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Examining Offending Specialization in a Sample of Male Multiple Homicide Offenders

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The American public’s fascination with multiple homicide offenders—individuals who seemingly transcend the heinousness of “regular” homicide offenders because of their multiple victims—has grown during the past few decades. Such growth has not, however, been matched by a proportional increase in serious scholarly attention concerning whether those who kill repeatedly are, or are not, “generally” deviant. As a way of moving beyond this problem, the current analysis builds on recent work concerning multiple homicide offenders to investigate the degree to which such offenders are, in fact, more specialized in their offending careers than are other homicide offenders. The implications for continued theoretical development and empirical research are discussed.

**Keywords:** multiple homicide offenders; criminal career; offending specialization

The American public’s fascination with multiple homicide offenders (MHOs), particularly those who kill multiple victims in a patterned way yet seem to be outwardly normal otherwise, has grown during the past few decades (Jenkins, 1994). Academics familiar with such killers are quick to dismiss the myth that they are crazed lunatics (e.g., Fox & Levin, 1999; Levin & Fox, 1985; Leyton, 2001), yet the majority of mass media perpetuate the illusion that such individuals are different than ordinary humans—even different from other offenders. A quick search through the titles of true crime publications reveals works that refer to MHOs as *evil* (Berry-Dee, 2003; Greig, 2005; Havill, 2001), as *monsters* (Ressler & Shachtman, 1992, 1998; Schechter, 1998; Vronsky, 2004; Ward, 1995), and as *devils* (Lourie, 1993; Reichert, 2004; Stanton, Branum, Izzo, Torelli, & Wade, 2000).

**Authors’ Note:** An earlier version of this article was presented at the annual meeting of the American Society of Criminology in Los Angeles (November 2006). Correspondence concerning this article should be addressed to Kevin A. Wright, Washington State University, 801 Johnson Tower, Pullman, WA 99164-4880; e-mail: kevin_wright@wsu.edu.
Despite the bevy of sensational true crime literature on the topic, MHOs have at best a superficial relationship with academia. A primary reason for the paucity of research that exists on MHOs can be attributed to the potential aggregation bias concerning the different types of offenders who could conceivably fit this category—serial killers, spree killers, mass murderers, and so on—all of whom may differ from one another in fundamentally important ways (for an overview, see Keeney & Heide, 1995). Further muddling current research is disagreement over whether acts such as a double murder during the commission of a felony should be included with the more publicized acts of serial and mass murderers. Nevertheless, scholars have settled on the notion that, independent of purported variation in the motivations behind multiple killings, one thing that can be agreed on is that such offenders are worthy of their own empirical attention (DeLisi & Scherer, 2006). The main similarity among all MHOs—whether they be in the “traditional” sense of spree, serial, and mass murderers or a more typical crime of multiple victims during a botched burglary—is that they do indeed involve more than one victim. As such, school shootings and double murder-suicides alike are treated as deserving special attention in both the news media and scholarly works.

Accordingly, one common thread that seems to run throughout the homicide literature is the assumption that MHOs tend to exhibit a certain degree of specialization in their offending habits. Indeed, both popular and scholarly accounts tend to frame such offenders as highly specialized—a characteristic that perhaps contributes to their ability to commit multiple murders without being apprehended for engaging in other types of criminal behavior (e.g., drug use, armed robbery, residential burglary) that may bring the attention of authorities (for a review, see Hickey, 2003). If true, such a pattern would be at odds with the bulk of the empirical literature indicating that offenders—and particularly serious violent offenders—are not terribly picky about what kinds of deviant activities they deem worthy of their participation (Blumstein, Cohen, Das, & Moitra, 1988; Brame, Mulvey, & Piquero, 2001; Cohen, 1986; DeLisi, 2005; Piquero, 2000; Piquero, Farrington, & Blumstein, 2007).

Although the majority of previous research has suggested versatility, there has been an emerging body of work to suggest that specialization exists in the short term (Shover, 1996; Sullivan, McGloin, Pratt, & Piquero, 2006). Thus, it is entirely possible for offenders to specialize in murder over a short period, presumably the one leading to their arrest. It may be, therefore, that MHOs could have exhibited the behaviors of a versatile, common criminal their entire life before settling in on the most serious crime of murder. In this manner, specialization by MHOs in the short term could conceal a previously varied criminal career. Even so, if this were the case, these individuals would have a more specialized criminal background when compared to single homicide offenders (SHOs).

To that end, the current study seeks to address the question of whether MHOs specialize in murder relative to SHOs. That is, do multiple murderers solely kill, or, like SHOs and most violent offenders in general, do they exhibit a wide range of
offending behavior? Evidence of specialization among MHOs would suggest that such offenders are in some way fundamentally different from the general offender population, and therefore existing criminological explanations of wayward behavior would be, by definition, inapplicable to the study of MHOs. Evidence of versatility in offending, however, would suggest just the opposite: that MHOs can, and should, be studied and understood in much the same way as any other offender population. Addressing this question therefore highlights the broader question of whether offense-specific theories of criminal behavior are necessary in this context.

Homicide Research and Criminal Careers

Scholars have identified the need for more explicit theory testing to develop a better understanding of the etiology of multiple homicide (Smith, 2000). Such a body of knowledge not only would lead to ideas about treatment and prevention but also could lead to a better comprehension of sexual homicide and other predatory violent crimes in general. Most of the empirical work in this area, however, has entailed studies that analyze data without the guidance of a theoretical framework (Godwin, 2000; Hickey, 1991; Kraemer, Lord, & Heilbrun, 2004; Ressler, Burgess, & Douglas, 1988; cf. DeFronzo, Ditta, Hannon, & Prochnow, 2007; Hale, 1993; Lundrigan & Canter, 2001), yet the criminal career tradition in criminology provides a clear framework for examining offending specialization or versatility among homicide offenders.

A criminal career is defined as “the characterization of the longitudinal sequence of crimes committed by an individual offender” (Blumstein, Cohen, Roth, & Visher, 1986, p. 12). It is composed of the onset, the recurrence, and ultimately the termination of criminal activity by a particular offender. The dimensions and patterns of active criminal activity include offending frequency, duration, co-offending patterns, and crime-type mix and seriousness (Piquero, Farrington, & Blumstein, 2003). Of particular importance here is the issue of specialization versus versatility in the crime-type mix component of the criminal career paradigm. Specialization is the “tendency to repeat the same offense type” (Blumstein et al., 1986, p. 81), whereas those criminals who engage in a wide variety of criminal acts are said to be exhibiting versatility.

Offending Specialization

The current assumptions associated with MHOs point to the presence of specialization. Empirical evidence does exist to support the notion of offending specialization, most of which is rooted in the routine activity or opportunity theoretical tradition. In particular, criminologists have argued that changes in an offender’s life circumstances (e.g., shifts in and out of employment, marriage, changes in peer
group affiliation) influence the structure of criminal opportunities that become available (Cohen & Felson, 1979). Such changes, in turn, can limit criminal opportunities, thus leading to increased offending specialization (e.g., McGloin, Sullivan, Piquero, & Pratt, 2007). Accordingly, criminal career research indicates that offending specialization tends to increase with age (Blumstein et al., 1986; Blumstein et al., 1988; Britt, 1996; Piquero et al., 2003; Piquero, Paternoster, Mazerolle, Brame, & Dean, 1999; Simon, 1997). Although the reasons for desistance in particular types of crime have long been debated, it does seem as though criminals tend to stick with committing crimes they are comfortable with as they get older.

Evidence of offending specialization has also been found through the use of different methodological techniques. For example, Sullivan and colleagues (2006) uncovered the presence of short-term offending specialization using life-event calendar data that were not susceptible to time aggregation bias—that is, an analysis of shorter periods (months) in an offender’s life revealed specialization that would be masked using a longer time window for offending (e.g., yearly or lifelong estimates). Furthermore, Lussier, LeBlanc, and Proulx (2005) uncovered evidence of greater offending specialization among child molesters relative to sex offenders in general. In particular, although the previous criminal histories of rapists were found to be versatile, the past behaviors of child molesters were characterized mainly by crimes of a sexual nature. Thus, although some studies have indeed uncovered evidence of offending specialization, the issue at hand is whether such specialization is sufficient enough to warrant labels and typologies of specific offenders.

Offending Versatility

Contrary to the assumption of (and growing empirical evidence for) offending specialization, it is possible that MHOs have criminal histories that are similar to other violent offenders—that is, criminal careers characterized by offending versatility. Put differently, it would be difficult to imagine an offender who had the wherewithal to take the life of another being yet somehow found engaging in any other type of criminal behavior distasteful. For example, Gottfredson and Hirschi (1990) argued that criminality arises from deficits in self-control that are established early in life. Low self-control “manifests itself in different ways with the choice of crime type likely varying from situation to situation” (Piquero et al., 1999, p. 279; also see Piquero & Bouffard, 2007). Those offenders who exhibit low self-control are likely to engage in a wide variety of criminal and risky behaviors that are reflective of their impulsivity and inability to consider the long-term consequences of their behavior (Higgins, 2005; Hope & Chapple, 2005; Langton, 2006; McGloin, Pratt, & Maahs, 2004; Pratt & Cullen, 2000; Pratt, Turner, & Piquero, 2004; Tibbetts & Whittimore, 2002; Turner, Piquero, & Pratt, 2005; Unnever & Cornell, 2003).

Furthermore, Gottfredson and Hirschi’s (1990; also see Hirschi, 2004) perspective predicts that those with low self-control self-select into the changes in life circumstances that
could conceivably influence the array of available criminal opportunities. Moreover, Gottfredson and Hirschi argued that criminal opportunities are ubiquitous; thus, those with low self-control—in any given situation or set of life circumstances—will perceive there to be more criminal opportunities at their disposal than those with higher self-control. The end result, then, is that regardless of changes in life circumstances, those with low self-control—a category to which MHOs are likely to belong—should exhibit a wide range of criminal behaviors.

Of particular importance here is the relationship between low self-control and psychopathy. Those deemed psychopaths are similar to individuals with low self-control in that they both reflect a self-centered personality (Wiebe, 2003). The application of Gottfredson and Hirschi’s (1990) general theory of crime to MHOs could be the link between the abundance of cloudy psychological terms and serious scholarly criminological research on the subject.

**Current Focus**

The present study strays from the majority of previous work by using both theory and empirical data to explore multiple murder in a more rigorous and scientific manner. The current study builds on recent work concerning MHOs, which are defined simply as criminal defendants who murder more than one person over a criminal career (DeLisi & Scherer, 2006). This definition groups together serial, mass, and spree murderers with more typical homicide offenders (e.g., love triangle double murder) through the common thread of multiple victims killed by the same offender. Much of the research on multiple murder by academics thus far has solely focused on serial killers while ignoring spree and mass killers (Fox & Levin, 2003; Petee, Padgett, & York, 1997). Although it may be easy to distinguish mass killers from the other two types, it is increasingly difficult to differentiate serial from spree killers because of disagreement about the length of period of inactivity. In addition, ignoring other types of MHOs eliminates the opportunity to understand how these individuals may be similar. By using the current definition, it is therefore possible to get a better understanding of multiple murder in general while avoiding the conceptual pitfalls associated with specific types of MHOs.

With this starting point, the current analysis uses the criminal career paradigm developed by Blumstein and colleagues (1986), along with self-control and routine activity frameworks, to examine the question of whether MHOs specialize in their offending patterns relative to SHOs. Although an admittedly specific question, its answer has broader implications for the understanding of offending in general. Specifically, answering this question would provide a necessary “first step” toward engaging the academic community in a serious discussion concerning whether MHOs should be viewed as a discrete offender group.
Method

Data

The data used in this study are part of DeLisi and Scherer’s (2006) study of 654 convicted and incarcerated homicide offenders from eight states across the Southern, Midwestern, and Atlantic Coast areas of the United States. Because of the extreme nature of homicide offenders, it is often more difficult to obtain a random sample (DeLisi & Scherer, 2006). Therefore, the sample is a purposive one that was compiled based on the public availability of criminal records in these areas. Each state had varying degrees of information available about each offender. For example, some states provided information related to conviction data, whereas others provided only sentence length information. All states provided biographical information on each inmate, which could then be used to purchase their prior criminal record. Records were produced through a clearing-house service with monthly updated information containing correctional and court information. The final sample was broken down into 494 SHOs and 160 MHOs.

The data set includes variables relevant to the criminal career paradigm such as age of offender, race, and age of criminal onset. Both homicide groups contained similar percentages of African American offenders (SHO = 42%, n = 207; MHO = 43%, n = 69). In addition, there were no significant differences in age of offender, age of onset, and total previous convictions. There were, however, some differences present in the criminal histories of the two offender groups. When compared to SHOs, MHOs were more likely to have a previous conviction for rape. In contrast, SHOs were more likely to be Hispanic and to have a prior conviction for drug trafficking and weapons charges (see DeLisi & Scherer, 2006).

Ordinarily, measuring offense switching requires at least one instance of past official conduct because by definition offenders can switch crime types only if they have already committed a previous, detected offense. The present analysis, however, is unique in that it seeks to discover whether homicide offenders specialize in murder. Thus, it is necessary to leave all offenders in the sample regardless of their number of previous crimes committed. The implication of this is that the diversity measure will be biased toward specialization because a number of offenders with no prior offenses will be included in the analysis. It therefore represents a conservative measure of offense versatility because 38% of the sample (n = 233) had only one conviction (the current murder charge). This should not, however, affect whether differences exist in offending specialization or versatility between the MHO and SHO groups because about one third of each was composed of offenders with one conviction (the current homicide for which they were incarcerated).
Measure of Offending Specialization–Diversity

The current study uses the diversity of offending index, commonly referred to as $D$, originally developed by Agresti and Agresti (1978). This measure of specialization entails an individual-level approach that is consistent with the criminal career paradigm (Sullivan et al., 2006). The diversity index can be interpreted as the “probability that any two offenses drawn randomly from a given individual’s set of offenses belong to two different offending categories” (Piquero et al., 1999, p. 286). Unlike previous measures found to be deficient such as the forward specialization coefficient (Britt, 1996), the diversity of offending index does not require the offenses to be in order when considering specialization (Sullivan et al., 2006). Therefore, $D$ is not susceptible to misinterpretations of specialization that could occur, for example, in an offender who had committed a wide variety of crimes yet out of 20 total crimes may have committed 4 like crimes in a row, indicating specialization. The minimum value of $D$ is 0, which would indicate complete specialization. This would occur when all of the crimes in the offender’s offense set were for the same transgression. The maximum value, indicating complete generality, would be found using the formula $D_{\text{max}} = (k - 1)/k$, where $k$ equals the number of offending categories (Mazerolle et al., 2000).

The current analysis uses 10 measures of previous convictions (murder, rape, robbery, aggravated assault, kidnapping, molestation charges, burglary, theft, weapons charges, and drug use or sale charges) within the data set. Therefore, the maximum $D$ value indicating complete diversity would be .90, and a diversity index value of 0 would indicate complete specialization (which would result when the total prior convictions for an offender were in the same offense category). The diversity index is calculated by the following formula: $D = 1 - \sum P_{ij}^2$, where $P$ refers to the proportion of convictions for a particular crime category $i$ and $j$ refers to the total number of crime categories (for similar descriptions of diversity index calculations, see Mazerolle et al., 2000; Sullivan et al., 2006).

Correlates of Offending Specialization–Diversity

To assess the nature of potential differences in criminal specialization or diversity between MHOs and SHOs, the current analysis also examines the relevant career criminal variables as predictors of the diversity index within each homicide offender group.

Age of onset. The age at which offenders have their first official contact with the law has been found to be inversely related to versatility in criminal behavior (Blumstein et al., 1986; DeLisi, 2006; Mazerolle et al., 2000; Piquero et al., 1999; Piquero et al., 2003; Sullivan et al., 2006). Furthermore, Gottfredson and Hirschi (1990) contended that those offenders who start their criminal careers earlier should indeed exhibit
greater versatility in their crime types. Individuals who exhibit low self-control are 
likely to engage in a wide variety of risky behaviors. Ultimately, those homicide 
offenders who began their careers at an early age could be expected to commit a wider 
variety of crimes over the criminal career and thus have a higher diversity index.

Age. The current age of the offender is included in the models because the major-
ity of previous research has indicated a modest, negative relationship between age 
and offending versatility (Blumstein et al., 1988; Piquero et al., 1999; Piquero et al., 
2003; Sullivan et al., 2006). It is possible that as offenders age they tend to settle into 
crime types with which they are familiar and comfortable. In addition, it may be that 
the opportunities for committing certain types of crimes are reduced with age as 
offenders experience life changes such as marriage that they simply become too old 
to engage in the risky behaviors they did when they were younger (e.g., older offend-
ers may have no trouble abusing illegal drugs on a regular basis, but they are proba-
bly less likely to be committing interpersonal crimes such as robbery and assault 
where the physical demands are higher).

Race. Prior research has highlighted certain racial/ethnic differences with regard 
to offense specialization (Armstrong & Britt, 2004; Blumstein et al., 1988). For 
extample, Sullivan et al. (2006) found that Native Americans had considerably higher 
levels of offending diversity than did Blacks, Hispanics, or Caucasians. The present 
analysis is unique in that African Americans are overrepresented in the MHO sam-
p;le \( n = 160 \), African American \( n = 69 \). Nevertheless, a robust finding in multiple 
murder research is that most offenders are Caucasian. Thus, a dichotomous race vari-
able is included in the analysis so that 1 = White and 0 = non-White.

Frequency of Offending

Gottfredson and Hirschi (1990) were clear in their assertion that those with lower 
levels of self-control will not only offend more frequently but also exhibit greater 
offending versatility than those with higher levels of self-control. Thus, it is impor-
tant in the present context to explicitly take the frequency of offending into account 
so that any differences in offending specialization or diversity that are, or are not, 
revealed between SHOs and MHOs are not artifacts of the relationship between fre-
quency and diversity of offending (similar approaches were taken by McGloin et al., 
2007; Sullivan et al., 2006).

The total number of contacts an offender has had with law enforcement has been 
found to be positively related to variation in offending (Mazerolle et al., 2000; 
Sullivan et al., 2006). In the current study, this measure is operationalized as the total 
number of prior convictions for the offenses included in the analysis. It can be 
expected that homicide offenders with a higher number of total prior convictions will 
also have a higher value of \( D \).
Analytic Strategy

The following analysis proceeds in two stages. First, to determine whether MHOs and SHOs have similar levels of diversity in offending, the current study uses a difference of means test for $D$ across the two sample groups. A nonsignificant difference in means would challenge the idea that MHOs indeed constitute a sort of abnormal criminal worthy of special attention, such as the perceived need to treat these offenders as distinct from SHOs and offenders in general in both true crime and academic print. Second, beyond whether MHOs have similar levels of $D$ compared to SHOs, the effects of the relevant predictors of $D$ across the two homicide offender samples are analyzed. To do so, a series of multiple regression models is estimated to determine if the career criminal variables specified operate differently as predictors of $D$ across the two homicide offender samples. Those variables found to be statistically significant are then assessed in terms of whether they are better predictors across either of the two subgroups.

Results

Difference of Means Comparison of Diversity Index Values

The mean diversity index score across the entire sample of 618 offenders was .37 ($SD = .33$). It is important to remember, however, that offenders with only one total conviction were included in the analysis. Thus, nearly 38% of the sample would be considered complete specialists with a $D$ value of 0. Removing these individuals from the analysis produces a mean diversity score of .60 ($SD = .19$; $n = 385$). Although previous criminological research has not made extensive use of the diversity index as a measure of versatility, this value represents a fairly diverse background for the average homicide offender who has indeed been previously convicted.

Table 1 presents a difference of means test between the average value of $D$ within the SHO and MHO samples. The mean diversity index values for the two groups were not significantly different, where the SHOs averaged a $D$ of .37 ($SD = .33$) whereas the MHOs averaged a $D$ of .36 ($SD = .32$). Thus, both SHO and MHO offenders had similar previous criminal histories that were moderately specialized.

Multiple Regression Analyses

A series of ordinary least squares regression models was estimated to determine the significance of the criminal career paradigm variables in predicting the diversity.$^5$ The measures of offending frequency and offending diversity were highly correlated—a finding common in the offending specialization or versatility literature (Sullivan et al., 2006). To accommodate this issue in a way that still allowed for the assessment of the effect of offending frequency on $D$, a series of models was estimated based on the
Table 1
Difference of Mean Diversity Indices Between Multiple Homicide Offenders (MHOs) and Single Homicide Offenders (SHOs)

<table>
<thead>
<tr>
<th>Variable</th>
<th>SHOs</th>
<th>MHOs</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity index</td>
<td>0.3745</td>
<td>0.3610</td>
<td>-0.447</td>
<td>.655</td>
</tr>
</tbody>
</table>

offending history of the subsamples of offenders. Accordingly, Table 2 presents the results of these models moving from the full sample of 618 SHO and MHO offenders to each subsequent model differing by number of prior convictions.

To that end, the results presented in Table 2 first indicate that offender status (SHO vs. MHO) still fails to evidence a significant difference in $D$. Thus, the bivariate results are confirmed here in that no evidence of a significant difference between SHOs and MHOs with regard to offending specialization or diversity is found. Second, age is related to $D$ in important ways within these samples. To be sure, age of onset is a consistent and significant inverse predictor of $D$ across each of the models, where offenders who start their criminal careers at a younger age demonstrate greater offending diversity. Third, current age is also important in two of the models in that older offenders tend to have more diverse criminal histories. Finally, Table 2 indicates significant racial differences in two of the models, where Whites are more likely to evidence greater offending specialization than their non-White counterparts. It is possible that local life circumstances are responsible for these diversity index differences between races. Although current research has not found any significant differences within race of offender as it relates to local life circumstances and offending specialization (McGloin et al., 2007), it may be that homicide offenders in particular are differently influenced by local life circumstances across race.

Exploring Interaction Effects

The negative relationship revealed here between age of onset and diversity is consistent with the bulk of prior research (Blumstein et al., 1986; Mazerolle et al., 2000; Piquero et al., 1999; Piquero et al., 2003; Sullivan et al., 2006). That is, an offender is more likely to have a versatile career the earlier that career starts. Thus, this relationship was further investigated in the context of MHOs versus SHOs to determine whether this variable was a better predictor of $D$ for certain homicide subgroups. To do so, an interaction term was specified and introduced into the regression models. For the interaction analyses, SHO was coded as 1 whereas MHO was coded as 0. As can be seen in Table 3, the results of these supplementary analyses indicate a significant interaction effect in the models based on offenders with both four or more convictions ($\beta = .355, p < .01$) and five or more convictions ($\beta = .418, p < .01$). These
Table 2
Multiple Ordinary Least Squares Regression Models Predicting the Diversity Index Across Number of Priors

<table>
<thead>
<tr>
<th></th>
<th>Full</th>
<th>2+ Convictions</th>
<th>3+ Convictions</th>
<th>4+ Convictions</th>
<th>5+ Convictions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 618</td>
<td>n = 385</td>
<td>n = 326</td>
<td>n = 279</td>
<td>n = 233</td>
</tr>
<tr>
<td>Onset age</td>
<td>(-.156)</td>
<td>.011**</td>
<td>(-.036)</td>
<td>.010**</td>
<td>(-.017)</td>
</tr>
<tr>
<td>Age</td>
<td>.068</td>
<td>.008**</td>
<td>.002</td>
<td>.005</td>
<td>.004</td>
</tr>
<tr>
<td>Offender status</td>
<td>.004</td>
<td>.163</td>
<td>.001</td>
<td>.103</td>
<td>.009</td>
</tr>
<tr>
<td>(single homicide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>offender = 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (Caucasian = 1)</td>
<td>-.375</td>
<td>.145*</td>
<td>-.202</td>
<td>.092*</td>
<td>-.061</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.346</td>
<td>.177</td>
<td>-0.342</td>
<td>.177</td>
<td>-0.184</td>
</tr>
<tr>
<td>F</td>
<td>52.766**</td>
<td>5.472**</td>
<td>4.701**</td>
<td>7.328**</td>
<td>6.692**</td>
</tr>
<tr>
<td>R²</td>
<td>.256</td>
<td>.545</td>
<td>.055</td>
<td>.097</td>
<td>.105</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01.
findings reveal that the age of onset was a significantly better predictor of the diversity index in MHOs than it was in SHOs (i.e., because the direct effect of age of onset on $D$ was inverse, the positive coefficient for the interaction term indicates the change in the slope of the relationship between age of onset and $D$ for the SHO group). Thus, of those criminals with a higher number of convictions in the data set, an earlier age of onset was a better precursor to a versatile career in MHOs than in SHOs.

**Discussion**

The notion that MHOs are specialists in murder was not supported in the current study. Instead, the MHOs maintained a criminal career that was indistinguishable from the background of an individual who had murdered only one victim. It is possible, however, that had the SHOs not been caught for their act, they could have gone on to kill again (Canter, Missen, & Hodge, 1996). Thus, the results are not meant to imply that SHOs and MHOs are identical because differences in social maladjustment, for example, could be present within the subsamples (Harbort & Mokros, 2001). Even so, the broad theme of the current study is that multiple murderers can be understood through criminological theory in the same manner as other offenders. Based on the idea that MHOs can be viewed in this way, four conclusions can be reached.

First, future research would do well to use both official records and self-report data to complement findings of specialization or diversity using the diversity index measure. Given the plethora of material that exists from directly interviewing MHOs, it would be beneficial to combine firsthand contact with MHOs with empirical data derived from larger populations such as the current analysis (Beasley, 2004). In addition, given the robust finding of frequency of offending as a predictor of $D$ across models, it would be useful for future research to explore escalation within a sample of homicide offenders, where murder would be the final and clearly most serious crime they would have committed. Along these lines, future analyses would do well to seek to determine if specialization in murder is evident in the short term. That is, have offenders with a previously varied criminal career escalated to the crime of murder and stuck with it?

Second, the age of onset emerged as a consistently significant predictor of offending specialization or diversity, where the younger the offender at the time of first conviction, the more likely he or she is to have a versatile criminal history. The negative relationship between age of onset and versatility is consistent with the arguments set forth by Gottfredson and Hirschi (1990) and by Piquero et al. (1999). Individuals who start their careers earlier can be expected to commit a wide variety of risky criminal and noncriminal behaviors. Furthermore, the interaction effects specified in the regression analyses revealed that the age of onset was a better predictor of diversity for MHOs than for SHOs. It is possible that the traits of low self-control are present more in MHOs, which may therefore render them with a greater ability to kill multiple victims without thought of or care for the consequences.8
## Table 3
### Multiple Ordinary Least Squares Regression Models Predicting the Diversity Index Across Number of Priors

<table>
<thead>
<tr>
<th></th>
<th>Full (N = 618)</th>
<th>2+ Convictions (n = 385)</th>
<th>3+ Convictions (n = 326)</th>
<th>4+ Convictions (n = 279)</th>
<th>5+ Convictions (n = 233)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Onset age</td>
<td>-.158</td>
<td>-.050</td>
<td>-.023</td>
<td>-.038</td>
<td>-.041</td>
</tr>
<tr>
<td></td>
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<td>.007**</td>
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<td>Age</td>
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<td>.002</td>
<td>.004</td>
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<td>.003</td>
</tr>
<tr>
<td></td>
<td>.008**</td>
<td>.005</td>
<td>.002</td>
<td>.002</td>
<td>.002</td>
</tr>
<tr>
<td>Offender status</td>
<td>.003</td>
<td>.010</td>
<td>.086</td>
<td>.057</td>
<td>.074</td>
</tr>
<tr>
<td>(single homicide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offender = 1)</td>
<td></td>
<td></td>
<td>.010</td>
<td>.041</td>
<td>.046</td>
</tr>
<tr>
<td>Race (Caucasian = 1)</td>
<td>-.374</td>
<td>-.202</td>
<td>-.061</td>
<td>-.024</td>
<td>-.019</td>
</tr>
<tr>
<td></td>
<td>.145*</td>
<td>.092*</td>
<td>.041</td>
<td>.034</td>
<td>.036</td>
</tr>
<tr>
<td>Offender status ×</td>
<td>.003</td>
<td>.019</td>
<td>.008</td>
<td>.024</td>
<td>.027</td>
</tr>
<tr>
<td>Onset age</td>
<td></td>
<td></td>
<td>.009</td>
<td>.008</td>
<td>.008**</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.299</td>
<td>0.465</td>
<td>-0.222</td>
<td>0.168</td>
<td>0.189</td>
</tr>
<tr>
<td>$F$</td>
<td>42.148**</td>
<td>4.547**</td>
<td>3.913**</td>
<td>7.998**</td>
<td>7.732**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.256</td>
<td>.057</td>
<td>.058</td>
<td>.128</td>
<td>.146</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01.
Third, the age of offender was also a significant predictor of $D$. In the present case, it is clear that older offenders have had more time to commit more offenses and thus have had the opportunity to be more varied in their criminal behaviors. This finding is counterintuitive given prior research that has found that age is an important predictor in the decline of frequency of committing various crime types (Blumstein et al., 1986). Nevertheless, Gottfredson and Hirschi (1990) asserted that “there is no justification for using age as a critical weapon against any current theory of crime” (p. 131). Therefore, on using the general theory of crime as a theoretical foundation for understanding multiple homicide, it is not surprising that the negative relationship between age and diversity found in prior research (Piquero et al., 1999; Sullivan et al., 2006) was absent in the current analysis.

Fourth, classification of criminals into specific offender types may be unjustifiable. More than 30 years ago, Taylor, Walton, and Young (1973) recognized the difficulties inherent in specifying criminal types among a diverse criminal population. Despite this warning, policy makers continue to assume that offenders who solely commit one type of crime exist—homicide offenders (whether MHOs or SHOs) among them. This becomes particularly troubling when crime-control policies are based on the assumption of specialization (e.g., drug courts and domestic violence courts; Simon, 1997). For example, the notion that a particular offender is simply a drug offender in need of rehabilitation may mask a deeper underlying explanation of criminality. As such, the application of a general theory of crime to homicide offenders has an additional benefit of suggesting that they do indeed engage in a wide variety of crimes and that any one of these particular crimes is likely to be caused by an underlying criminal propensity.

Multiple homicide is a crime type that is particularly susceptible to the dangers of overtypification. The difficulty with these classifications is that they “assume that real-life persons can be found in significant numbers who resemble the descriptions of offenders in various typologies that have been put forth” (Gibbons, 1988, p. 9). These “inductively developed base expectancy systems” (Gibbons, 1988, p. 9) have been attacked in the past because they are not mutually exclusive, are not exhaustive, and do not account for random, unpredictable environmental factors (Gresswell & Hollin, 1994). Human beings rarely fall into distinctive types, regardless of how convenient it would be to be able to peg offenders as “only” murderers, robbers, drug abusers, fraudsters, software pirates, and so on. At its most harmful, the reliance on typologies in criminal profiling could be wasteful of both time and resources during an investigation (Canter, Alison, Alison, & Wentink, 2004).

Adhering to the notion that multiple murders are deserving of special attention in both scholarly research and public policy undermines the opportunity to understand how they may be similar to other offenders. The current analysis has shown that the criminal histories of MHOs are quite similar to those of SHOs. In the end, it is possible that the causal structures that influence MHOs are similar to those for offenders in general. Future research would do well to assess whether empirically
established modes of effective corrections treatment would be possible for homicide offenders as well.

Notes

1. It is not the intention of the current analysis to solve the ongoing problem of definitional inconsistencies among multiple homicide offender (MHO) types. At the most basic level, however, serial homicide can be defined as the unlawful killing of three or more victims with a “cooling-off” period between each homicide (Canter & Wentink, 2004; Salfati & Bateman, 2005). Spree homicide is similar to serial homicide but without the “cooling-off” period. Finally, mass homicide can be understood as the killing of four or more victims in a single act or short-lived crime spree, which often results in the death of the offender at the hands of law enforcement or by suicide (Fox & Levin, 2005).

2. Important to note is that MHOs in the current study were distinguished by the amount of victims for the current homicide charges. Thus, an MHO could not be, for example, an individual who commits robberies over a span of years and kills on two separate occasions.

3. A noticeable limitation to the current analysis is the lack of female offenders in the sample. In the original sample of 160 MHOs and 494 single homicide offenders (SHOs), there were only 36 female offenders (31 SHOs and 5 MHOs). The cases were therefore dropped from the analysis. Female MHOs, often described as “murder most rare,” make up a very small percentage of MHOs. A study by Mazerolle, Brame, Paternoster, Piquero, and Dean (2000) did not uncover any meaningful differences between males and females in their levels of offending diversity. Nevertheless, women offenders do compose a larger percentage of MHOs than most think, and future research would do well to analyze data sets containing these individuals.

4. The analysis thus relies on official records, which could be particularly problematic given the extreme nature of the offenders in question. Less serious offenses may have been overlooked in charging the offender with the more serious crime of murder. An important advantage of using official records is that it does not introduce bias produced by offenders exaggerating their previous criminal history. This often occurs with MHOs intent on securing their place in history. Future research would do well to synthesize official records with self-reporting by homicide offenders (Blumstein, Cohen, Roth, & Visher, 1986).

5. Because the distribution of $D$ is not a normal one, the natural logarithm of $D$ was used so as not to violate the assumptions of ordinary least squares regression.

6. It is possible that the absence of a significant difference in $D$ between the SHO and MHO samples could be because of a possible bias from an asymmetry in our classification system for MHOs and SHOs; in particular, the population of SHOs may include some MHOs because of unsolved homicides, but the population of MHOs could not include any SHOs. Nevertheless, for this potential problem to systematically alter our results, the segment of misclassified SHOs would need to be complete specialists in homicide. Our broader results reveal, however, little specialization among MHOs in general (the category to which the misclassified SHOs would belong). We are therefore confident that the results presented here reflect an enduring reality and are not an artifact of this potential methodological problem.

7. Separate models were run to see if the age of offender effect mediated the effects of age of onset of offending specialization as found in Piquero, Paternoster, Mazerolle, Brame, and Dean (1999) and Sullivan, McGloin, Pratt, and Piquero (2006). Counter to these previous findings, age of offender did not mitigate the relationship between onset age and $D$.

8. This finding should not preclude using the general theory of crime to explain the behavior of both SHOs and MHOs. Instead, this could potentially indicate variation in levels of self-control between the two groups and thus make the application of the theory even more appealing.

9. Again, the method used here involved total convictions across an offender’s criminal career, which was not limited to recent patterns of criminal activity, which would likely produce evidence of greater offending specialization among older offenders.
References


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