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Chan, Heng Choon Oliver

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Nonstranger and Stranger Sexual Homicides in Mainland China: Comparing the *Modus Operandi* of Male Sexual Murderers

Heng Choon (Oliver) Chan[1]

Abstract
Although studies have been made of different subtypes of individuals who committed sexual homicides, the research into nonstranger and stranger sexual homicides remains limited. This study therefore aimed to examine whether those who sexually murder nonstrangers differ from those who kill strangers. Data derived from police records, court documents, and published case reports spanning a 31 year period (1988–2018) in mainland China were used to examine the modus operandi of 127 males who committed sexual homicides (45 nonstranger and 82 stranger cases). Relative to nonstranger sexual homicides, stranger sexual homicides were more likely to have been committed by individuals with a previous sexual offense conviction and the victims were more likely to have been single and employed at the time of the offense. Furthering the analysis, a logistic regression found that individuals who targeted strangers were significantly more likely to have committed their homicide at an outdoor location, to have been sexually motivated, and to have used murder weapons that required more physical strength than those who killed nonstranger victims. These findings can be informative to law enforcement agents and security professionals in their investigative processes.

[1]Department of Social Policy, Sociology, and Criminology, University of Birmingham, Birmingham, UK

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Corresponding Author:
Heng Choon (Oliver) Chan, Department of Social Policy, Sociology, and Criminology, University of Birmingham, Birmingham B15 2TT, United Kingdom.
Email: h.c.chan@bham.ac.uk

Introduction

Although sexual homicides garner headlines and dominate the news worldwide, they have a low base rate of incidence. The prevalence of sexual homicides in different countries (e.g., Australia, Canada, England and Wales, Finland, Jamaica, and the U.S.) has been variously estimated at between 1 and 5% of all reported homicides (Chan, 2019). The discrepancies in the reported rates of sexual homicides are allegedly due to inconsistencies in the criteria used for classifying sexual homicides. In view of this problem, Chan (2015) proposed a set of defining criteria, based on existing definitions, as a standardized approach to classifying this distinct type of homicide (details are given in the next section). Although the prevalence rate of sexual homicides in the U.S. has been steadily decreasing since the mid-1970s (Myers et al., 2017), there has been a growing academic interest in recent decades to comprehend sexual homicides and those who commit them. According to Chan and Heide (2009), 32 empirical studies were published on this topic between 1986 and 2007, but this increased to 47 studies published between 2008 and 2015 (Chan, 2017).

Sexual homicide is a complex phenomenon that can be the outcome of a sophisticated decision-making process (Higgs et al., 2017; Stefanska et al., 2017). To date, only a handful of empirical studies on sexual homicides have been published in countries outside of the West—for example, South Korea (Sea et al., 2019) and mainland China (Chan et al., 2019a, 2019b; Chan & Li, 2019, 2020). It remains uncertain if the findings from studies commonly conducted with Western samples (e.g., in Canada, France, the U.K., and the U.S.) can be equally applied to non-Western countries, and specifically in the Asian context. Importantly for this study, little is known about the modus operandi (MO; also known as methods of operation) adopted by persons who committed sexual homicides in mainland China, particularly in relation to sexual homicides committed against nonstrangers and strangers. The primary aim of this study is to explore this gap in the literature with a sample of Chinese male individuals who committed sexual homicide (hereafter referred to as sexual homicide offenders; SHOs). The findings of this study may inform police practice in the area of suspect prioritization and help police strategize their investigation efforts. Moreover, this study may be informative for behavioral scientists and mental health professionals (e.g., forensic psychologists, psychiatrists, and criminal and mental health attorneys) who advise law enforcement officers in the investigation of such offenses.

The Victim–Offender Relationship in Sexual Homicide: Decision-Making in Target Selection

The relationship between the victim and perpetrator can play a key role in the understanding of sexual offending behavior. Based on a study of over 1,000 female sexual assault survivors recruited from college, community, and mental health agency sources, Ullman et al. (2006) found that approximately two-thirds of sexual offenses were committed by known individuals. Ullman and Siegel (1993) also similarly found that 78% of their sample of female victims were assaulted by an individual previously known, 45% were attacked by acquaintances, and only 21.5% were victimized by strangers. Previous studies have demonstrated that the choice of victim (nonstranger vs. stranger) influences the perpetrator's MO. For instance, individuals who victimized stranger were more likely to use a weapon and to exert more physical violence against their victims compared to those who victimized nonstranger (e.g., Stermac et al., 2001; Ullman et al., 2006; Ullman & Siegel, 1993). Comparatively, Kaufman et al. (1998) reported that individuals who commit intrafamilial sexual offending (e.g., individuals who victimized related individuals) were more often used gifts to lure their targets; and hence, physical violence may not be necessary to gain control over their victims. It seems that individuals who sexually victimized nonstrangers are much easier to gain access and control over their targets than those who sexually victimized strangers.

Specifically in sexual homicides, the victim–offender relationship (e.g., nonstranger vs. stranger), based on the target's availability and distinctive personality characteristics, can be a determining factor that influences SHOs in their target selection process. According to Chan et al. (2011), SHOs are likely to develop a set of criteria or preferences in their search for suitable targets as part of their planning. They may engage in stalking and voyeuristic behavior to mentally map the targeted neighborhood and maximize the probability of seizing their targets successfully. This mental mapping of their target selection is a part of SHOs' offense premeditation and is often carried out through their routine activities. Depending on the SHO's preferences, targets can be chosen based on their availability, or a specific target can be targeted, or both; hence, targets can be either strangers (i.e., with no prior relationship) or nonstrangers (i.e., with prior known relationship, such as a family member, intimate partner, friend, or acquaintance) to the perpetrator.

The Rational Choice and Routine Activity Approaches: The Target Selection in Sexual Homicide Offending.
In criminology, decision-making in the crime commission process of SHOs can be explained by two mainstream criminological theories: (1) rational choice theory and (2) routine activity theory. In general, the rational choice theory approach is proffered to explain how decisions are made, with rationality and self-interest as the core principles of decision-making (Cornish, 1993). The rational choice approach assumes that individuals commit crime because it provides them with the most effective means of achieving their desired benefits (Clarke & Felson, 1993). Notably, Cornish and Clarke (1986) stated that rationality is "limited" or "bounded" to a certain extent,

with perfect rationality often unobtainable in real life. This bounded rationality often occurs as a result of limited time, effort, and available information. In some offenses (e.g., sexual burglary), decisions are made with access to limited information about the setting partly because the perpetrator is in opposition to the victim (Pedneault et al., 2015). In many instances, decisions are made in a split second as the urgency of the situation requires immediate action or partly due to automaticity in decision-making (i.e., immediate decision-making in the presence of a given environmental stimulus obtained from past experience; Nee & Meenaghan, 2006). The individual's rationality can also be influenced by alcohol or drugs, leading to cognitive deficits in weighing the costs and benefits of criminal actions.

The routine activity theory is another criminological theory that is often adopted, including in recent sexual homicide studies (e.g., Beauregard & Martineau, 2015; Chan, 2015), to explain an individual's decision-making in committing a crime. Cohen and Felson (1979) posited that the probability of an offense occurring in a given community or society is generally influenced by the convergence in space and time of three key aspects of the daily routines of individuals: (1) motivated and potential offenders, (2) attractive and suitable targets, and (3) the absence of a capable guardian to protect against a violation. The lack of any of these elements diminishes the probability of an offense being committed (Felson & Cohen, 1980).

As a result, to better understand the offending process in sexual homicide, Chan et al. (2011) proposed an integrated conceptual offending framework incorporating the social learning and routine activities theories. The individual-level perspective of SHOs is explained by the social learning principles (the predispositional factors of a motivated perpetrator) and is complemented by the situational-level perspective of the offending process as explained by the routine activity propositions (the situational factors of an attractive and suitable target and the absence of a capable guardian) to offer a more comprehensive model of sexual homicide offending. In Chan's (2015) words, this model was developed "to explain the processes whereby an individual becomes motivated to sexually murder, decides to sexually murder, and acts on that desire, intention, and opportunity" (p. 101). In brief, the routine activity approach is largely adopted to explain the environmental influences on offense execution, particularly in relation to the victim selection process.

The target selection process generally involves a rational decision (Hough, 1987). From the routine activity perspective, Wittebrood and Nieuwbeerta (2000) postulated that (1) a criminal-opportunity structure is created from patterns of routine activities and lifestyles through contact between a motivated offender and a suitable target, and (2) the selection of a specific target is determined by the perpetrator's subjective value of this particular target and his/her level of guardianship. Cohen and Felson (1979) proposed the VIVA model (i.e., value, inertia, visibility, and accessibility) to explain the selection of a suitable target by perpetrators. According to Rossmo (2000), targeting for victims generally resembles the search for other criminal targets (e.g., for property offenses), except that the individual targeting a victim is faced with two complicating factors: (1) people move about and (2) the victim must be controlled.

Although most empirical studies examining target selection have been conducted on burglars (e.g., Cromwell et al., 1991; Nee & Taylor, 2000; Palmer et al., 2002), there has been a significant increase in the number of empirical studies published on individuals who commit sexual offenses, especially over the past two decades (e.g., Beauregard et al., 2010; Deslauriers-Varin & Beauregard, 2010; Pedneault et al., 2015; see Rebocho & Silva, 2014 for a review). This includes two studies on individuals who committed sexual homicides (e.g., Beauregard & Martineau, 2015; Chan, 2015), both conducted with Canadian samples. According to these studies, the individual's precrime behavior often begins with their noncriminal routine activities. However, a significant proportion of individuals are likely to invest their time in prowling for suitable targets on their preferred location(s) for victim approach and attack (or "hunting field," as coined by Beauregard et al., 2007). More than half of the individuals who committed sexual offenses in the study of Beauregard et al. (2007) targeted victims in specific locations, often acquired through local knowledge, for their targets (e.g., strangers). Some perpetrators, however, searched for suitable targets through their own occupation, through families, or in private or semi-private places (e.g., nonstrangers). A few individuals selected their targets in prostitution areas, indicating a specific preference for victim type, or through newspaper advertisements, partly due to the lack of potential targets in their own neighborhood. Although Beauregard et al. (2007) found that most of the individuals in their sample targeted a specific type of target based on location and availability, other studies have found that the targets' demographic (e.g., age and racial background) and psychosocial features (e.g., distinctive personality characteristics) influenced individuals who committed sexual offenses and sexual homicides in their target selection (e.g., Chan & Beauregard, 2016; Chan et al., 2010; 2015; Healey et al., 2013).

Stranger Sexual Homicides. In recent empirical studies, the prevalence of SHOs who targeted strangers ranged from 15% to 63% among samples from Canada, the U.S., France, Sweden, Scotland, South Korea, Australia, and New Zealand (Beauregard et al., 2022; Chai et al., 2021; Chan, 2021; Chan et al., 2013; Eichinger & Darjee, 2021; Higgs et al., 2019; Myers et al., 2017; Sea et al., 2019; Skott et al., 2021; Sturup et al., 2019). Nonstrangers were targeted by between 25% to 72% of SHOs, according to studies with individuals in Canada, the U.S., Scotland, South Korea, Australia, and New Zealand (Chan, 2021; Chan et al., 2013; Eichinger & Darjee, 2021; Myers et al., 2017; Sea et al., 2019; Skott et al., 2021). The large variation in these percentages is mainly due to differences in the population and size of the samples (ranging from $N =$ 21 [France] to 3,545 [the U.S.]). Although the victim–offender relationship is often explored in sexual homicide studies, it is usually only included as one of the independent variables. To date, only a handful of studies in sexual homicide have examined the victim–offender relationship as a dependent variable (e.g., nonstranger vs. stranger sexual homicides). For instance, the studies of Greenall and colleagues (Greenall & Richardson, 2015; Greenall & Wright, 2015; 2020), who analyzed nonserial sexual

homicides committed by British SHOs, are among the very few to have specifically studied sexual homicides committed against strangers.

Petherick and Turvey (2009) suggested that SHOs target strangers for two primary reasons: (1) to avoid detection (i.e., a rational decision made by "precautionary murderers" to select victims who match a predetermined set of criteria), and (2) to seize an opportunity (i.e., as part of the routine activities of "convenience murderers," who come across their victims by opportunity and proximity). Hence, strangers are equally likely to be targeted by premeditated and unpremeditated types of individuals. Within this classification, there is a subtype of premeditated perpetrators, labelled "premeditated opportunists," who have intentions to commit violence but for whom the specifics of the assault (i.e., victim, method, location) are not preplanned (Greenall, 2018).

In their follow-up study, Greenall and Wright (2015) reported an average of 26 past convictions among the 52 recidivists. A quarter of the 52 recidivists (n = 13) had previous convictions for sexual violence and hence their stranger sexual homicide was an act of sexual recidivism. Adopting the multidimensional scaling approach, Greenall and Wright (2020) subsequently examined the crime scene actions of their 81 stranger SHOs. They found that the instrumental/expressive hypothesis of physical violence[1] and the overt/covert hypothesis of sexual violence[2] did not apply in their sample of stranger sexual homicides. Instead, four subthemes were identified in these homicides: the instrumental/overt category included cases of rape (involving penile penetration of the victim) and of impersonal sexual assault (involving manual or ligature asphyxiation and overt but non-penile penetration) and the expressive/covert category included cases of overkill (involving the infliction of extreme injuries and covert sexual acts) and of control (involving expressively violent, albeit controlled, killing and covert sexual acts).

The Present Study

Mainland China, also commonly known as the People's Republic of China (PRC), is the most populous country in the world, with a population of 1.41 billion in 2020 (National Bureau of Statistics of China, 2021). Mainland China consists of 31 provinces, autonomous regions, and municipalities. According to the 2020 census, most of the population is Han Chinese (91.1%) and the remaining 8.9% comprises 55 minority ethnic groups, such as Zhuang, Hui, Manchu, Uyghur, Miao, Yi, Tujia, Tibetan, and Mongol. Many of these minority ethnic groups populate the areas near the country's northwestern, northern, northeastern, southern, and southwestern borders, although some minorities live in the central areas of the mainland. The official language in mainland China is Mandarin Chinese (also known as Putonghua). Although the mainland Chinese generally adhere to traditional Chinese teachings and cultural values, Westernized beliefs and practices have also been commonly seen in some of the megacities (e.g., Beijing, Shanghai, Guangzhou, and Shenzhen) in recent decades.

Relative to other types of homicides, such as robbery-, gang-, and drug-related homicides, sexual homicide remains an understudied topic partly due to its low base rate. Despite the increase of research on sexual homicides in the past decade, nearly all of the empirical studies have sampled Western populations (e.g., Australia, Canada, France, New Zealand, Scotland, the U.K., and the U.S.) and only a limited number of studies have been conducted with Eastern samples (Chan, 2017; Proulx et al., 2018). Beauregard (2019) argued that more international studies on sexual homicide are needed to advance our knowledge and understanding of sexual homicide and of those who perpetrate this offense from a cross-cultural standpoint. To date, only four empirical studies have been conducted on Chinese individuals who committed sexual homicides, and each examined different aspects of sexual homicide: a general overview of the sexual homicide phenomenon in mainland China, the perpetrators' primary motivation, trends in victim body mutilation, and choice of weapons (Chan et al., 2019a, 2019b; Chan & Li, 2019, 2020). Therefore, much remains to be learned about sexual homicide and SHOs in this Asian population.

As a result, little is known about the types of victim–offender relationship (i.e., nonstranger vs. stranger) in determining the perpetrators' MO. Most studies of sexual homicide examined the victim-offender relationship as a dependent variable. It remains largely unclear whether the MO of SHOs who victimize strangers are characteristically different from those who victimize nonstrangers (the victim-offender relationship as an independent variable). Against this backdrop, the importance of this study is twofold. This study aims to explore whether the relationship between victim and perpetrator may influence the SHO's MO. It is also the first work to explore the Chinese male SHO's MO in nonstranger and stranger sexual homicides. The findings of this study can advance our knowledge on this topic, with potential implications in police investigative and crime preventive strategies. Informed by the rational choice and routine activity theoretical approaches, it is hypothesized in the present study that the MO characteristics of sexual homicides committed by male SHOs in mainland China who target strangers are different from those of perpetrators who target nonstrangers. As there are only a few studies that compared stranger and nonstranger sexual homicides, the theoretical and practical importance of this study can have significant contribution to the existing literature, especially from the Asian (or more specifically, Chinese) point-of-view (e.g., similarities and/or differences between Chinese and Western stranger and nonstranger sexual homicides, and applicability of the rational choice and routine activity theoretical approach in explaining Chinese sexual homicides and sexual murderers).

Method

Data and Procedure

This exploratory study used three sources of data: police data (i.e., crime data recorded at different police departments, including death scene investigation reports, autopsy

reports, and suspect interrogation reports), court reports, and Chinese online journal databases for published case reports.[3] The police data were drawn from three selected regions in mainland China (i.e., the municipality of Shanghai and the provinces of Guangdong and Hubei) from January 2004 to December 2018. The searches of court reports (e.g., China Court, China Justice Observer) were conducted for the period from January 1991 to December 2020 and the search period for the Chinese online journal databases (e.g., China Academic Journals database [CNKI]) was between January 1988 and March 2019. To be included in this sample, one of Chan's (2015) defining criteria for sexual homicide had to be met:

(1) Physical evidence of pre-, peri-, and/or post-mortem sexual assault (vaginal, oral, or anal) against the victim;

(2) Physical evidence of substitute sexual activity against the victim (e.g., exposure of sexual organs or sexual positioning of the victim's body, insertion of foreign objects into the victim's body cavities, and genital mutilation) or in the immediate area of the victim's body (e.g., masturbation) reflecting the deviant or sadistic sexual fantasy of the offender;

(3) A legally admissible offender confession of the sexual motive of the offense that intentionally or unintentionally resulted in a homicide; and

(4) An indication of the sexual element(s) of the offense from the offender's personal belongings (e.g., journal entries, a home computer).

The case information from police data was compiled by legal physicians who worked in the police departments of different districts or regions of Shanghai, Wuhan, and Guangdong. The manual search for cases that met at least one of Chan's (2015) criteria identified 41 sexual homicide cases committed by males. Two keyword blocks (i.e., "强奸杀人" [rape murder] and "性变态杀人" [sadistic murder]) were then used in online searches for sexual homicide cases. These two phrases were directly translated from the common terminology used in Chinese to refer to sexual homicides. These keywords yielded the most hits in online searches for sexual homicide cases reported in Chinese academic publications and court reports. To complement the online searches of academic publications, the reference lists of the retrieved case reports were manually reviewed for additional articles of interest. For the purpose of this study, only case reports and court reports with comprehensive case information on the characteristics of sexual homicides that occurred in the selected regions were included in the sample. These searches resulted in the identification of 86 sexual homicide cases committed by male perpetrators (43 cases each from case reports and court reports) that met at least one of Chan's (2015) defining criteria for sexual homicide. The case coding was performed by the author and another project researcher, who were blind to each other's ratings. If there was disagreement over particular cases, this was discussed between the researchers until a consensus was reached. It should be noted that although the quality of data collected from these three sources was inconsistent, the same case coders were adopting the same set of rating criteria in all cases. Given the small sample size, most

variables were coded in a dichotomous option. The Cohen's Kappa was 0.91, representing a very strong agreement. A research ethics review was not required in this study.

The final sample was 127 sexual homicide cases (32.2% from police reports, 33.9% from court reports, and 33.9% from published case reports) spanning a 31-year period (1988–2018) from the selected regions in mainland China. Of the overall sample, 117 cases (92.1%) were identified as opposite-sex (i.e., male-on-female) sexual homicides, and the remaining 10 cases (7.9%) were same-sex (i.e., male-on-male) sexual homicides. Of the cases with a known year of occurrence, most occurred between 2008 and 2018 ($n = 84$, 68.9%; 4.9% in 1988–1997 and 26.2% in 1998–2007). The timing of the identified cases was relatively well distributed throughout the year, with most cases reported in summer (June–August; 28.7%), followed by winter (December–February; 26.2%) and spring (March–May; 24.6%), and the fewest cases reported in autumn (September–November; 20.5%). In terms of the geographical distribution of cases, most occurred in the municipality of Shanghai (16.7%), the province of Hubei (15.9%), and the municipality of Beijing (10.3%), with the remaining cases (57.1%) reported in other parts of mainland China (e.g., the provinces of Henan, Gansu, Guangdong, Jiangxi, Heilongjiang, Jiangsu, Fujian, Sichuan, Guangxi, Hunan, Shaanxi, Zhejiang, and Anhui; and the municipality of Chongqing). For the purpose of this study, 82 cases (64.6%) were identified as stranger sexual homicides (i.e., with no known victim–offender relationship) and the remaining 45 (35.4%) as nonstranger sexual homicides (i.e., with a known victim–offender relationship; 18.9% victims known as a friend/acquaintance/other, 14.2% victims known as an intimate partner, and 2.4% victims known as a family member).

Data Analysis Process

Cross-tabular (i.e., chi-squared, χ^2) analyses and Fisher's exact tests (i.e., on cells with expected values less than five) were conducted to compare the perpetrator, victim, and MO characteristics in nonstranger and stranger sexual homicides committed by Chinese males. The perpetrators' MO variables were the time of day of the offense, offense location, the perpetrators' primary motivation, offense premeditation, offender intoxication, method of victim approach, abduction of the victim, physical restraint of the victim, the perpetrators' choice of weapon type, mutilation of the victim's body, and transport of the victim's body. Measures of association (phi and Cramer's V coefficients) were used to assess the significance of the strength of the relationships, and more importantly to establish the presence of meaningful patterns. A relationship of 1.00 indicates a perfect relationship. The effect size of phi (between two variables on two levels on each variable) and Cramer's V (between two variables with at least three levels on one variable) were interpreted in terms of degrees of freedom. Using Cohen's standard for the interpretation of chi-squared effect sizes, phi values (2×2 matrix) of .10–.29 were considered as small effects, values of .30–.49 were regarded as moderate effects, and values of .50 and above as strong effects (see Gravetter & Wallnau, 2013).

The significance level was set at .05. Unadjusted odds ratios (ORs) were then computed to demonstrate the probability that an outcome (i.e., the perpetrators' MO) would occur given a particular exposure (i.e., the individual to perpetrate nonstranger or stranger sexual homicide), compared with the odds of the outcome occurring in the absence of that exposure.[4] Missing data was minimal for the MO variables; and hence, no data imputation was performed. Raw data were presented in this study to better reflect the actual offending phenomenon.

Subsequently, only statistically significant variables ($p < .05$) at the bivariate level were included in the multivariate analysis. This technique was chosen because it does not assume normality and the initial descriptive analysis of the data indicated that all of the variables included in the analysis demonstrated non-normality (Pallant, 2010). This analytic approach is also in line with the recommendation that it is not appropriate to conduct multivariate analyses when bivariate analyses demonstrate no significant relationship between two variables (Hosmer et al., 2013; Tabachnick & Fidell, 2019). Importantly, this analytic method has been commonly used in recent sexual homicide studies (e.g., Beauregard et al., 2022; Skott et al., 2021). In this study, three MO variables were found to be significant. A power analysis was conducted to determine the acceptable number of participants required to perform a binary logistic regression (Cohen, 1988). It was found that the estimated sample size (two-tailed) to achieve a power of .75 was 118 and to achieve a power of .80 was 133, given a change to be detected in Prob ($Y = 1$) from the value of .10 at the mean of X to .20 when X was increased to one standard deviation above the mean; and this change corresponded to an odds ratio of 2.25 (Faul et al., 2009; Hsieh et al., 1998). Moreover, despite the wide acceptance of the minimal 10 events per variable (EPV) rule as a key factor in the performance of binary logistic regression models (Harrell, 2001; Steyerberg, 2009), some recent simulation studies have argued that an EPV of 10 as a minimum guideline criterion is too conservative (Courvoisier et al., 2011, 2011van Smeden et al., 2016). In fact, some studies have argued that an EPV of at least 20 or up to 50 is required (e.g., Austin & Steyerberg, 2017; Ogundimu et al., 2016; van der Ploeg et al., 2014; Wynants et al., 2015). With the power analysis outcome and these EPV guidelines in mind, a sample of 127 perpetrators in this study was considered sufficient to compute a binary logistic regression with three variables. The author takes responsibility for the integrity of the data, the accuracy of the data analyses, and have made every effort to avoid inflating statistically significant results.

Results

Perpetrator and Victim Demographic Characteristics in Chinese Sexual Homicides

Table 1 presents the demographic characteristics of the perpetrators and victims in the nonstranger and stranger sexual homicides in the sample. The mean age of the individuals who committed a sexual homicide was 32.26 years ($SD = 11.89$, range = 14–69) at

Table 1. Frequencies of Offender and Victim Demographic Characteristics in Nonstranger and Stranger Chinese Male Sexual Homicides (N = 127).

Variables	All Sample (N = 127)		Victim as Nonstranger (n = 45)		Victim as Stranger (n = 82)		Group Differences	
	N	%	N	%	N	%	χ^2/Fisher's Exact Test	Phi/Cramer's V
Offender Characteristics								
Age (mean) of offender at offense (n = 88)	32.26 (SD = 11.89)		31.85 (SD = 12.00, n = 27)		32.44 (SD = 11.94, n = 61)		t = −0.21	
Age (mean) of offender at arrest (n = 88)	34.83 (SD = 13.63)		32.11 (SD = 11.92, n = 27)		36.03 (SD = 14.26, n = 61)		t = −1.25	
Marital status								
Single	49/79	62.0	21/32	65.6	28/47	59.6	0.30	0.06
Highest education attainment (n = 43)							0.82	0.14
Uneducated	2	4.7	1	6.7	1	3.6		
Primary school education	8	18.6	3	20.0	5	17.9		
Secondary school education	29	67.4	9	60.0	20	71.4		
Tertiary education (e.g., university)	4	9.3	2	13.3	2	7.1		
Employed at the time of offense								
Yes	62/78	79.5	15/22	68.2	47/56	83.9	2.40	0.18
Previous conviction (overall)								
Yes	33/91	36.3	10/32	31.3	23/59	39.0	0.54	0.08
Previous sexual conviction								
Yes	11/49	22.4	1/19	5.0	10/29	34.5	5.91	0.35*
Victim Characteristics								
Age (mean) of victim (n = 92)	31.51 (SD = 15.80)		32.30 (SD = 13.30, n = 33)		31.07 (SD = 17.14, n = 59)		t = 0.36	
Victim sex								
Female (opposite-sex)	117/127	92.1	41/45	91.1	76/82	92.7	0.10	0.03
Marital status								
Single	46/63	73.0	20/33	60.6	26/30	86.7	5.42	0.29*
Employed at the time of offense								
Yes	62/127	48.8	18/45	40.0	44/82	53.7	2.17	0.13[+]

Note. The Phi effect size of .16 and below was regarded as weak, between .17 and .28 as moderate, and .29 and above was considered strong.
*p < .05.

offense and 34.83 years at arrest (SD = 13.63, range = 14–69). Nearly two thirds (62%) of the SHOs were single, a large majority (90.7%) were at least secondary school educated, most (79.5%) were reported to be employed at the time of offense, and nearly two thirds (63.7%) had no previous overall conviction. No significant differences in these perpetrator demographics were observed between nonstranger and stranger sexual murderers. Notably, approximately three quarters (77.6%) of the SHOs were reported to have no previous sexual conviction, and this was more strongly the case among those who perpetrated against nonstrangers (95%) than those who victimized strangers (65.5%). A significant difference was found (χ^2 = 5.91, p = .015) with a moderate strength of association (phi = .35).

In terms of the victims' demographic characteristics, the mean age of the victims was slightly lower at 31.51 years (SD = 15.80, range = 8–85), a large majority of the victims (92.1%) were female, and nearly half of them (48.8%) were employed at the time of offense. No significant differences were found for these characteristics between the victims of nonstranger and stranger sexual homicides. However, a significant group difference was observed in the victims' marital status. Approximately three quarters (73%) of the victims were reported as single, but victims of stranger (86.7%) sexual homicides were significantly more likely to be single than victims of nonstranger (60.6%) sexual homicides (Fisher's exact test = 5.42, p = .019). The strength of this relationship approached moderate (phi = .29).

Modus Operandi of Chinese SHOs

Table 2 shows the results of the tests of the association between the victim–offender relationship and the perpetrators' MO (or offending characteristics) in sexual homicides committed by males in mainland China. More than half of the sexual homicides (57.3%) were perpetrated at night, nearly three-quarters (70.1%) were premeditated, and a large majority of the SHOs (92.1%) were not intoxicated during their offending process. Out of those who reported to have premeditated the offense, 74.2% (n = 66/89) admitted that the sexual homicide they perpetrated was intentionally premeditated, with the remaining cases were unintentional homicides. Although the difference was not significant, the perpetration of a sexual homicide as an intentional act was more likely to be found in nonstranger than stranger homicides (85.7% vs. 68.9%). The SHOs were slightly more likely to adopt a non-con method (55.9%; e.g., surprise [a sudden approach on the victim] and blitz [approaching the victim in a forceful manner]) in approaching their victim. Only a minority of these sexual homicide cases involved the abduction of the victim (12.6%), the use of physical restraint against the victim (31.5%), the mutilation of the victim's body (31.5%), or transporting the victim's body to another location (26.8%). No significant group differences were observed in these individual's MO variables.

A significant difference was found between nonstranger and stranger sexual homicides in three of the 11 offending characteristics. Approximately three-quarters of the sexual homicides (73.6%) were perpetrated in an indoor location, with significantly

Table 2. Frequencies of modus operandi in nonstranger and stranger Chinese male sexual homicides (N = 127).

Variables	All Sample (N = 127)		Victim as Nonstranger (n = 45)		Victim as Stranger (n = 82)		Group Differences χ²/Fisher's Exact Test	Phi/ Cramer's V
	N	%	N	%	N	%		
Offense moment of the day (n = 110)								
Day (6am-5.59pm)	47	42.7	15	38.5	32	45.1	0.45	0.06
Night (6pm-5.59am)	63	57.3	24	61.5	39	54.9		
Offense location (n = 125)								
Indoor	92	73.6	39	88.6	53	65.4	7.94	0.25**
Outdoor	33	26.4	5	11.4	28	34.6		
Offender's primary motivation (N = 127)								
Non-sexually motivated	65	51.2	29	64.4	36	43.9	4.91	0.20*
Sexually motivated	62	48.8	16	35.6	46	56.1		
Offense premeditation (N = 127)								
Yes	89	70.1	28	62.2	61	74.4	2.05	0.13
No	38	29.9	17	37.8	21	25.6		
The offender was intoxicated (N = 127)								
Yes	10	7.9	4	8.9	6	7.3	0.10	0.03
No	117	92.1	41	91.1	76	92.7		
Method of victim approach (N = 127)								
Non-con	71	55.9	22	48.9	49	59.8	1.39	0.10
Con	56	44.1	23	51.1	33	40.2		
Victim was abducted (N = 127)								
Yes	16	12.6	3	6.7	13	15.9	2.23	0.13
No or unknown	111	87.4	42	93.3	69	84.9		

(continued)

Table 2. (continued)

Variables	All Sample (N = 127)		Victim as Nonstranger (n = 45)		Victim as Stranger (n = 82)		Group Differences	
							χ^2/Fisher's Exact Test	Phi/ Cramer's V
	N	%	N	%	N	%		
Physical restraint was used (N = 127)								
Yes	40	31.5	12	26.7	28	34.1	0.75	0.08
No or unknown	87	68.5	33	73.3	54	65.9		
Murder weapon group (N = 127)								
Physically more demanding (personal and contact weapon)	24	18.9	4	8.9	20	24.4	4.56	0.19*
Physically less demanding (edged weapon)	103	81.1	41	91.1	62	75.6		
Victim body mutilation (N = 127)								
Yes	40	31.5	15	33.3	25	30.5	0.11	0.03
No	87	68.5	30	66.7	57	69.5		
Victim body transported (N = 127)								
Yes	34	26.8	14	31.1	20	24.4	0.67	0.07
No	93	73.2	31	68.9	62	75.6		

Note. The Phi effect size of .16 and below was regarded as weak, between .17 and .28 as moderate, and .29 and above was considered strong.
*p < .01, *p < .05.

more nonstranger (88.6%) than stranger (65.4%) sexual homicides occurring indoors ($\chi^2 = 7.94$, $p = .005$). Although the Chinese males who committed a sexual homicide, in general, were equally likely to be primarily motivated by nonsexual (51.2%; e.g., power and control, anger, and financial) and sexual (48.8%) motives, there was a significant group difference in motivation between nonstranger and stranger SHOs. Nonstranger SHOs had primarily nonsexual motives (64.4%), whereas sexual homicides committed against strangers were mainly sexually motivated (56.1%; $\chi^2 = 4.91$, $p = .021$). The Chinese male SHOs were generally highly likely to have used weapons that were less physically demanding (81.1%; e.g., edged weapons) to kill their victim. However, this choice of weapon was significantly more frequent among nonstranger SHOs (91.1%) than among those who victimized strangers (75.6%; $\chi^2 = 4.56$, $p = .025$). The strength of association in these group differences was small, ranging from .19 to .25.

Association between Chinese Male SHOs' Modus Operandi and the Victim–Offender Relationship

Table 3 shows six significant odds ratios for the association between the individuals' MO and the victim–offender relationship in sexual homicides committed by males in mainland China. SHOs perpetrated against a stranger were 2.80 times more likely to be committed in an outdoor location ($p = .005$). The opposite was true for those who victimized nonstrangers, who were 2.13 times less likely to commit their offense in an

Table 3. Unadjusted (bivariate) Odds Ratios for the Relationship Between the Offenders' Modus Operandi and Victim-Offender Relationship in Male Sexual Homicides (N = 127).

Modus operandi	Nonstranger Sexual Homicide (*n* = 45)	Stranger Sexual Homicide (*n* = 82)
Variables	OR (95% CI)	OR (95% CI)
Offense committed during daytime	0.84 (0.50, 1.41)	1.10 (0.84, 1.45)
Offense location was outdoor	0.68 (0.54, 0.85)**	2.80 (1.21, 6.49)**
Sex as the primary motivation	0.75 (0.57, 0.97)*	1.73 (1.05, 2.86)*
Offense was premeditated	0.81 (0.59, 1.11)	1.42 (0.89, 2.27)
Offender was intoxicated	1.08 (0.64, 1.83)	0.88 (0.39, 1.95)
Victim was conned	1.17 (0.90, 1.53)	0.75 (0.47, 1.21)
Victim was abducted	0.77 (0.58, 1.01)	2.02 (0.71, 5.75)
Victim was physically restrained	0.89 (0.68, 1.15)	1.26 (0.73, 2.18)
Victim was murdered with a more physically demanding weapon	0.42 (0.17, 1.06)*	1.38 (1.09, 1.76)*
Victim was mutilated	1.05 (0.79, 1.39)	0.92 (0.56, 1.51)
Victim body was transported	1.13 (0.83, 1.55)	0.81 (0.49, 1.33)

Notes. OR (unadjusted odds ratios).
**$p < .01$, *$p < .05$.

outdoor location (formula = P/(1−P); OR = .68, p = .005). In terms of the primary motivation, SHOs who victimized strangers were 1.73 times more likely to be motivated by sex (p = .027). Conversely, SHOs of nonstrangers were 3 times less likely to be sexually motivated in their offense (OR = .75, p = .027). Finally, stranger SHOs were 1.38 times more likely to use a more physically demanding weapon (e.g., a personal or contact weapon) to kill their victim (p = .033). In contrast, a more physically demanding weapon was 1.38 times less likely to be used by SHOs of nonstrangers (OR = .42, p = .03).

Effects of the Chinese Males' Modus Operandi on the Perpetration of Stranger Sexual Homicides

With reference to Table 4, a logistic regression was computed to examine the effects of selected MO characteristics (three variables that were statistically significant at the bivariate level; i.e., outdoor offense location, sex as primary motivation, and use of a less physically demanding weapon were entered into one model) on Chinese male SHOs' propensity to commit a stranger sexual homicide. All three variables added incrementally to one another in predicting whether SHOs targeted strangers versus nonstrangers. After controlling for the other variables in the model, stranger SHOs were more likely to commit their homicide in an outdoor location (B = 1.24, SE = .54, p = .022) and their offense was more likely to be sexually motivated (B = .72, SE = .40, p = .043). However, stranger SHOs were less likely to use a weapon that was less physically demanding (e.g., an edged weapon) in killing their stranger victim (B = −.98, SE = .61, p = .049). In other words, nonstranger SHOs were more likely to

Table 4. Multivariate Logistic Regression on Modus Operandi in Stranger Chinese Male Sexual Homicides (N = 127).

Variables (Reference category: Nonstranger sexual homicides)	Stranger Sexual Homicides by Male Offenders			
	B	SE	OR	95% CI
Outdoor offense location	1.24	0.54	3.46*	1.19 – 10.02
Sex as primary motivation	0.72	0.40	2.05*	0.94 – 4.51
Less physically demanding weapon	−0.98	0.61	0.38*	0.12 – 1.24
Constant	0.84	0.60	2.32	
Model χ^2	14.92**			
Nagelkerke R^2	0.16			
Hosmer-Lemeshow test	$\chi^2(3)$ = 3.71, p = .30			
AUC	0.62			

Notes: CI (confidence interval), OR (adjusted odds ratios), and AUC (area under the curve).
**p < .01, *p < .05.

use less physically demanding weapon than stranger SHOs. The regression model diagnostic revealed an area under the curve (AUC) value of .62.

Discussion

Individuals who committed sexual homicides are generally rational beings who make rational decisions based on the available information and select their target during their routine activities. This study offers an initial insight into the MO of SHOs committed against nonstrangers and strangers with a sample of 127 mainland Chinese males. From an analysis of the under-researched population of mainland Chinese SHOs, several key and meaningful observations were arrived at that illustrate the MO features of non-stranger and stranger sexual homicides in mainland China. Distinguishing nonstranger and stranger SHOs, individuals who murdered strangers were significantly more likely to have had a previous sexual offense conviction than their counterparts who murdered nonstrangers. This prevalence (34.5%) of previous sexual conviction was found to be higher than in Greenall and Richardson's (2015) sample of British stranger SHOs (16%). Relative to victims who had a prior relationship with their perpetrator, victims of stranger sexual homicide were significantly more likely to be single (86.7%) and employed at the time of offense (53.7%). Similarly, Greenall and Richardson (2015) found in their study that more than half (61%) of the victims of stranger SHOs were employed.

The hypothesis of this study was partially supported. Several significant differences were observed between nonstranger and stranger SHOs in their MO characteristics. Relative to SHOs who murdered nonstranger victims, those who sexually killed strangers were significantly more likely to commit their homicide at an outdoor location (e.g., roadside, vacant construction site), to be sexually motivated, and to use murder weapons that required more physical strength (i.e., personal [e.g., manual and ligature strangulation, asphyxiation] and contact [e.g., blunt objects, hammer] weapons). Similar to the findings of some previous studies on stranger rapes and sexual homicides, over half of these offenses occurred outdoors (e.g., Greenall, 2018; Greenall & West, 2007). It is plausible that individuals who target strangers rely on opportunities to encounter their victims in the course of their routine activities. Similarly, those who engage in some kind of premeditation (e.g., fantasize about or plan their offenses) are often ready to offend when an opportunity presents (i.e., premeditated opportunism). This is a common victim search tactic for individuals who target strangers in their sexual offenses (Beauregard, 2007; 2010; Rossmo, 2000).

Consistent with the literature, sexually abusive behaviors committed against nonstrangers, usually intimate partners (i.e., sexual intimate partner violence, marital rape), were committed in a closed-door family setting (Barker et al., 2019). Such a phenomenon is highly prevalent in many patriarchal societies, especially in traditional Asian societies (e.g., South, Southeast, and West Asian countries) (Chan, 2023). In a patriarchal society, men generally have the privilege of control over women's decision-making and health. Particularly in traditional Chinese culture, men believe that they

have a right to "teach" their wife when necessary, including through abusive behavior (Tang & Lai, 2008), especially to restore or gain "face" in front of their peers by demonstrating their dominance and masculinity (Hu, 1944). These men's wives are expected to tolerate their husband's violence and suppress their own feelings. Consequently, men may easily get away with criminal sexual acts, including forced intercourse (Angeles, 2001). These findings can be explained through the routine activity approach, in which the search of a suitable target is often conducted through a convergence in time and space during the daily routines of both the perpetrators and their target.

Another significant offending pattern observed in this study was that stranger SHOs were mainly sexually motivated, whereas the primary motivation of those who sexually killed nonstrangers was not sexual. Many of the sexual acts occurring within the context of intimate partner violence (i.e., nonstranger victims) are primarily motivated by a sense of power, control, or anger (Fehringer & Hindin, 2014; Hamberger et al., 2017). Especially in the context of the patriarchal society in Asian countries (e.g., South and West Asia), spousal abuse (e.g., physical and sexual violence against their wife) is widely regarded as a necessary form of family discipline by men (Ammar, 2006; Gomez, 2013; Yoshikawa et al., 2014). According to Johnson and Hotton (2003), individuals who murder their intimate partner are more often motivated by jealousy, especially in an estranged relationship or where the commitment to the relationship is challenged or perceived as tenuous. The homicide is often seen as a "slip-up" in a power struggle where the individuals strive to control the victim and deprive them of their liberty (Wilson & Daly, 1998). Conversely, the SHOs who targeted strangers in this study were primarily motivated by sex. This offending feature resembles the SHO profile of the rape-plus-murder category defined by Beech et al. (2006), where the primary motivation is to have sex with the victim, who is usually a stranger, and Beauregard and Proulx's (2002) sadistic SHOs of adult women (who can be strangers), who are driven to kill to satiate their sexually sadistic thoughts and fantasies. Such a victim preference was found in Greenall and Richardson's (2015) study of British adult male-on-female stranger sexual homicides, with young women found to have been sexually killed by older men for various reasons but predominantly for sexual desire.

In addition, SHOs who victimized strangers were significantly more likely to have used weapons that were physically more demanding (i.e., personal or contact weapons), whereas the opposite was true for nonstranger SHOs (who tended to use less physically demanding weapons to kill their nonstranger victims; i.e., an edged weapon or firearm). In sexual homicides where the victims are nonstrangers, the victim's death may not necessarily be an intended outcome. For example, Grubin (1994) argued that even in the case of a homicide that is associated with sexual activity, the murder of the victim may not necessarily be sexually motivated. The homicide can be the elimination of a potential witness after a rape or the result of overcoming victim resistance during a rape or of accidentally killing the victim during a rape. Such lethal incidents can occur in the context of marital rape or sexual intimate partner violence (Adams, 2007) or sexual violence by a family member (Youssef et al., 2017).

The weapon selection of the stranger SHOs in this study was in line with Greenall and Richardson's (2015) study of British stranger sexual homicides, with ligature strangulation the most reported type of killing method against stranger victims. There are two potential explanations for the use of more physically demanding weapons in killing a stranger in sexual homicide. First, as stranger sexual homicides are mostly sexually motivated, as indicated in this study, the use of a personal weapon (e.g., strangulation, asphyxiation, killing with bare hands) can arguably provide more psychological excitement for these individuals, especially those prone to sexual fantasy (Chan & Heide, 2009). Close-contact killing, or a more "intimate" killing approach, can allow these fantasy-prone individuals to "enjoy" the killing process for their sadistic gratification. Practicality, such as the victim's physical vulnerability, is another possible consideration in the individuals' selection of murder weapon. Chan and Heide's (2009) physical strength hypothesis of sexual homicide assumes that individuals who are physically stronger and more capable of overcoming their victims' resistance are more likely to use weapons that require more physical strength (e.g., personal and contact weapons) to complete their homicide. In contrast, individuals whose physique is comparatively weaker than their victims may need to resort to the use of weapons that require less physical strength (e.g., edged weapons and firearms) in murdering their victims.

To summarize, a number of similarities and differences between sexual homicides committed in the mainland China and Western countries are noted. Relative to Western sexual homicides, Chinese sexual murderers who murdered strangers were more likely to have had a previous sexual offense conviction. Nevertheless, more similarities between Western and Chinese sexual murderers were found. Chinese sexual killers who murdered strangers were similarly likely to be single, employed at the time of offense, committed their homicide at an outdoor location, to be sexually motivated, and to use murder weapons that required more physical strength.

Limitations and Future Directions

Despite the several significant differences observed between nonstranger and stranger sexual homicides in this study, caution should be exercised in interpreting the findings due to several limitations. Official crime data in mainland China is difficult to acquire (see Chan et al., 2019a), and the inaccessibility of official crime data on sexual homicides led to basic descriptive information of the perpetrator, victim, and MO characteristics in this study sample. Although this study adopted the arguably next best available data collection methods on sexual homicides in mainland China (i.e., police data, court documents, and published case reports), it should be noted that the reporting styles of these three data sources are not identical; and thus, the data quality of these three sources is not comparable. Police data and court documents usually consist of more information about the offense, whereas case reports offer more details relating to the background and characteristics of the perpetrator. Future research on this topic should consider analyzing data with comparable depth and data quality (e.g., first-hand

data). Furthermore, the classification of these cases largely depends on the coders (i.e., the legal physicians and clinicians), and there may be misclassifications, reporting errors, or omissions. Notably, the legal outcome of some homicides was still unknown at the time of data entry for this study (mostly cases compiled from the police data). Finally, the lack of clinical data constructs (e.g., clinical diagnostic data) may have prevented a more comprehensive examination of the individuals' psychiatric and mental conditions before, during, and after their sexual killings. Consequently, it is not plausible to generate conclusive findings about the entire mainland Chinese population from this study.

Practical Implications

Notwithstanding its limitations, this study offers initial insights into the MO of Chinese SHOs who murder nonstrangers and strangers. Knowledge of the offending patterns of Chinese SHOs attained from this study's multivariate analysis can be informative to law enforcement agents and security professionals in their investigative processes. An investigator may have reason to believe that it is more likely that the individual responsible was a stranger to the victim in cases when victims were sexually killed at an outdoor location (i.e., primary crime scene; e.g., roads, streets, alleyways, fields, parks) and when it is likely that an individual was motivated primarily by sex (i.e., the homicide was sexually motivated). However, if the victim was murdered with a less physically demanding weapon (e.g., a knife or handgun), the results of our study give the investigator reason to believe that the individual responsible is 2.63 times less likely [OR = .38; formula = $P/(1-P)$] to have been a stranger to the victim (i.e., the victim was likely to have a prior relationship with the individuals who perpetrated the sexual homicide, such as an intimate partner, family member, friend, or work colleague). That being said, findings in this study were generated from a small sample and the effect sizes were not large.

Sexual homicides are a complex phenomenon in which the SHO's decision-making can be influenced by multiple factors. Beyond the factors investigated herein, other potential contributing factors should be taken into account when examining the MO of SHOs, such as the perpetrator's psychological and emotional state during the offense (e.g., instrumental vs. expressive violence) and the availability of a weapon at the crime scene (e.g., weapon of choice vs. weapon of opportunity). Research of this nature could advance our knowledge on sexual homicide offending, especially in the underexplored Chinese context. Importantly, the present findings also point to similarities in the decision-making of SHOs beyond geographical boundaries—i.e., as generally rational beings.

Declaration of Conflicting Interests

Funding

ORCID iD

Heng Choon (Oliver) Chan 🄳 https://orcid.org/0000-0001-9486-3277

Notes

1. Instrumental aggressive behavior is usually premeditated and invoked when an individual is interested in possessing something that is currently possessed by the victim, whereas expressive aggressive behavior is typically a reaction to provocation or anger with the ultimate aim of injuring the victim (Adjorlolo & Chan, 2017).
2. Overt sexual acts involve sexual penetration (vaginal, anal, or oral) and covert sexual acts may include the victim's lack of attire, exposure of the victim's sexual body parts, sexual positioning of the victim's body, and evidence of substitute sexual activity, interest, or fantasy (Chan, 2015).
3. Most cases analyzed in this study were overlap with those from prior studies, with the sample size and data source increased over the years – i.e., Chan et al., 2019a; $N = 59$, police data and case reports, Chan et al., 2019b; $N = 67$, police data and case reports, Chan and Li (2019; $N = 82$, police data and case reports), and Chan and Li (2020; $N = 84$, police data and case reports).
4. Unadjusted odds ratios are computed to estimate the relative risk between a certain event in an exposed group with a certain event in an unexposed group (at a bivariate level), whereby adjusted odd ratios are used to control for confounding bias (at a multivariate level).

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