-off period. The most recent definition of serial murder has described the cooling-off period thus: "the murders are committed as discrete event(s) by the same person(s) over a period of time" (Adjorlolo & Chan, 2014, p. 490). As a result, new notions of short (less than two weeks) or long (more than two weeks, months, or even years) intervals between murders have become accepted in interpretations of serial murder (Osborne & Salfati, 2015; Schlesinger, Ramirez, Tusa, Jarvis, & Erdberg, 2017).

From a psychological perspective, the cooling-off period should be long enough to enable the serial killer's psychological process both before and after the murder. This process is salient in the dissociative identity disorder theory, according to which the murderer moves between a normative and a lethal identity (Edelstein, 2017; Van Der Hart, Nijenhuis, & Steele, 2005). Others have argued, however, that this psychological explanation is too abstract and have, instead, proposed other functions of this period of time. For example, Osborne and Salfati (2015) claimed that the geographical preference and selection of the victim or social involvement of the murderer influence the intervals

between the murders (Greswell & Hollin, 1994; Hickey, 2002).

Thus far, there is no statistical baseline or empirical research that clearly shows which factors directly influences the length of the cooling-off period. On the other hand, the cooling-off period has been found to be universal, thus proving that it has some latent function (Osborne & Salfati, 2015), in other words, it either enables or facilitates the next murder (Douglas et al., 2006; Douglas et al., 1986; Edelstein, 2014; Homes & Holmes, 1998; Levin & Fox, 2014; Morton & Hilt, 2008).

Existing research on the cooling-off period. The debate over the explanations for the cooling-off periods convinced scholars of the need to study it in further depth without attributing psychological, sociological, or other theories (Osborne & Salfati, 2015; Simkin & Roychowdhury, 2018). While some research has been conducted, there is, however, still no empirically-supported theoretical explanation.

Not all scholars have approved the neglect of the theoretical aspects. Of the few studies attempting to better understand and predict the cooling-off period, only one took into account variables such as the geographical distance between murderer and victim as influencing the interval until the next murder, and none addressed psychological explanations (Osborne & Salfati, 2015). An additional problem with the existing studies is their use of different operational definitions of serial murder.

Nonetheless, these existing studies revealed three important findings. The first finding is that the longer the interval between murders in the series, the lower the likelihood of an additional murder. The researchers also found that the time intervals between murders were smooth with no profound peaks of shorter or longer intervals (Simkin & Roychowdhury, 2018). This contradicted an earlier study that claimed that as killers escalate their lethal behavior, so the interval between the murders gets shorter (Holmes R. M. & Holmes S. T., 1998). The first explanation for this newly found pattern is the killer's increasing frustration. The second is that after the first murders, killers are likely to be in a state of panic or distress and will thus restrain themselves from committing another murder; however, after a number of murders, they feel more comfortable with their behavior and will intensify it, such that the cooling-off period gets shorter each time (Edelstein, 2014; Holmes & De Burger, 1988; Holmes R. M. & Holmes S. T., 1998; Levin, 2008). The current study supports the latter explanation.

The second finding of these studies was that the time interval between murders may be the result of circumstances in the life of the serial killer (Lange, 1999). When the killer's life has been influenced by specific social, psychological, or biological factors, among others, a significant change in the cooling-off period was found. While this is an important finding, the scholars did not explain their findings in a coherent way, thus leaving it inconclusive.

The third finding was that there are three types of cooling-off periods: short (less than 14 days [14%]), long (more than 14 days [57%]) and a combination (some less than 14 days and some after 14 days [29%]) (Simkin & Roychowdhury, 2018). This determination of 14 days as the border between long and short cooling-off periods had not been mentioned in any previous studies and is thus new to the literature on serial murder. The researchers did not, however, offer any possible explanations for these

different patterns.

The fact that different murders have different cooling-off periods demands us to address the theoretical aspects and interpersonal influences of this phenomenon (Lange, 1999). Our research questions are therefore: first, is there a pattern of cooling-off that is common to all serial killers or are there differences between them?; and second, can one serial killer have different cooling-off periods? Our hypothesis is that different killers have different cooling-off periods and, similarly, that one killer can have different cooling-off periods. These differences may have psychological, sociological, and geographical explanations among others.

3. Method

3.1 Data File

Our data are based on the *Encyclopedia of Serial Killers* (Newton, 2006). We sampled every serial killer about whom there is information about his age at the time of first murder and the time interval between his murders. In total, we gathered data on 53 serial killers, all male. Their age at the time of the first murder ranged from 13 to 51 with an average of 26.98 (standard deviation=8.90). First murders took place between 1859 and 1965. For each killer, the date of the first and every subsequent killing was documented, and the period between every two consecutive killings was calculated.

3.2 Data Analysis

Data were analyzed using SPSS version 25. First, descriptive statistics were produced using frequencies for categorical variables and means with standard deviations for continuous variables (e.g., age). Differences between the periods of killings for every murderer were computed using repeated measures ANOVA. This procedure tracks each killer along his career and computes averages and standard deviations for the periods between killings. Correlations between periods of killings and also between age and periods of killings were computed using the Pearson correlation coefficient. The significant level for the relationship was below .05.

4. Results

Both Table 1 and Figure 1 show descriptive statistics (in months) of the periods between murders. As also shown in Table 1, about half (49%) (26 out of 53) of the serial killers conducted 6 murders, 15% (8 out of 53) conducted 10 murders, 8% (4 out of 53) conducted 16 murders, and just one killer conducted 17 murders. Table 2 specifies the cooling-off periods between the first series of the first three murders. Regarding the periods between murders, the longest period was found to be between the first and second murders ($M=24.71$, $SD=41.15$), followed by the period between the second and third murders ($M=16.89$, $SD=35.21$). The periods between the third and eighth murders ranged from 7.59 to 9.26 months on average. The period between all subsequent killings became shorter and ranged from 0.63 to 3.20 months. For the sole killer who conducted 17 murders, the period between the last two murders

was 13 months.

Table 1. Means, Standard Deviations, and Periods (in Months) Between Murders

	Number of Killers	% of Total Sample	Mean	SD	Minimum	Maximum
Murder 1 to Murder 2	53	100%	24.71	41.14	0.13	168.00
Murder 2 to Murder 3	52	98%	16.89	35.21	0.01	192.00
Murder 3 to Murder 4	45	85%	7.81	20.84	0.07	113.00
Murder 4 to Murder 5	34	64%	9.26	21.48	0.03	108.00
Murder 5 to Murder 6	26	49%	7.59	12.82	0.03	62.00
Murder 6 to Murder 7	22	42%	8.13	16.64	0.03	72.00
Murder 7 to Murder 8	18	34%	9.10	16.46	0.30	53.00
Murder 8 to Murder 9	12	23%	2.90	3.41	0.07	12.00
Murder 9 to Murder 10	10	19%	3.20	4.07	0.20	12.00
Murder 10 to Murder 11	8	15%	0.63	0.35	0.27	1.10
Murder 11 to Murder 12	6	11%	1.51	0.81	0.07	2.00
Murder 12 to Murder 13	5	9%	1.51	1.20	0.07	3.00
Murder 13 to Murder 14	7	13%	1.03	0.47	0.50	2.00
Murder 14 to Murder 15	4	8%	1.95	2.09	0.30	5.00
Murder 15 to Murder 16	4	8%	3.04	2.89	0.17	6.00
Murder 16 to Murder 17	1	2%	13.00		13.00	13.00

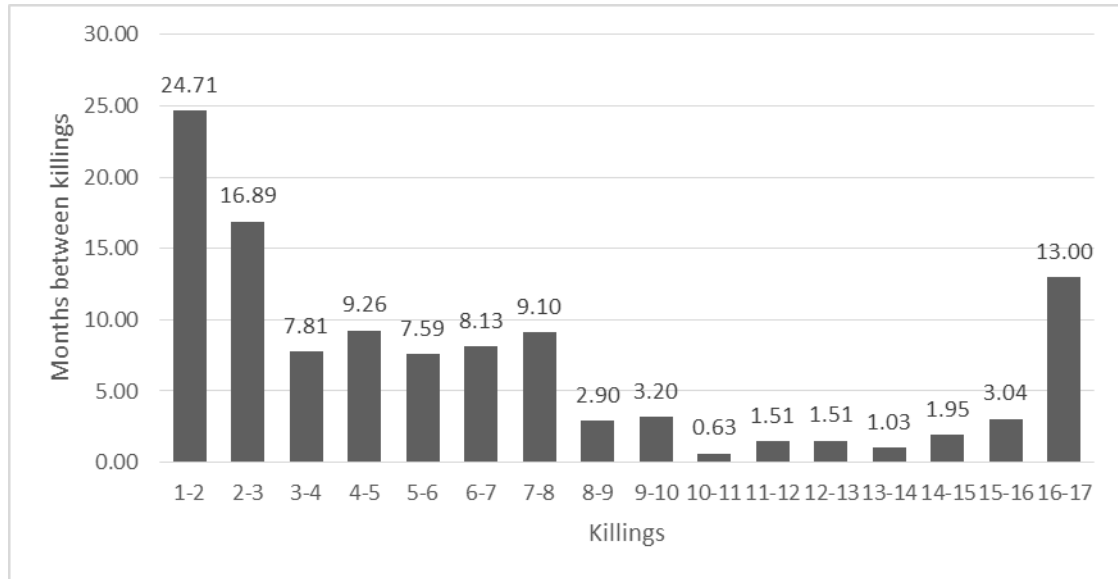


Figure 1. Average Periods between Killings in Months

Figure 2 shows the association between consecutive murders and the level of heterogeneity between killers in their killing periods as expressed by standard deviations. As can be seen, there is a general negative trend between the levels of heterogeneity and the number of murders. In other words, serial killers who conduct more than 10 murders have relatively similar periods between consecutive murders (SD ranges between 0.35 to 2.09), while those who conduct fewer than 10 murders have a relatively high heterogeneity between their killing periods, meaning that they are less homogenous and demonstrate different killer profiles.

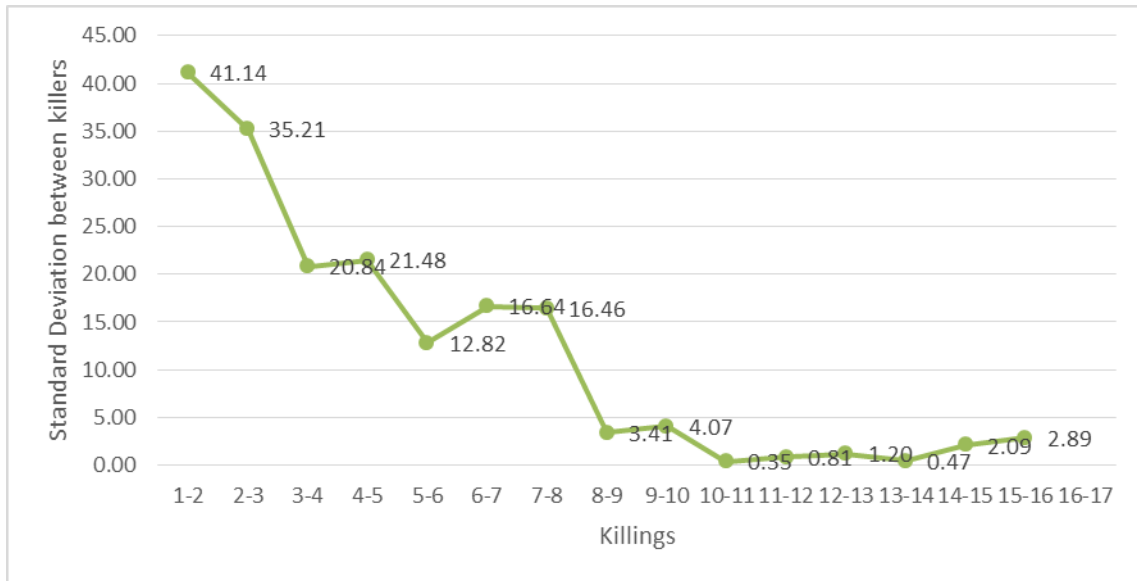


Figure 2. SD between Periods of Killings

In order to assess the differences between killing periods, repeated measures ANOVA was conducted for 45 serial killers who had conducted 6 murders. This sub-sample was used since it provides the minimum sufficient data for this statistical procedure. This procedure tracks the series of each killer and computes averages and standard deviations for the periods between the murders. As can be seen also in Table 2 and Figure 3, this analysis yielded a significant difference between periods of the first four murders ($F=3.823, p<.05$). In other words, the period between the first and second murders ($M=23.32, SD=40.79$) was longer than the period between the second and third murders ($M=17.15, SD=36.98$) ($p<.05$); similarly, the period between the second and third murders was longer than the period between the third and fourth murders ($M=8.03, SD=21.30$) ($p<.05$).

Table 2. Means and SDs of Periods Between Murders of 45 Serial Killers

	Mean	SD
Murder 1 to Murder 2	23.32	40.79
Murder 2 to Murder 3	17.15	36.98
Murder 3 to Murder 4	8.03	21.30

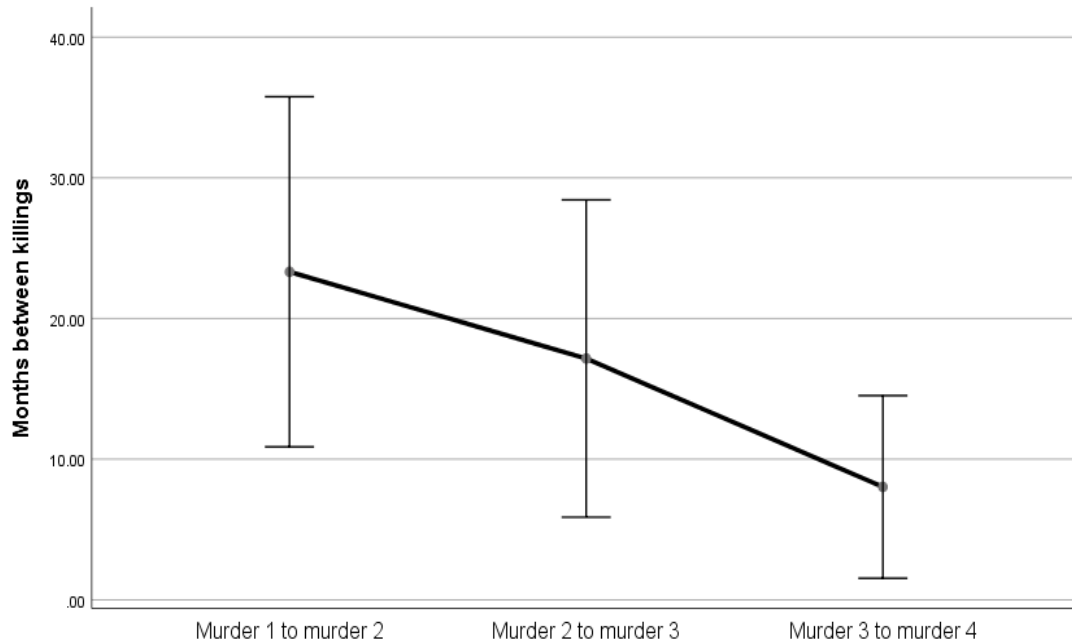


Figure 3. Comparison of Periods between Four First Murders (N=45)

In order to predict the next murder according to the periods between previous murders, Pearson correlations were computed between the periods of the first 10 murders (see Table 3). As shown in Table 3, positive associations were generally found between the periods between past and future murders. Specifically, the period between the first and second murders positively predicted the periods between the second and third murders ($r=.537$, $p<.01$) and the fifth and sixth murders ($r=.482$, $p<.05$). It was also found that the period between the second and third murders positively predicted the periods between the seventh and eighth murders ($r=.852$, $p<.01$) and the ninth and tenth murders ($r=.781$, $p<.01$). Similarly, the period between the third and fourth murders positively predicted the period between the sixth and seventh murders ($r=.855$, $p<.01$), and the period between the fifth and sixth murders ($r=.720$, $p<.01$) positively predicted the period between eighth and ninth murders and also periods between the sixth and seventh murders ($r=.835$, $p<.01$).

Table 3. Pearson Correlations between the Periods of the First 10 Murders

	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9
Murder 1 to Murder 2								
Murder 2 to Murder 3	.537**							
Murder 3 to Murder 4	.053	-.037						
Murder 4 to Murder 5	.244	.019	-.015					
Murder 5 to Murder 6	.482*	.076	.093	.091				
Murder 6 to Murder 7	-.019	.161	.855**	-.098	.255			
Murder 7 to Murder 8	.144	.852**	-.084	-.172	.077	.313		
Murder 8 to Murder 9	.118	-.017	-.088	-.001	.720*	.835**	.482	
Murder 9 to Murder 10	.244	.781**	-.045	.378	-.040	.235	.305	.063

* $p < .05$, ** $p < .01$

Table 4 shows Pearson correlations between the age of the killer at the time of the first murder and the periods between future murders.

Table 4. Pearson Correlations between Age of the Killer at the First Murder and the Periods Between Future Murders

	Correlation with age
Murder 1 to Murder 2	-.359**
Murder 2 to Murder 3	-.336*
Murder 3 to Murder 4	-.255*
Murder 4 to Murder 5	-.023
Murder 5 to Murder 6	-.085
Murder 6 to Murder 7	.160
Murder 7 to Murder 8	-.119
Murder 8 to Murder 9	.031
Murder 9 to Murder 10	.071

* $p < .05$, ** $p < .01$

Negative correlations were found between the age of the killer at the time of the first murder and the periods between the first and second murders ($r = -.359$, $p < .01$), second and third murders ($r = -.336$, $p < .05$), and third and fourth murders ($r = -.255$, $p < .05$). In other words, the younger the killer at the time of the first murder, the longer the time between subsequent first murders.

5. Discussion

In order to deal with the knowledge gap in the existing literature, our main research question was whether cooling-off periods among serial killers are common and have some general patterns or whether there are interpersonal differences. We also examined whether each serial killer has different cooling-off periods between the murders committed.

While Simkin and Roychowdhury (2018) found that the periods between murders were smooth without any peaks or changes and got longer as the killers conducted more murders, our findings contradicted this smooth pattern. We found a longer period between the first, second, and third murders than with subsequent murders and the longest period between the first and second murders. The very same pattern was found in other offences (Barnett et al., 1989; Piquero et al., 2007).

In an attempt to explain this unique pattern, which contradicts previous findings, we followed two existing theories on serial killers: escalation (Holmes R. M. & Holmes S. T., 1998; Edelstein, 2014) and dissociative identity disorder (Butler, 2006; Carlisle, 1988; Edelstein, 2014; Fox & Levin, 2005; Holmes et al., 2005; Reinders et al., 2006; Van Der Hart et al., 2005). According to the former theory, serial killers escalate their lethal behavior due to the frustration suffered when the murders do not fulfill their fantasies. The time interval between murders gets shorter and the killers become crueler (Holmes R. M. & Holmes S. T., 1998). The latter theory addresses fantasy and the existence of two identities of serial killers: those who suffered child abuse and those who are normative. In order for killers to commit their first murder, they must move into a post-traumatic identity which enables them to fantasize about how they will kill their victims. Some of them call this identity the “dark side” of their personality which they suppress by neutralizing shame and responsibility (Sykes & Matza, 1957). The killers are no longer satisfied by their fantasies and, like substance users, they need a stronger stimulus. This theory explains the first murder. After the first murder, shock at their own deeds may enable the killers’ normative identity to take control—a process that guarantees staying normative. However, after some time (the cooling-off period) the fantasies return, but they are no longer sufficient or satisfactory and the killers need the “real thing”, namely, the next murder. As in other antisocial behaviors, the more a person engages in anti-social behavior, the easier it becomes; each subsequent act is easier, and the loss of inner conflict enables them to act more quickly than before. This theory thus explains our finding that the period between the fourth murder and subsequent killings is shorter (0.63-3.20 months) than the period between the first, second, and third murders (24.71, 16.89, 9.26 months respectively).

An additional finding shows that the younger the killer, the longer the cooling-off period of the three first murders ($p < 0.05$, $p < 0.01$). This emphasizes how difficult it is for killers to commit their first series of murders. This topic can and should be examined in future studies.

Our results also show differences between serial killers regarding the number of victims during their criminal careers. There is, however, some universal or general trait which characterizes all serial killers: the first three killings have longer cooling-off periods than the subsequent murders. In other words, the

compulsion takes over after the second/third victim and the killer becomes more bloodthirsty. With better knowledge, profiling, or other tools to apprehend the killer after his first murder, we might be able to prevent him from becoming serial—a finding that has extremely important policy implications.

6. Limitations

When researching serial killers, it must be acknowledged that many are not apprehended, and we therefore lack much information about their patterns of killing, including the cooling-off periods examined here. Of those apprehended, most have admitted to only some of their total killings. The data on serial killers are therefore partial and limit all studies on their patterns of behavior.

A more specific limitation of this study is our finding that the cooling-off periods between the first few killings can forecast the periods between future murders. While we showed that the periods between murders are longer in the beginning and get subsequently shorter, we are not currently able to explain these results, as it was not within the scope of this study. Future studies on this topic would clearly benefit from a much larger sample.

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