

Article

The Prevalence and Psycho-Social Risk Factors of Indiscriminate Murder: No Man Is an Island?*

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ABSTRACT

The aims of this study are to clarify the definitional issues pertaining to indiscriminate murder and to analyze prevalence and risk factors of such crime. A specially designed questionnaire was distributed to a control group (n=98) who were over age 20 without any court conviction and recruited from internet advertisement and four offender groups (n=209) from nationwide prisons. The valid response rate was 91% for the offender group and 98% for the control group. The offender group was comprised of indiscriminate (5%), stranger (28%), domestic (30%) and acquaintance (37%) murderers. We estimated that the prevalence rate of indiscriminate murder is about 0.04 per 100,000 residents in Taiwan. Other findings are, first, compared with the control group, indiscriminate murderers had much lower empathy, failed to form intimate relationships and with high school dropout rates, there were no significant differences among the five groups on self-esteem, violent attitudes, cynicism, high

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risk family, psychiatry illness history, anger, depression, substance abuse, unemployment, juvenile/adult prior convictions. Second, among the four murderer subgroups there are no statistically significant differences in the rates of psychological factors such as self-esteem, violent attitudes, cynicism, high risk family factor and psychiatric illness history. However, the indiscriminate murder subgroup has significantly higher antisocial tendency than domestic murder subgroup, and higher loneliness and social alienation than stranger murder subgroup. Our analysis suggests that there is no significant association between indiscriminate murder and mental illness, substance use and prior conviction. The indiscriminate murder subgroup lacked capabilities to build up proper intimate, school and social relationships, and have been isolated psychologically and somehow turned their backs on the world. Nonetheless, to argue it the other way around, perhaps the situation is created by society's making them socially invisible by leaving them out of social connections.

Keywords: *Indiscriminate Murder, Random Killing, Psycho-Social Risk Factors, Social Connections*



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I. BACKGROUND AND PURPOSE

When the rare events of indiscriminate murder occur, the mass media tends to place emphasis on offenders' mental status or mental illness. Thus, the public might have the impression that offenders of indiscriminate murder are persons with mental illness, and therefore, the solution to the phenomenon is strengthening our approach to mental health care. What is less well recognized is that media reports are selective in the types and content of their description of these horrific events.¹ In addition to mental illness, the published scholarly literature focuses on other individual factors of indiscriminate murder, such as physical illness, personality, drug or alcohol use, previous criminal history, and unemployment. Relevant environmental factors include family interaction, school life, job conditions, etc. Even at the socio-cultural level, macroscopic factors like the job market environment, the economic prosperity cycle, the education system, the health care system, criminal justice institutions, cultural variation, and so on.

All the above identified factors might play a role with respect to indiscriminate murder. Unfortunately, mass media tends to emphasize single factor explanations. Neglected are the more detailed and comprehensive systematic explorations which note multi-factorial issues. Too much focus on the criminal behavior of persons with mental illness engenders stigmatization, reduces opportunity of acceptance by self and society, and thus leads to an inappropriate focus on the mental health system.²

Apart from the misunderstanding of the event by the public and the mass media, when addressing issues pertaining to indiscriminate murder, another difficult task which confronts the researcher is how to define the phenomenon. Without a proper definition, it is impossible to estimate the prevalence of such events in the country.

Indiscriminate murder usually implies that offenders do not have any specific selection criteria for choosing his/her victims; anyone who happens to appear at the time-space where the offender engages in killing is a potential victim. Therefore, indiscriminate murder carries an

1. Emma E. McGinty et al., *Trends in News Media Coverage of Mental Illness in the United States: 1995–2014*, 35 HEALTH AFF. 1121, 1122-29 (2016); Emily Corner, Paul Gill, Ronald Schouten & Frank Farnham, *Mental Disorders, Personality Traits, and Grievance-Fueled Targeted Violence: The Evidence Base and Implications for Research and Practice*, 100 J. PERS. ASSESSMENT 459, 460-70 (2018); Jennifer Skeem & Edward Mulvey, *What Role Does Serious Mental Illness Play in Mass Shootings, and How Should We Address It?*, 19 CRIMINOLOGY. PUB. POL'Y 85, 86-108 (2020).

2. Jonathan M. Metzl & Kenneth T. MacLeish, *Mental Illness, Mass Shootings, and the Politics of American Firearms*, 105 AM. J. PUB. HEALTH 240, 241-49 (2015).

inevitable element of randomness, in which offenders and victims are mutual strangers and not intimate in any way. This randomness could be said to apply equally to aspects of time, place, victims and means. However, it is doubtful whether an offender could achieve the goal of killing through total random action alone, which may signify a loss of control and subsequently not be recognized as a criminal action in criminal law.

In its research on indiscriminate murder, Japan's Ministry of Justice selected only cases of mass killings (where the number of victims exceeded three) as their target.³ The reason was that the collection of a large number of indiscriminate murder cases may have rendered research cumbersome. However, in this paper the uncertainty about who could become a victim is a necessary condition to define so-called "indiscriminate murder". In our view, the number of victims should not be regarded as the key element of this type of crime. That is to say, even if there is only one victim, the indiscriminate victim/s and means of killing could still have a significant impact on personal and societal perceptions of safety. Thus, it is not reasonable to define the severity of an event merely by focusing on the number of victims. In Taiwan, our understanding in research terms of the phenomenon of indiscriminate murder is at a nascent stage. Our view is that it would not be helpful to be overly restrictive with respect to the number of victims.

In the U.S.A., mass killing is defined by its Federal Bureau of Investigation as events in which offenders kill four or more victims at the scene, and usually commit suicide after the killing or are shot dead by the police.⁴ The motives of such killings listed in the FBI reports include seven categories: anger, gang activity, property, ideology, power, mental illness, and sex. However, the above definition of mass killing only concerns the outcome of the event, and thus does not address motives for killing or relationships between killers and victims. The definition functions merely as part of preparatory guidance for the law enforcement agency that deals with such events. It can be regarded more as an operational definition, rather than a research oriented one, and thus does not facilitate understanding, analysis or prevention.

3. Lee Mau-Sheng (李茂生), *Sueiji Sharen Shihjian De Chengyin Yu Dueitse Chutan-Yige Bukeneng Derenwu?* (隨機殺人事件的成因與對策初探——一個不可能的任務?) [*Preventing Random Killing: Mission Impossible?*], 26 FANZUEI YU SINGSHIH SIHFA YANJIOU (犯罪與刑事司法研究) [CRIME AND CRIMINAL JUSTICE INTERNATIONAL] 113, 114-23 (2016).

4. *A Study of Active Shooter Incidents in the United States between 2000 and 2013* (Fbi News, Sep. 24, 2014), <https://www.fbi.gov/news/stories/fbi-releases-study-on-active-shooter-incidents>; Federal Bureau of Investigation, *Making Prevention a Reality: Identifying, Assessing, and Managing the Threat of Targeted Attacks*, <https://www.fbi.gov/file-repository/making-prevention-a-reality.pdf/view>.

Based on the motives for killing and criteria of victim selection, Petee et al. developed a complex scheme for categorization of mass killings.⁵ The scheme comprises nine categories, namely: 1. Victim selection; 2. Place selection; 3. Random selection of victims and places; 4. Family/emotional conflicts; 5. Individual conflicts or emotional turmoil; 6. Inducement by other crimes; 7. Organized criminal killings; 8. Inducement by ideology; 9. Unknown reasons, which means no recognized motive exists. According to this scheme, only category 3 includes random selection of victims (or “indiscriminate” killing). Moreover, theoretically, such victims and offenders are mutual strangers. The other eight categories are not compatible with the requirement of randomness. Furthermore, the Petee et al.’s classification scheme does not take account of the roles of mental illness, personality or mood impairment in motives for killing and in our view is insufficiently comprehensive.

In defining indiscriminate murder, the most important points are “randomness” or “indiscriminateness”. Randomness implies that due to the influence by uncertain factors, one repeated phenomenon is in fact unpredictable even though its probability distribution could be estimated. The above unpredictability means uncertainty in place and time. Indiscriminateness means the uncertainty in target selection. In general, when it comes to random killing, usually the victims are not pre-selected, therefore, randomness could be deemed to include indiscriminateness.

Integrating all the above considerations, this paper first proposes that indiscriminate murder as a term is more suitable than random killing. The randomness in person, time and place may actually carry an underlying internal subjective logic or reasons in the offenders’ mind. In addition, the targets are not necessarily strangers to the offenders. They might be indiscriminately selected acquaintances or family members. Therefore, this paper defines typical indiscriminate murder as: *events of killing in which there are no identifiable motives involving emotion, property or hate for the killing of non-preselected victims, and in some of these cases there are no pre-selections of offense time and place.*

Starting with the clarification of the definition, this paper aims to better understand the prevalence and the psycho-social characteristics of indiscriminate murder.

5. Thomas A. Petee et al., *Debunking the Stereotype: An Examination of Mass Murder in Public Places*, 1 HOMICIDE STUD. 317, 318-37 (1997).

II. LITERATURE REVIEW

A. *Theories and Empirical Research on Homicide*1. *Motives and Relationships in Homicide*

Our systematic literature search and review of previously published scholarly research reveals that there are several ways of categorizing homicidal behavior. First, homicide may be separated into expressive killing and instrumental killing. The main characteristic of expressive killing is offenders' emotional expressions, such as anger, envy or fear towards the victims that lead to impulsive killing behavior. On the other hand, instrumental killing stresses the offenders' killing behavior is the result of cognitive operations and calm behavior for achieving goals such as robbery, eliminating eye witnesses, or turf war.⁶ However, some scholars argued that this kind of categorization is too artificial since every homicide has its own purpose. Components of emotional expression and instrumentality might co-exist in a homicide. The major difference is the relative weights attached to these two components.⁷ The second way of categorizing homicide focuses on the relationship between the offender and the victim. Killing behavior between strangers is shocking to society. People have many opportunities to encounter strangers once they leave home. They develop their own level of guardedness based on their feelings of security.⁸ Therefore, scholars argued that our fear of becoming victims mainly originates from our fear of strangers.⁹ Most victims of homicide know each other, and it occurs in a domestic context. Yet people worry more about becoming a victim of stranger killing. Arguably, if media reports of stranger killing increase, the public will be more concerned about security generally.

2. *Prevalence Rate of Stranger Homicide*

International and domestic criminal justice data have shown that

6. Liqun Cao & Bu. Huang, *Correlates of the Victim-Offender Relationship in Homicide*, 52 INT'L. J. OFFENDER THERAPY & COMP. CRIMINOLOGY 658, 659-72 (2008); C. Gabrielle Salfati & David V. Canter, *Differentiating Stranger Murders: Profiling Offender Characteristics from Behavioral Styles*, 17 BEHAV. SCI. & L. 391, 392-406 (1999).

7. See generally MARCUS FELSON, CRIME AND EVERYDAY LIFE: INSIGHT AND IMPLICATIONS FOR SOCIETY (1994); Richard Rosenfeld, *Understanding Homicide and Aggravated Assault*, in ENCYCLOPEDIA OF CRIMINOLOGY AND CRIMINAL JUSTICE 5355, 5356-70 (Gerben Bruinsma & David Weisburd eds., 2014).

8. *Id.*

9. Marc Riedel, *Stranger Violence: Perspectives, Issues, and Problems*, 78 J. CRIM. L. CRIMINOLOGY 223, 224-58 (1987).

cases of stranger killing has been a minority in homicide. Jou compared homicide prevalence estimates by government authorities or research among Taiwan, England/Wales and the U.S.A. (Table 1).¹⁰ According to a 2013 estimate by the U.S. FBI,¹¹ even when instrumental stranger homicide, such as among organized criminals, were not excluded, only 19% belonged to the category of stranger killing. Two investigation reports by the U.K. Home Office showed that before 2000, 20% of homicide cases were between strangers.¹² The prevalence rate increased to 30% by 2015 (excluding victims aged below 16). In the annual reports of homicide and suicide cases of persons with mental illness in the U.K., it is estimated that in total 1,563 cases of stranger homicide comprised 25% of the pool of all homicide events. Only in 7% of stranger homicide events was the offender suffering from mental illness.¹³

Table 1 Percentage of stranger homicides among all homicides in Taiwan, England/Wales and the U.S.A.

Country	%	Source and size of samples	Year	Data source
USA	19	12,253 police registered completed homicide cases in FBI statistics (5,572 cases not solved)	2013	FBI, 2014
England & Wales	25	7,265 convicted cases	2003-2013	HQIP, 2015
England & Wales	30	518 police registered completed homicides (95 cases unsolved)	2014-2015	Office for National Statistics, 2016
Taiwan	57	813 homicide offenders serving prison terms	1998	Yang, 1999
	32	308 convicted cases by a court	1994-1998	Hou, 1999

10. Jou Susyan (周愷嫻), *Wuchabieh Sharen Fanzuei: Yijhong Hanjian Er Huangmiou De Baoli Singtai* (無差別殺人犯罪：一種罕見而荒謬的暴力型態) [*Indiscriminate Homicide: A Rare and Peculiar Form of Violence*], 26 FANZUEI YU SINGSHIH SIHFA YANJIOU (犯罪與刑事司法研究) [CRIME AND CRIMINAL JUSTICE INTERNATIONAL] 83, 84-111 (2016).

11. Federal Bureau of Investigation, *supra* note 4, at 5.

12. Office for National Statistics, *Homicide: Findings from Analyses Based on the Homicide Index Recorded by the Home Office Covering Different Aspects of Homicide* (Feb. 11, 2016), <https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/compendium/focusonviolentcrimeandsexualoffences/yearendmarch2015/chapter2homicide>.

13. Healthcare Quality Improvement Partnership, *The National Confidential Inquiry into Suicide and Homicide by People with Mental Illness Annual Report: England, Northern Ireland, Scotland and Wales* (July 22, 2015), <https://www.hqip.org.uk/resource/national-confidential-inquiry-into-suicide-and-homicide-ncish-annual-report-2015/#.YS4khI4zY2w>.

Country	%	Source and size of samples	Year	Data source
Taiwan	49	1,161 homicide offenders serving prison terms	2002	Hsieh, 2002
Taiwan	46	5,283 police transferred cases including completed and attempted homicide	2006-2014	Hsu, 2015
Taiwan	27	421 police transferred cases including completed and attempted homicide (stranger homicides)	2015	Jou, 2016
Taiwan	14	421 police transferred cases including completed and attempted homicide (indiscriminate homicides)	2015	Jou, 2016
Taiwan	6	421 police transferred cases including completed and attempted homicide (indiscriminate homicides during daytime)	2015	Jou, 2016

Data source: Jou (2016).

As shown in Table 1, if restricted to annual cases notified by the police, the 27% estimate by Jou is closer to that of Hou.¹⁴ Unfortunately, no matter whether we refer to murder in Taiwan, the U.S.A. or England/Wales, there is no statistical estimate in either the scholarly literature or indeed any governmental data regarding the prevalence of indiscriminate murders (either by narrow or general definitions).

Scholars such as Yang,¹⁵ Hsieh¹⁶ or Sheu¹⁷ in Taiwan were inclined

14. Hou Charles (侯崇文), *Sharen Shihjian Zhong Fanzueijhe Yu Beihairen Guansi Yanjiou* (殺人事件中犯罪者與被害人關係研究) [A Study on the Victim-Offender Relationships in Homicide Cases], 2 SINGSHIH JHENGTSSE YU FANZUEI YANJIOU LUNWUNJI (刑事政策與犯罪研究論文集) [ESSAYS ON CRIMINAL POLICY AND CRIME RESEARCH] 23, 24-60 (1999).

15. Yang Shu-Lung (楊士隆), *Taiwan Dichyu Sharenfan Zuei Jhih Yanjiou: Duomian Siang Chengyin Jhih Shihjheng Diaocha* (臺灣地區殺人犯罪之研究：多面像成因之實證調查) [A Study on Criminal Homicide in Taiwan: A Multi-dimensional Empirical Research], 4 FANZUEISYUEH CHIKAN (犯罪學期刊) [JOURNAL OF CRIMINOLOGY] 185, 185-224 (1999).

16. Hsieh Wen-Yen (謝文彥), *CHINMIGUANSI SHAREN FANZUEI JHIH YANJIOU* (親密關係殺人犯罪之研究) [A STUDY ON INTIMATE RELATIONSHIP HOMICIDE] (2002) (Unpublished doctoral dissertation, Central Police University) (on file with Central Police University Library).

17. Sheu Chuen-Jim et al. (許春金等人), *Jhonghuaminguo 103 Nian Fanzuei Jhuangkuang Jichi Fensi-2014 Fanzuei Chyushih Guanjian Baogao* (中華民國103年犯罪狀況及其分析—2014犯罪趨勢關鍵報告) [2014 Crime Situations and Analyses2-Crime Trend Reports], 7 XINGSHI ZHENGCE YU FANZUI FANGZHI YANJIOU ZHUANKAN (刑事政策與犯罪防治研究專刊) [CRIMINAL POLICIES AND CRIME PREVENTION] 3-15,

to overestimate the prevalence of stranger killings. One potential cause was that they did not separate the calculations of case numbers from offender numbers. If there are several offenders in a case, repeated counting of offenders in the same case would create an overestimation.

Of course, another potential cause of false positive estimates originates from coding omission. It could happen that no relationship known was interpreted as “no relationship” and erroneously included in the category of stranger homicide. This would push up the statistical estimate of stranger homicide. This issue must be kept in mind when any data analysis is conducted. But, some scholars argued that in the U.S.A. stranger homicide was actually underestimated. Compared to the prevalence estimate of stranger homicide in the Supplementary Homicide Reports (12.5%-18.4% in 1976-1985), US police data showed higher estimates of stranger homicide.¹⁸

3. *Psycho-Social Risk Factors of Indiscriminate Murder/Violent Crime*

Due to the specific characteristics of homicide, the literature review has shown that past research concentrates on killings between acquaintances or intimate partners. Studies on the characteristics of stranger killing have been rare.

Analyzing the empirical data of killing involving drug use, Goldstein et.al. found that motives for homicide included: drug effect of impulsivity or anger after its use (motives brought about by pharmacodynamics); instrumental homicide for obtaining economic benefits, which include activities for obtaining drugs (economic compulsive motives); homicide committed in the engagement in organized crimes that involve the grabbing and distribution of drugs (systematic motive); and multi-dimensional motives that involve all the above categories.¹⁹ Some scholars also found that as the consumption of alcohol diminished in society so too the prevalence rate of violent homicide also diminished. Of course, the decrease was not due to a single factor. Possible factors also included the reduction of gun utilization, increase in the number of criminals serving sentences, changes in the cocaine market, and the police's crack down on street level misdemeanors (so called “Zero-tolerance” policing).

Based on the data from the Pittsburgh Youth Study, criminologists

<http://www.tpi.moj.gov.tw/HitCounter.asp?xItem=365717&ixCuAttach=135716>.

18. Riedel, *supra* note 9.

19. Paul J. Goldstein et al., *Drug-Related Homicide in New York: 1984 and 1988*, 38 CRIME & DELINQ. 459, 460-76 (1992).

Loeber, Farrington, and Stallings followed longitudinally 1,043 persons from their childhood or adolescence through adulthood, they found that 37 persons charged with homicide.²⁰ Among those 37, individual risk factors included: past experience of gun possession, traffic vehicle theft, pure physical aggression, individual fraud, positive attitude towards criminal behavior, favor of drug possession, and school disciplinary probation, etc. All the above risk factors could be recognized as part of a risky life style in the life course of an individual.

Adopting the categorization scheme proposed by Marzuk et.al. (based on epidemiology and case investigation data),²¹ Knoll created another scheme of categorizing mass murder considering the killer-victim relationship and the motives for killing.²² The first is the familial-depressed type, in which a depressed elderly male in a family, when suffering marital, financial or job problems, might kill family members to save them from future difficulties under cognitive distortions induced by depression. Or, they might think their intimate partners as having an affair or abusing drugs themselves, and may commit mass murder and then suicide. The second is the specific community-resentful type; a person of this type might develop strong hatred against a specific identifiable group, culture or political activity and thus commit mass murder of members of the targeted group. The third type is the pseudo-community-psychotic; a persons of which might develop delusion of being persecuted by a specific group or community and thus commit mass murder of the targeted members out of hatred or revenge. The fourth type is indiscriminate-resentful; a mass murderer of this type might have long-term anger, depressed mood, or delusion of persecution, however as they commit mass murder in a public space they do not differentiate the identities of the victims; even when they pick up specific location and time, the choice is made for the convenience of finding potential victims. The fifth is workplace-resentful; mass killers of this type might develop extreme dissatisfaction against their supervisors, co-workers or working places, feeling that they suffer from unfair treatment and externalizing the blame against others. These mass murders might have depression, delusion or narcissism and even full blown delusion of persecution.

Fox and DeLatour argued that over the recent 30 year period, mass murders in the U.S.A. tended to be planned actions with common motives

20. Rolf Loeber et al., *The Pittsburgh Youth Study: Risk Factors, Prediction, and Prevention from Childhood*, in YOUNG HOMICIDE OFFENDERS AND VICTIMS 19, 20-36, (Rolf Loeber & David P. Farrington eds., 2011).

21. Peter M. Marzuk et al., *The Epidemiology of Murder-Suicide*, 267 JAMA. 3179, 3180-83 (1992).

22. James L. Knoll IV, *Mass Murder: Causes, Classification, and Prevention*, 35 PSYCHIATRIC CLINICS N. AM. 757, 758-80 (2012).

(benefit, power, revenge, loyalty, terrorism, and so on).²³ The psychological characteristics of these mass murderers included: depression, anger, social isolation, blame-externalizing, and strong interests in figurative violent leisure activities and weapons, and the authors conclude that current gun control and mental health policies in the USA fail to achieve a preventive purpose.

Exploring indiscriminate mass school shooting events, some U.S. scholars argued that these shooters might have gone through the following psychological life course trajectory: from their early adolescent experiences on, potential murderers may have had long term psychological stress and frustration, and then begun to be isolated from society.²⁴ Lacking a friendly general supportive system in society, potential murderers may gradually feel that these stresses are uncontrollable and unavoidable. Finally, potential murderers might encounter some new event that brings forth to acute stress, which, no matter real or imagined, may act like the last straw that crashes an exhausted camel. Thus, stressed potential mass murderers may determine to commit mass murders and fulfill the final meaningfulness of masculine strength, gaining control, and actualizing their internal imaginations. Availability of large numbers of teachers and students in schools are probable reasons why mass murderers chose schools for convenience and commit the crimes there.

It is important to consider whether the above research findings in the U.S.A. have external validity when applied to Taiwan--for example, in the case of the mass murderer in Taiwan who chose a Taipei Mass Rapid Transit train as the location to commit the crime.²⁵ One obvious reason was its "convenience" for the offender to kill in a closed space crowded by passengers while the train was running between two stops that have the longest distance from each other. However, the murderer claimed that actually he had a strong hatred against his two female classmates, and because he could no longer find them, he planned to kill the passengers indiscriminately as an alternative. In addition, even though he had suicide ideation, he did not attempt suicide. This was not compatible with the murder-suicide style as noted in some mass murder cases.²⁶

23. James A. Fox & Monica J. DeLateur, *Mass Shootings in America: Moving beyond Newtown*, 18 HOMICIDE STUD. 125, 126-45 (2014).

24. Jack Levin & Eric Madfis, *Mass Murder at School and Cumulative Strain a Sequential Model*, 52 AM. BEHAV. SCI. 1227, 1228-45 (2009).

25. Zuigao Fayuan (最高法院) [Supreme Court], Xingshi (刑事) [Criminal Division], 105 Tai Shang Zi No. 984 (105年度台上字第984號刑事判決) (2016) (Taiwan).

26. Knoll, *supra* note 22, at 12; Wu Chien-Chang (吳建昌), *Tsong Jingshen Weisheng Ji Shehui Jingji Jhengtse Singsih Taiwan Wuchabieh Sha/Shangren Shihjian Jhih Fangjhih* (從精神衛生及社會經濟政策省思臺灣無差別殺／傷人事件之防治) [Prevention and Governance of

Research conducted by Japan's Ministry of Justice on indiscriminate murder events suggests that the majority of murderers in Japan were male, young, had poor relationships with family or friends, and experienced unstable work, finance and accommodation problems.²⁷ In addition, many of them had no prior criminal conviction. Motives for committing the crimes included: dissatisfaction with one's own situation, dissatisfaction with some targeted others, suicide or hopes of being sentenced to death, interests in killing or having desires of killing, hopes for being put in prison, etc. Their personality characteristics included: sensitiveness, self-criticism, inferiority, dysphoria-proneness, biased thoughts, and feeling of unfairness, dissatisfaction and anger. Components of psychopathology comprised personality disorder (not necessarily antisocial), interpersonal isolation, violence tendency, abuse of alcohol or drugs, experience of being bullied or abused, etc. The report concluded that from the perspective of recidivism prevention it is necessary to conduct prevention and management of risk, mental illness and violence tendency, and social rehabilitation (e.g. medical care and social welfare, and so on).²⁸

The research literature reveals that among homicide perpetrators, persons having mental illness or mental retardation are the minority, of whom schizophrenia, antisocial personality disorder and mental retardation are the most common diagnoses. Among stranger killers, about 5-7% might have mental illness or impairment. When a rare case happens, despite its rarity, the community might be induced to develop reactions of panic, stigmatization, and exclusion towards persons with mental illness

Indiscriminate Killing/Harming in Taiwan: A Mental Health and Socioeconomic Policy Perspective, 26 FANZUEI YU SINGSHIH SIHFA YANJIU (犯罪與刑事司法研究) [CRIME AND CRIMINAL JUSTICE INTERNATIONAL] 53, 54-82 (2016).

27. Wuchabieh Shashang Shihjian Siangguan Yanjiou-Dibajhang Zongjiej Jhih Jhaiyi (無差別殺傷事件相關研究－第八章「總結」之摘譯) [Translated Summary of an Indiscriminate Murder Study-Chapter 8], FEICHU SIHSING TUEIDONG LIANMONG (廢除死刑推動聯盟) [TAIWAN ALLIANCE TO END THE DEATH PENALTY] (June 3, 2015), <http://www.taedp.org.tw/story/2828>.

28. Stéphane Richard-Devantory et al., *Homicide and Major Mental Disorder: What the Social, Clinical, and Forensic Differences between Murderers with a Major Mental Disorder and Murderers without Any Mental Disorder?*, 35 ENCEPHALE 304, 305-14 (2009); Cameron Wallace et al., *Criminal Offending in Schizophrenia Over a 25 Years Period Marked by Deinstitutionalization and Increasing Prevalence of Comorbid Substance Use Disorders*, 161 AM. J. PSYCHIATRY 716, 717-27 (2004); Jeremy Coid, *The Epidemiology of Abnormal Homicide and Murder Followed by Suicide*, 13 PSYCHOL. MED. 855, 856-60 (1983); Nicola Swinson et al., *Trends in Rates of Mental Illness in Homicide Perpetrators*, 198 BR. J. PSYCHIATRY 485, 486-89 (2011); Wu Tai-Ling (吳台齡), Tsong Sinli Bingtai De Mailuo Lai Lijieh Wuchabieh Sharen Jhe-Yi 2014 Nian Taipei Jiehyun Daliang Sharen Shihjian Weili (從心理病態的脈絡來理解無差別殺人者－以2014年臺北捷運大量殺人事件為例) [Psychopathy and Indiscriminate Homicide: A Case Study of the Taipei Metro Mass Murder Event in 2014], 27 FANZUEI YU SINGSHIH SIHFA YANJIU (犯罪與刑事司法研究) [CRIME AND CRIMINAL JUSTICE INTERNATIONAL] 43, 44-68 (2017).

or disability; and there is the real possibility that this population may be negatively impacted. Therefore, some argue that medical facilities and social welfare institutes ought to be included in social security networks.²⁹ Those persons suffering untreated first-episode psychosis are likely to be at 15 times higher risk of killing than after they receive treatment. Accordingly, scholars have argued for the importance of timely and appropriate mental illness treatment.³⁰ In addition, it has been found that half of homicide victims are female. Compared to other violent crimes in which males comprised the majority of victims, the proportion of female homicide victims is high. Moreover, the proportion of homicide victims using alcohol 24 hours before the crimes has been found to be higher than other crimes.³¹

To conclude, the scientific literature suggests that mental illness, personality disorder and alcohol/drug use might have particular impacts on stranger homicides, but not so much on indiscriminate homicides or random killings. The relationships between psycho-social risk factors and indiscriminate murder may be complex than general violent crimes or homicides. In Taiwan, there is a shortage of any detailed empirical analyses. The rationale for the present paper is therefore to provide a better understanding of the phenomenon of indiscriminate murder in Taiwan.

III. METHODS

A. *Instruments*

Following approval by the National Taiwan University Hospital Research Ethics Committee, the research adopted a self-administered questionnaire survey method. The instrument and sample are described below.

1. *Self-Administered Questionnaire and Measurements*

Based on the literature review, official documents and public court

29. Olav B. Nielssen et al., *Comparison of First-Episode and Previously Treated Persons with Psychosis Found NGMI for a Violent Offense*, 62 PSYCHIATRIC SERV. 759, 760-64 (2011); Jeffery W. Swanson, *Explaining Rare Acts of Violence: The Limits of Evidence from Population Research*, 62 PSYCHIATR. SERV. 1369, 1370-71 (2011).

30. Matthew M. Large & Olav Nielssen, *Violence in First-Episode Psychosis: A Systematic Review and Meta-Analysis*, 125 SCHIZOPHRENIA RES. 209, 210-20. (2011).

31. Gregory M. Asnis et al., *Violence and Homicidal Behaviors in Psychiatric Disorders*, 20 PSYCHIATRIC CLINICS N. AM. 405, 406-25 (1997); Kenneth G. W. W. Koh et al., *Are Homicide Offenders Psychiatrically Different from Other Violent Offenders?*, 12 PSYCHIATRY PSYCHOL. & L. 311, 312-18 (2005).

decision information, our researchers independently developed a questionnaire with nine dimensions, the detailed categories of which are shown below:

1. Demographic information: gender, age, education, occupation, marital status, community, religion.
2. Family: structure, relationship, finance, rearing parent, substance use, parent mental illness, parent crime.
3. The nature of murder: accomplice, victim, motive, means, tool, location, time, crime scene, attitude after committing crime, forensic psychiatric assessment.
4. Previous court conviction: adolescence delinquency, adulthood convictions by courts, prison/jail experience.
5. History of healthcare: physical trauma, inheritance disease, psychiatric disease, medication, psychic trauma.
6. Substance use: illicit drugs, alcohol, betel nuts,³² tobacco.
7. Psychological factors: antisocial, self-esteem, empathy, violence attitude, anger, loneliness, depression, cynicism, anxiety.
8. Social support: family, friend, prison/jail.
9. Significant life events: negative, positive.

For the measurement of psychological and social risk factors, we constructed nine sets of questions with either dummy, 1-4 or 1-5 (strongly disagree to strongly agree) Likert-type scales. The measurement items and their reliability values are reported in Table 2.

As shown in Table 2, the psychological and social risk factors in the questionnaire consists of several dimensions (with unequal numbers of questions). Internal consistency checks showed that although the alpha coefficient for the questions in the empathy category was 0.69, it was over 0.70 for all the others.

Table 2: Measurements for psychological and social risk factors (n=209)

Antisocial tendency (alpha=.76)	Mean (score 1-4)
1. I don't care what people think of me	2.38
2. It is no big deal if I feel I hurt someone	1.71
3. I easily feel sympathy for others	1.73

32. Betel nut and tobacco use are specifically listed as juvenile delinquent behaviors in Taiwan.

Antisocial tendency (alpha=.76)	Mean (score 1-4)
4. I feel uneasy if I did not get caught after doing something illegal.	1.92
5. I feel no fear even in a dangerous situation	2.29
6. I am very good at changing others' attention	2.16
7. I don't feel people respect me .	1.94
8. I will try everything I can to get what I want	2.10
9. I dislike social norms.	2.17
10. I would like to be a millionaire immediately no matter what it takes.	1.95
11. I am a smooth talker and good at fooling people or making people nervous.	2.00
12. I feel I am better than others and want to be a powerful person	2.28
13. I often lie and mislead others	1.76
14. I feel people who abuse children deserve harsh punishment	1.65
15. I feel good about deceiving or using others because they are too stupid	1.72
Self-esteem (Alpha=.75)	
1. I feel satisfied with my life	2.01
2. Sometimes I feel I am useless	2.59
3. I feel that I have many good things to offer to the world	2.67
4. I think that I can do things as good as any others	2.97
5. There is nothing much I feel proud of in my life	2.48
6. I should be more self-confident	1.81
7. I feel I am a loser in my life	2.63
Empathy (alpha=.69)	
1. Good or bad things which happen to others would also happen to me	3.01
2. I feel more sympathy for those less fortunate than me	3.26
3. I don't feel bad for those suffer in difficult times	3.06
4. I feel worried and nervous when there is an emergent situation.	2.99
5. I don't get too involved when I watch movies.	2.58
6. I sometimes try to understand a friend's perspective by putting myself in his/her shoes.	3.03
7. I am sure that I am right, so I won't spend too much time to listen to others' opinions.	2.44
8. I believe that things have two sides and always try to understand them from different views.	3.27
9. I think that I am soft-hearted	3.26
10. when I read a novel or comic book, I will imagine myself as a character in the story.	2.83
11. I feel panic and would not know what to do when I see others in a critical or emergent situation.	2.28

Violent attitude ($\alpha=.85$)	
1. I believe in an eye for an eye and violence for violence.	2.19
2. I don't think that we should abolish the death penalty	2.77
3. There is nothing wrong in correction officers treating inmates brutally.	1.73
4. I think that government should send army to quell street protesters or demonstrators.	1.94
5. It is inevitable that civilians of an enemy country will be killed if there is a war	2.59
6. If children don't behave themselves, it is not wrong to physically punish them	2.10
7. If given a good beating, trouble-making children would behave themselves immediately.	1.89
8. Proper physical punishment could help children develop and take their responsibilities appropriately.	1.95
9. It is no big deal to beat up a cheating spouse or partner.	1.95
10. If my spouse or partner is continually nagging or sarcastic then beating them would shut him/her up.	1.65
11. If I got into an argument with my partner, then beating them should stop the argument right away.	1.62
12. I think it is ok to physically punish juvenile delinquents	2.09
Cynicism ($\alpha=.81$)	
1. I believe that everyone would cheat to be better than others	2.33
2. I think that most people have no intention to help others	2.29
3. Friendship is for 'using' that relationship one day	2.02
4. I think that it is better not to trust anyone	2.18
5. I think that no one cares when bad things happen to me	2.33
6. I think that people are honest because they are afraid of being caught.	2.39
7. If people are nice to me, I would start to think that they might want something from me.	2.32
8. I think that most people more or less would use illegitimate methods to take advantages or gain some benefits.	2.69
Anger ($\alpha=.80$)	
1. I would get really angry if people delay my time	2.55
2. I would get really angry if people criticize me	2.51
3. I would get really angry if people think I don't do well.	2.46
4. I would get really angry if people treat me like I don't exist	2.40
5. I easily get angry over small things	2.24
6. I know I have a temper, but I can't control it.	2.43
7. I would curse, destroy things or beat someone up when I am angry	1.96
8. I can hold my temper when someone tries to get me angry.	2.36

Anger (alpha=.80)	
9. I would apologize after I lose my temper .	2.25
10. I keep silent or leave alone others when I am angry	3.06
11. When I am angry, I would not let anyone notice	2.71
Loneliness (alpha=.84)	
1. I don't have true friends	2.39
2. I can group with people	1.99
3. I have many like-minded friends	2.32
4. I feel that I am popular or easy to be with	2.23
5. I feel close to my family and friends	2.07
6. I often feel excluded by groups	2.15
7. My relationship with friends mean nothing to me	2.09
8. No one really understands me	2.47
9. Whenever I need company, I can always find someone	2.30
10. I feel shy around people	2.51
11. I have many people around me, but none of them is a true friend	2.55
Depression (alpha=.85)	
1. I often worry about small things	2.56
2. I can't concentrate on anything	2.24
3. My mood is always low	2.37
4. Nothing I do goes the way I want it	2.25
5. I have hopes for my future	2.20
6. I worry and fear all the time	2.46
7. I don't sleep well	2.24
8. I feel happy	2.36
9. I feel lonely	2.39
10. I have no energy for anything	2.22
Social anxiety (alpha=.88)	
1. I am nervous talking to authority (i.e: teacher, employer, senior mafia, police, judge, prosecutor, warden, correction supervisor)	2.42
2. I don't look at people's faces or eyes when I talk to them	2.05
3. I feel nervous when I start to talk about myself	2.27
4. I feel uncomfortable with strangers	2.60
5. I have many peer friends	2.65
6. I feel uncomfortable when I go to any social activities	2.21
7. I feel nervous if I am with someone alone and no one is talking.	2.24
8. I can't clearly express my opinions	2.30
9. I am afraid of expressing contrary opinions in front of people	2.31
10. I don't dare to talk or ask for a date with people I like	2.37
11. I worry a lot about my invisibility in a group	2.20

Self-reported mental illness history		Yes
1.	Any previous diagnosis of mental illness (i.e. depression, bipolar, anxiety, panic attack, schizophrenia)	22%
At-risk family		Yes
1.	Were you raised in a single parent household?	28%
2.	Before you were age 15, did your father often get drunk?	43%
3.	Before you were age 15, did your mother often get drunk?	10%
4.	Before you were age 15, did your father have a drug abuse problem?	2%
5.	Before you were age 15, did your mother have a drug abuse problem?	0.4%
6.	Before you were age 15, was your father ever convicted of a crime?	11%
7.	Before you were age 15, was your mother ever convicted of a crime?	3%
8.	Before you were age 15, was your father ever diagnosed with mental illness?	4%
9.	Before you were age 15, was your mother ever diagnosed with mental illness?	5%
Quick screening of self-reported depression one month before committing the crime (alpha=.89, score 1-5)		Mean
1.	Feeling nervous and uneasy	2.41
2.	Feeling upset or angry	2.56
3.	Feeling depressed and low mood	2.48
4.	Feeling not good enough compared to others	2.21
5.	Hard to sleep	2.40
6.	Suicidal thoughts	1.62
Quick screening of self-reported substance abuse (alpha=.79)		Yes
1.	Do you feel that you should reduce alcohol or drug use ?	40.5%
2.	Does anyone ever make you angry by criticizing your drinking or using drug issues?	20.1%
3.	Do you feel guilty or bad about your drinking or drug using issues?	35.5%
4.	Do you think of drinking or taking drugs first thing in the morning when you wake to get rid of tiredness or unhappiness.	20.8%
Intimate relationship (alpha=.79) score 1-4		Mean
1.	Do you spend lots of time with your partner	3.02
2.	Do you share private or domestic issues with your partner	3.10
3.	Do you tell your partner "I love you"?	2.90
4.	Do you understand your partner's emotions or feelings	3.09

Intimate relationship (alpha=.79) score 1-4		Mean
5. Do you feel intimate with your partner		3.31
6. You cheer up or encourage your partner when he/she is not happy		3.43
7. Do you want to listen to your partner		3.32
8. It is no big deal if your partner does not understand your feeling		2.75
9. It often ends with a disaster if you have different opinions with your partner		2.71
10. Your partner often tells you that he/she loves you?		3.00
11. Do you feel that love is very important in your life?		3.08
Social alienation (alpha=.79) score 1-4		
1. I don't have true friends °		2.39
2. I have many like-minded friends		2.32
3. My family, friends and I have special bonding.		2.07
4. Friendships mean nothing to me		2.09
5. No one really understands me		2.47
6. If I need a company to spend time with, I can always find one		2.30
7. I feel lonely		2.39

To enhance validity, two focus groups comprising criminologists, psychologists and survey experts (in total 11 persons) were invited to review the first draft version of our questionnaire. Based on analysis of data and suggestions collected from these focus groups, we further revised the questionnaire. We also piloted the questionnaire with two lay persons to locate any further wording or language issues.

Following administration and completion of the questionnaires in the study, we checked subjects' answers to four sets of similar questions. If a subject's answers to the sets of questions were inconsistent, his/her questionnaire was excluded because of the possibility of invalid response. Fourteen invalid questionnaires were excluded by this procedure.

B. *Sample*

1. *The Offender Group*

With the approval by the Ministry of Justice, in March 2017, we obtained a list of a total of 2,138 prisoners serving sentences with a homicide conviction. Those who were excluded from the research were: those entering prison before 2007 or after 2016, homicide attempt, aggressive assault, foreign nationals, juveniles (under age 18), high

profile cases,³³ conflict of interest cases³⁴ and prisons located in very remote areas of Taiwan (due to the limited research funding and capacity issues), and those leaving prison in 2016-2017 after serving the full prison term. In total, following such exclusions, 811 murderers were eligible for further consideration.

We first contacted prisons with the highest number of prisoners. In the beginning, in the eight prisons contacted, there were 467 potential subjects for questionnaire survey. However, only 244 prisoners, less than our predetermined sample size, could actually be included in the survey. This was for the following reasons: unavailability of some prisoners' register records (e.g. prisoners applying for parole), prisoners with very severe mental illness, those too physically or mentally handicapped to complete the questionnaire, those already transferred to other prisons or released, those receiving medical care under guard at the time of our survey, being away to meet with their family/friends, and so on. On the survey dates, potential subjects were brought to the pre-arranged location in the prison for our research team to inform them of the purposes and the procedures of our survey. In total, 22 prisoners (9%) refused to consent and 221 prisoner subjects completed survey after they read and signed the consent form. They received NTD 100 for the completion of the questionnaire. Finally, after examination for error, only 209 survey questionnaire results were considered valid (Table 3).

Table 3 Prison sample selection

Prison	Pre-selected sample	Administered sample	Rejection	Actual sample/valid sample
A	35	20	2	18/18
D	125	33	0	33/31
D	12	11	1	10/9
TW	12	7	0	7/7
H	24	23	0	23/22
C	136	74	5	69/63
CW	25	25	5	20/ 9
N	98	53	12	41/40
total	467	244	23	221/209

33. Cases that have been studied more than twice by other researchers.

34. Cases have been forensically assessed by one of the authors (of this study) through the courts.

2. *The Control Group*

The control group was recruited by advertisement on the internet and screened by the criteria of being over 20 years old and without a prior criminal conviction. The total number of completed valid questionnaires were 100. Among them, 98 consisted of the non-prisoner subjects serving as our control group. Two of them were excluded because one was with court convictions, the other filled in with contradictory answers. The control group was scheduled to sit in the University classrooms in their suitable times and self-administered the survey with a consent form. They received NTD 200 after the completion of the questionnaire.

Between the offender group and the control group, Chi square analysis revealed significant differences in age, education, religion and marital status, but not in gender (Table 4). One of the possible reasons was that the study recruited the control group from internet users who, arguably, would tend to be younger and better educated. The control group therefore is over represented with younger, better educated and single individuals. As compared to those in the general population, the control group again is over represented with younger, better education and male.³⁵

Table 4 Demographic characteristics of the offender and control groups

	Offender(%) (n=209)	Control (%)(n=98)	X ² (p-value)
Gender			2.57 (.109)
Male	183(88)	79(81)	
Female	26(12)	19(19)	
Age			70.18 (<.001)
18-20	0(0)	2(2)	
21-30	16(8)	44(45)	
31-40	65(31)	27(28)	
41-50	59(28)	13(13)	
>50	68(33)	11(11)	
Missing	1	1	
Education			150.41(<.001)
Illiterate/primary school	33(16)	0	
Junior high school	86(41)	4	
Senior high school	66(32)	15(15)	

35. Please see the annual reports of the Internal Affairs Departments for estimated proportions of gender, age and education. <https://gis.ris.gov.tw/>. For example, there were about 50% males, 24% of age 23-34 group, and 59% with college or higher education of adult residents in Taiwan in 2018.

	Offender(%) (n=209)	Control (%)(n=98)	χ^2 (p-value)
College/University	21(10)	57(58)	37.38(<.001)
Post-graduate	3(1)	22(22)	
Marriage status			
Married	62(30)	26(27)	11.167(.025)
Unmarried	88(42)	71(72)	
Widow	8(4)	0	
Divorced/separation	49(23)	1(1)	
Missing	2(1)	0	
Religion			11.167(.025)
None	74(35)	54(55)	
Buddhism	69(33)	22(22)	
Taoism	42(20)	13(13)	
Christian	13(6)	6(6)	
Others	11(5)	3(3)	

IV. RESULTS

A. *The Prevalence of Indiscriminate Murder Cases*

The study classified the sample of murder cases into four sub-categories based on the offender's motives and their victims. If the case involved multiple victims, it would be categorized as "acquaintance group" if at least one of the victims was an acquaintance of the offender. As Table 4 shows, about 37% of all murder cases were acquaintance murders, 24% were stranger murders. As for the motives, nearly half of them were related to anger and revenge; more than 20% were linked to money. 8% was due to their "unknown bad moods", where 6% felt an urge to kill because they had no hope in the future. Almost none of these murderers killed for thrills or because they wanted to take revenge against society.

Examining motives and the relationships to the offenders' victims, we found that only 5% of all murders were uniquely classified as "indiscriminate murder", 28% were for killing strangers with a cause, 37% were killings with known victims, and 30% were killings within domestic relationships (See Table 5). In other words, the majority of the observed murder situations were known to the victims. So-called indiscriminate murder was rather rare in Taiwan, about 0.04 per 100,000 residents in Taiwan per annum for our estimated prevalence rate. This proxy prevalence did not include attempt indiscriminate killing or assault, therefore, is more likely to be an underestimate.

Table 5 Murder categories (n=209)

Variables	Victim/motive/category	%
Relationship to victim/s	Strangers	23.9
	Strangers, but offender knew names or nicknames of victims	8.6
	Acquaintance	37.3
Motives	Domestic	30.1
	Anger	48.3
	Money	22.5
	Domestic violence	7.2
	Sex/love	14.8
	Mood	8.1
	Wish to die	1.9
	Thrill, curiosity	0
	Live with no hope, no meaning	6.2
	Let society know about unfair treatment	2.9
	Revenge against the society	0.5
Murder group	Indiscriminate	4.8
	Stranger with a cause	27.8
	Acquaintance	37.3
	Domestic	30.1

B. The Psycho-Social Risk Factors of Indiscriminate Murder

1. Psychological Factors

Table 6 shows the means of the nine psychological factors. Each factor contains a different number of questions and all are with high reliability.

Table 6 Means of psychological factors by group

Group/Factor	Items	A (n=10)	B (n=58)	C (n=78)	D (n=63)	E (n=98)
Anti-social	12	2.24	2.06	1.97	1.89	2.06
Self-esteem	6	2.67	2.39	2.34	2.53	2.41
Empathy	9	2.71	2.96	3.01	3.02	3.10
Violent attitudes	23	2.33	2.11	2.02	2.05	2.10
Cynicism	8	2.59	2.27	2.29	2.29	2.32
Anger	10	2.70	2.41	2.39	2.38	2.59
Loneliness	11	2.62	2.14	2.26	2.33	2.23
Depression	10	2.41	2.16	2.23	2.30	2.46
Social anxiety	11	2.53	2.14	2.15	2.40	2.52

* Group A represents indiscriminate murder, Group B represents stranger murder with a cause, i.e. anger, Group C represents acquaintance murder, Group D represents domestic murder group, and E is the control group.

Our one-way ANOVA analyses indicated six measures- namely antisocial personality tendency, empathy, anger, loneliness, depression, and social anxiety are significantly different among the control group and the four murder groups (See Table 7). However, self-esteem, violent attitude, and cynicism showed no difference from the control group.

As also shown in Table 7, there are nine psychological factors on which the indiscriminate murder group was significantly different from those in the other three types of murders. Group A had higher anti-social scores than domestic murders, lower empathy than acquaintance and domestic murder groups, higher feelings of loneliness than stranger murders, but no difference in scores when it came to anger, depression and social anxiety compared to the other three types of murder groups.

Table 7 ANOVA and Post Hoc analysis tests for nine psychological factors

Factors	ANOVA p-value	HSD Post Hoc test
Antisocial	.008**	A>D, E>D
Self-esteem	.088	
Empathy	.002**	E>A, D>A, C>A
Violent attitudes	.351	
Cynicism	.456	
Anger	.004**	E>C, E>D
Loneliness	.021*	A>B
Depression	.003**	E>C, E>B
Social anxiety	<.001***	E>C, E>B

+Group A represents indiscriminate murder, Group B represents stranger murder with a cause, Group C is acquaintance murder, Group D is domestic murder, and E represents the control group.

*p<.05, **p<.01, ***p<.001

2. Health, Social Relationships and Other Risk Factors

Regarding other health and social risk factors, the analysis found that all social factors measures are reliable. Surprisingly, over three quarters of those in the murder groups were in full time employment at the time of the offense. Apart from the domestic murder group, about half of these murderers had juvenile and adult prior convictions (see Table 8).

Table 8 Means/percentages of social factors for the sample

Group/Factor	Items	A (n=10)	B (n=58)	C (n=78)	D (n=63)	E (n=98)
Intimate relationship	11	2.88	3.03	3.15	3.08	4.03
High risk family	9	.20	.14	.13	.10	.09
Social alienation	7	2.65	2.14	2.28	2.37	2.23

Group/Factor	Items	A (n=10)	B (n=58)	C (n=78)	D (n=63)	E (n=98)
Depression screening	6	2.53	1.56	2.07	2.79	2.45
Substance abuse	4	.48	.38	.33	.29	.09
Psychiatric history (%)	1	30	17	15	33	13
Middle School Dropout (%)	1	30	17	15	13	0
Full-time employment (%)	1	80	76	79	82	70
Juvenile conviction (%)	1	44	52	42	23	0
Adult conviction (%)	1	60	62	53	30	0

*Group A represents indiscriminate murder, Group B represents stranger murder with a cause, i.e. anger, Group C represents acquaintance murder, Group D represents domestic murder group, and E is the control group.

There are no significant differences of psychiatric history and high risk family factors among the groups (See Table 9). However, the indiscriminate murder group were more likely to grow up with a lack of intimate relationships and higher dropout rates than those in the control group, and did suffer more from social alienation than the stranger murder group. Another interesting finding is that the indiscriminate murder group did not differ significantly in terms of intimate relationship, depression, substance abuse, dropout, unemployment, and juvenile/adult prior conviction. In other words, indiscriminate murderers are not unique and could not be readily distinguished in comparison with other murder groups (See Table 9).

Table 9 Differences in health, social relationships, and other risk factors

Variables	ANOVA p-value	HSD Post Hoc tests
Intimate relationship+	<.001***	E>A; E>B; E>D
High risk family	.002	
Social alienation	.012*	A>B
Depression screening+	<.001***	E>B; D>C; C>B; D>B;
Substance abuse+	<.001***	D>E; C>E; B>E
Chi Square p-value		
Psychiatric history	.033	
Dropout	<.001***	E>D; E>C; E>B; E>A
Unemployment	.011*	E>B; E>C; E>D
Juvenile prior conviction	.01*	B>D; C>D
Adult prior conviction	.003**	B>D; C>D

+Robust and Games-Howell post hoc tests were used due to different variances, small and unequal group samples.

++group A represents indiscriminate murder, Group B is stranger murder with a cause, Group C is acquaintance murder, Group D is domestic murder, and E is the control group.

* p<.05, ** p<.01, *** p<.001

V. CONCLUSIONS AND IMPLICATIONS

A. *The Prevalence of Indiscriminate Murder*

Any estimation of the prevalence of indiscriminate murder is likely to be broad, given the very small number of known cases. Our investigation has shown that there was about 5% of all murder cases could be classified as this type. The result is consistent with Jou's estimation in 2016.³⁶ The prevalence of indiscriminate murder is approximately 0.04 per 100,000 residents in Taiwan, as we stated previously, this figure is more likely to be an underestimate due to the exclusion of "attempts" and assault convictions.

Stranger and indiscriminate murder comprised almost 30% of all murders in the sample, showing similar ratios to that of England/Wales,³⁷ and according to Hou³⁸ and Jou³⁹ research, a little higher than the rate found in the USA.

B. *The Risk Factors of Indiscriminate Murder*

We investigated whether indiscriminate murders are related to specific psychological, health and social risk factors. The evidence indicated that there were no significant differences among the five groups on self-esteem, violent attitudes, cynicism, high risk family and psychiatric illness history.

However, the occurrence of indiscriminate murders is significantly and positively related to low empathy, lack of intimate relationship and high school dropouts compared to the control group, yet no significant differences with other murder groups in terms of anger, depression, substance abuse, unemployment, juvenile/adult prior convictions.

On the other hand, there are similarities on psychological factors within the four murder groups, in terms of anger, depression, substance abuse, unemployment and juvenile/adult prior conviction. Nevertheless, the indiscriminate murder group presented significantly higher antisocial tendencies than the domestic murder group, and higher loneliness and social alienation than the stranger murder group.

Unlike mass media stereotypes, and indeed much of the public understanding, our study's findings indicate no significant association between indiscriminate murder and mental illness, substance use and prior

36. Jou, *supra* note 10.

37. Office for National Statistics, *supra* note 12.

38. Hou, *supra* note 14.

39. Jou, *supra* note 10.

conviction. Our previous review of the scientific literature on mental illness and violence or homicides might indicate the links of the above risk factors, but our evidence points out that they are applicable to this indiscriminate murder group.

Another important finding is that aside from low empathy, the indiscriminate murder group seems to suffer more from social skills deficits. Our evidence presented that this group failed or lack capabilities to build up proper intimate, school and social relationships. To paraphrase the English poet John Donne,⁴⁰ indeed no man should be an island; but this group of people have been isolated psychologically and diminished or turned their backs on the world for a while. Perhaps it is more helpful, to argue it the other way around, and that society failed to make connections with each in their lives growing up. We, therefore, argue both ends of connecting and being connected psychologically and socially are important for cultivating the lifestyle changes necessary to assist such group of people return to society and prevent indiscriminate murder.

In sum, the above comparisons are important because nothing speaks more convincingly than the results of empirical evidence. Although, there is a large research that demonstrates the importance of social supports to crime, domestic violence and gang behavior, far less discussed or evidenced are the key influences of social isolation and connections to this particular homicide--indiscriminate killing. Furthermore, unlike widely believed assumptions, our evidence reveals that nothing distinguishes our indiscriminate murder group from other types of murder apart from their much lower levels of empathy, intimate relation and school dropout. However, all murderers have similar life styles and life chances in terms of their upbringing, school, work, substance misuse and mental health history. This means that even though indiscriminate murder attracts more media attention and has the potential to cause greater social panic, any evidence-based prevention policy should clearly target the generic murder offense rather than seek to distinguish and selectively target resources at any specific murder type.

VI. LIMITATIONS OF THE RESEARCH

There are several limitations in this study. The rare occurrence of indiscriminate murders has made the sample size used in this study extremely small. When sample size is too small, it will be difficult to find significant relationships based on the data, as statistical tests normally

40. John Donne, *No Man is an Island*, ALL POETRY, <https://allpoetry.com/No-man-is-an-island> (last visited Nov. 28, 2021).

require a larger sample size to ensure a representative distribution of the population. The current study used a sample framework of all incarcerated murder inmates in prisons, limited to the first-degree murderers. It is noted that some of these indiscriminate killers might be charged legally with attempted murders, second degree murders and/or defined as aggregate assaults. Future research can broaden the sample framework by including the above convictions which might legally not be directly related to indiscriminate murders, but indeed be very relevant in criminological terms.

Second, this study deliberately excluded quite a few high profile cases. One of the reasons is that we found some of these cases were repeatedly reported by media and interviewer by other researchers. The stories they told and will tell have possibly been contaminated. The retrieval practice effect might be a threat to our study. The other reason is that of a conflict of interest, as one of our team members, a forensic psychiatrist, was involved in the forensic psychiatric assessment of these cases.

Third, this study came across with memory distortion issues of the inmate sample. Survey or interviews with long incarcerated murderers in prison are difficult to conduct. Memories of the crime and the crime scenes we asked the offender sample to recall were highly challenging to remember, and possibly unreliable. We want to underline that psychological research tells us that remembering is an unstable and profoundly unreliable process. Human beings remember, erase, and recreate memories all the time for various conscious and unconscious reasons and purposes. We recommend that researching closer in time to the actual events, may provide more obviously reliable data.

Finally, we found, after we collected the survey data, that our control group was biased in terms of their representation of the general population. Most of the respondents were young, college educated, and had student status. This potential bias has inhibited our ability to conduct a thorough interpretation of the statistical findings. We regret not including more general and diverse types of respondents in the survey since this could have helped us better understand the psychological, social and medical characteristics under study. Any future research needs to fully seek to counter such sampling bias.

Despite these limitations, our results should be of interest to relevant scholars, clinicians and practitioners working with their clients in community (i.e. schools, works, medical professions, social workers, criminal justice professions) to link social isolation and connection to indiscriminate murder. Indeed, we suggest that no man could gain their well-being and health without meaningful social engagements. Engaging

those people living on their own “social islands” not only allows them to be supported by but also makes them socially meaningful to contribute to community.



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無差別殺人的盛行率與心理社會 風險因子：獨活孤島之人？

吳建昌、李茂生、呂宜芳、葉緣真、王俊凱、周愷嫻

摘 要

本文目的是釐清所謂「無差別殺人」（或一般稱「隨機殺人」）的定義，透過實證資料分析此類殺人犯在臺灣之盛行率，及其心理及社會風險因子。研究設計問卷，通過學術倫理審查後，在全國各監獄選出符合條件之殺人犯（含無差別殺人犯）測驗，共獲得有效樣本209人，問卷成功率為91%。另一組對照組則以網路廣告取得無前科社區成年人，樣本共100人，有效數為98人。經分析，發現殺人犯中，符合無差別殺人定義之受刑人占5%，陌生殺人者占28%，家內殺人占30%，熟識者殺人占37%。我國無差別殺人之盛行率粗估為每十萬人口中0.04。本文也發現與對照組比較後，無差別殺人組之心理與社會風險因子，除同理心顯著較低、缺乏親密關係、較高的學業中輟率外，不論是自尊、暴力態度、憤世嫉俗心態、憤怒感、社會疏離感、社交焦慮、精神疾病、反社會傾向、孤獨感、憂鬱傾向、物質濫用、前科、高風險家庭等因子均與常人無異。簡言之，本研究證據顯示無差別殺人其與常人或其他殺人組更多的區別是其社會關係缺陷或缺乏社會羈絆問題（如缺乏親密關係、過早脫離學校、反社會傾向、孤獨感或社會疏離感）。這群人的社會心理特徵中，明顯缺乏建立社會關係之能力，長期孤獨並背向社會生活。從另一個角度觀察，或許是社會遺忘了這群人太久，使得他們成為社會隱形人，終了選擇以無差別殺人方法再度與社會連結。

關鍵詞： 無差別殺人、隨機殺人、心理社會風險因子、社會連結