Adults Suffering from Violence Are at Risk of Poor Prognosis in Taiwan, 2000–2015

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Abstract: Objective: To understand the risk of developing a poor prognosis in adulthood after violent injury in Taiwan. Methods: This study used the data of outpatients, from emergency departments, and from hospitalization of 2 million people under National Health Insurance from 2000 to 2015. The ICD-9 diagnostic code N-code was defined as the case of this study and was 995.8 (abused adult) or E-code was E960-E969 (homicide and intentional injury by others) The first violent injury of 18–64-year-old adults (the study group) was analyzed. Patients who had not suffered violent abuse were the control group. The groups were matched in a 1:4 ratio, and the paired variables were gender, age, and Charlson Comorbidity index (CCI) before exposure, and year of medical treatment. SAS 9.4 statistical software was used, and the Cox regression method was used for data analysis. Results: During the 15-year period, a total of 8726 people suffered from violence (34,904 controls). The incidences of common poor prognoses among the victims of violence were sleep disorder, anxiety, and depression, in 33.9%, 21.6%, and 13.2% of people, respectively. The risk (Adults, Overall) of developing Post-Traumatic Stress Disorder (PTSD), bipolar disorder, and manic disorder after being violently injured (average 9 years) was 34.86, 4.4, and 4.1 times higher than those who had not suffered violence (all p values < 0.01). The risk (Adults, Males) of developing PTSD, bipolar disorder, and manic disorder after being violently injured (average 9 years) was 30.0, 3.81, and 2.85 times higher, respectively, than those who had not suffered violence (all p values < 0.01). Conclusion: The risks of poor prognosis are higher in adults who have suffered violent abuse than in those who have not. Therefore, police, social workers, and medical personnel should pay attention to the mental state of victims of violence. They should aim to support prompt treatment, to avoid PTSD, bipolar disorder, manic disorder, etc.

Keywords: adult maltreatment; injury; psychiatric disorders; poor prognosis
1. Introduction

Child abuse and neglect can affect an individual’s physical and mental health in both direct and indirect ways [1,2]. Abuse in infancy and early childhood has been shown to negatively impact early brain development, which, in turn, leads to negative behavioral health outcomes in adolescence and adulthood [3,4]. The link between early abuse and adverse adult health outcomes is well established [5]. The immediate emotional effects of abuse and neglect, such as isolation, fear, and inability to trust, can translate into lifelong consequences, including poor mental and behavioral health outcomes and an increased risk of substance use disorders [6].

Interpersonal violence involves the deliberate use of force or power over another by an individual or a small group of people. Interpersonal violence may be physical, sexual, or psychological (also known as emotional violence) and may involve deprivation and neglect [7]. According to the “World Report on Violence and Health” by the World Health Organization (WHO) in 2002, interpersonal violence is divided into domestic partner violence (family member or partner relationship) and community violence (without kinship) according to the relationship between the perpetrator and the victim. Among them, the WHO uses Intimate Partner Violence (IPV) for the classification of violence between non-related adults in a personal relationship [8,9]. The scope of violence between partners includes the following: physical aggression, such as slapping, kicking, and hitting; mental abuse, such as coercion, contempt, and humiliation; forced sex and other forms of sexual coercion; and various forms of control, such as isolating victims from family and friends, monitoring their activities, and limiting their access to information and help [8,9].

A study of 654,356 victims of interpersonal and domestic violence in the United States in 2014 showed that the risk of death in hospital was 2.1 times higher for patients with trauma from domestic and IPV than for non-trauma patients from domestic and IPV (aOR: 2.31, \( p < 0.001 \)). Injury patterns in patients diagnosed with interpersonal violence or domestic violence trauma showed the most common to be head injury (vs. non-domestic violence: 16.1% vs. 3.4%, \( p < 0.001 \)) and multiple injuries (vs. Compared: 16.6% vs. 7.4%, \( p < 0.001 \)) [10]. A Korean study from 2018 performed a retrospective analysis of preliminary interviews and medical records of 239 victims of domestic violence who attended the Sunflower Center and Emergency Center in Korea from 1 January 2016 to 31 December 2016, and showed that 191 (79.9%) suffered a physical attack, with a mean New Injury Severity Score of 2.93. Injury types included contusions, abrasions, lacerations, fractures, subconjunctival hemorrhages, perforated tympanic membranes, broken teeth, and subarachnoid hemorrhage. Most physical injuries occurred in the face, upper extremities, head, and neck, and 45 (95.7%) of the 47 victims, who were physically injured, had a mean severity score of 5.40 ± 4.15 (Park et al., 2018) [11].

Chen et al. (2010) searched nine literature databases from 1980 to 2008 and conducted a comprehensive analysis of 37 papers, including 17 case-control studies and 20 generational studies examining the relationship between sexual abuse and lifetime psychiatric diagnoses. Analysis showed that sexual abuse was significantly associated with lifetime diagnoses of anxiety, depression, eating disorders, post-traumatic stress disorder (PTSD), sleep disturbances, and suicide attempts, regardless of the victim’s gender or age at the time of the abuse. However, there was no statistically significant association between exposure to sexual abuse and lifetime schizophrenia or psychosomatic disorders [12]. A 2015 study in the capital of Gilan province, Iran, administered a general health questionnaire to 2091 married women, who were divided into battered women (\( n = 512, 24.5\% \)) and non-battered women (\( n = 1579, 75.5\% \)). The research results showed that the proportion of psychological aggression in intimate partner violence is greater than that of physical aggression, sexual coercion, or injury, and abused persons are more prone to psychosomatic disorders, anxiety/insomnia, social dysfunction, and depression. In addition, studies have also found that both psychological and sexual abuse are important predictors of mental health [13]. A cross-sectional survey of home health care patients (444 women) in a small Italian town found that only psychological abuse, without sexual or physical violence, was
associated with impaired health. After adjusting for age, education, presence of children, marital and employment status, women who experienced partner violence were six times more likely to suffer from depression and physical distress, and four times more likely to use psychotropic substances [14]. Furthermore, there is a strong correlation between past and present experiences of interpersonal violence [15].

At present, longitudinal observational studies on the relationship between adult maltreatment and poor prognosis are limited. Therefore, we hypothesize that adults suffering from violence are at risk of poor prognosis (anxiety, depression, manic disorder, bipolar disorder, sleep disorder (SD), PTSD, acute stress disorder (ASD), and eating disorders (ED)). We used the National Health Insurance Research Database (NHIRD) of the Ministry of Health and Welfare to investigate whether adults who experienced violence are at risk of poor prognosis from 2000–2015 in Taiwan through a long-term follow-up approach.

2. Method

2.1. Data Sources

This study used the NHIRD to provide a representative National Health Insurance (NHI) 2000 cohort of two million underwriting sample archives (Longitudinal Health Insurance Research Database, LHID2000). As the research data source, the follow-up year was from 1 January 2000, to 31 December 2015, for a total of 16 years of outpatient and inpatient data. This study used the data from the year 2000 as data cleaning to exclude non-new cases. The violently abused adults in this study included 18 to 64-year-olds, according to the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9 CM) N-code: 995.8 and the classification of external causes Code definition E-code: E960–E969.

The sampling source of the control group included unstricken patients, and the case-control matching method was used to establish the control group according to the matching ratio of 1:4. The matching conditions included: gender, age (±1 year), primary violence time (year and month) (the same medical treatment year and month for the control group), and CCI (Charlson Comorbidity Index, accumulated to the CCI before the first exposure). Afterwards, two groups of data were paired according to the above conditions, the same numbers were given to those with the same pairing conditions for statistical analysis of the paired data. The CCI used in this study was a version modified by Deyo in 1992 [16]. Injury type was in accordanceICD9 codes 800–989, 995.80–995.85 (Adult abuse). This study applied to the Ministry of Health and Welfare to use the NHIRD of Taiwan’s NHI. The data analyzed did not contain personally identifiable information. The Ethics Review Board of the Tri-Services General Hospital of the National Defense Medical College: TDGH-B-111018. The source of funding for the project was the in-hospital research project of the Tri-Service General Hospital of the National Defense Medical College: TDGH-B-111018.

2.2. Study Design

This study used a retrospectively matched cohort design from 1 January 2000 to 31 December 2015 and used the ICD-9-CM code 995.80 to represent adult abuse. Victims over the age of 18 were included in the adult abused cohort (n = 8726), and adults without experience of abuse were included in the comparison cohort (n = 34,904) matched for sex, age, CCI, and index date (1:4). Poor prognosis included anxiety, depression, manic disorder, bipolar disorder, SD, PTSD, ASD, and ED. Victims with a history of adult abuse or poor prognosis before 2000 were excluded.

Covariates in this study included gender, age, residential location (north, central, south or east), urbanization level (grades 1–4), level of medical facility (medical center, regional hospital, local hospital), and insurance premiums category (New Taiwan Dollars [NTD]: <18,000, 18,000–34,999, ≥35,000).

Urbanization level was classified according to the population density (person/km²), the proportion of the population with a college education or above (%), the proportion
CCI score with 17 relevant comorbidity categories (based on ICD-9-CM codes) was used for this study. Each comorbidity category had an associated weight (from 1 to 6), and the sum of all weights yielded a patient’s single comorbidity score based on the adjusted risk of mortality or resource use. A score of zero indicated that no comorbidities were found [18]. Figure 1 shows the study design flow chart for this study.

2.3. Statistical Analysis

This study was analyzed using SAS 9.4 for Windows (SAS Institute, Cary, NC, USA) statistical software provided by the Academia Sinica Branch of the Data Welfare Center of the Ministry of Health and Welfare. The Chi-square test, logistic regression, and Cox regression were used. The descriptive data of the two groups were tested by the Generalized Estimating Equations (GEE) method.

3. Results

3.1. Characteristics of the Study

This study included a case group of 8726 abused adults and a matched control group of 34,904 non-abused adults. The characteristic differences between the two groups in this study are shown in Table 1. The average age of abused adults was 36.9 ± 12.0 years, and the proportion of males was 67.1%. The differences between the two groups in this study lay in the following variables: insurance premium, CCI, urbanization level, and level of care.
Table 1. Basic demographic data of adult victims and control groups seeking medical treatment.

| Demographic Variables | Adult Victims (n = 8726) | Control Group (n = 34,904) | p-Value |
|-----------------------|--------------------------|-----------------------------|---------|
| n                     | %                        | n                           | %       |
| **Gender**            |                          |                             |         |
| Female                | 2873                     | 11,492                      | 32.9    | 32.9 >0.999 |
| Male                  | 5853                     | 23,412                      | 67.1    | 67.1         |
| **Age**               |                          |                             |         |
| Mean ± SD, year       | 36.9 (12.4)              | 36.9 (12.2)                 |         |
| **Urbanization level**|                          |                             |         |
| highly                | 1758                     | 10,157                      | 20.1    | 20.1 >0.999 |
| moderately            | 2513                     | 11,255                      | 28.8    | 28.8         |
| new town              | 1934                     | 6244                        | 22.2    | 22.2         |
| general townships     | 1340                     | 4416                        | 15.4    | 15.4         |
| aging towns           | 716                      | 1502                        | 8.2     | 8.2          |
| agricultural township | 430                      | 955                         | 4.9     | 4.9          |
| missing value         | 35                       | 375                         | 0.4     | 0.4          |
| **Insurance Area**    |                          |                             |         |
| Taipei                | 2136                     | 12,768                      | 24.5    | 24.5 <0.001 ** |
| North District        | 1124                     | 5081                        | 12.9    | 12.9         |
| Central District      | 2408                     | 6238                        | 27.6    | 27.6         |
| South District        | 1034                     | 4725                        | 11.8    | 11.8         |
| Kaohsiung and Pingtung| 1737                     | 5013                        | 19.9    | 19.9         |
| Eastern District      | 260                      | 741                         | 3.0     | 3.0          |
| missing value         | 27                       | 338                         | 0.3     | 0.3          |
| **Insured Amount**    |                          |                             |         |
| (NTD)                 |                          |                             |         |
| 0–16,499 dollars      | 2870                     | 5894                        | 32.9    | 32.9 <0.001 ** |
| 16,500–20,999 dollars | 2464                     | 9434                        | 28.2    | 28.2         |
| 21,000–30,299 dollars | 2006                     | 8238                        | 23.0    | 23.0         |
| ≥30,300 dollars       | 1386                     | 11,338                      | 15.9    | 15.9         |
| **Personal/Public**   |                          |                             |         |
| Health Insurance      |                          |                             |         |
| Public insurance      | 233                      | 1997                        | 2.7     | 2.7          |
| Farmer                | 4542                     | 23,870                      | 52.1    | 52.1         |
| Other + missing values| 28                       | 354                         | 0.3     | 0.3          |
| **Dependent Occupation**|                        |                             |         |
| Labor protection      | 841                      | 2710                        | 9.6     | 9.6          |
| Member of Water       | 317                      | 866                         | 3.6     | 3.6          |
| Conservancy and Fisheries Association | 208 | 263 | 2.4 | 0.8 |
| Low-income Households | 2357                     | 4844                        | 29.3    | 29.3         |
| Community insured population | 28 | 354 | 0.3 | 1.0 |
| **:** p < 0.05. HR = Hazard Ratio.

3.2. Risk of Mental Illness and Poor Prognosis According to Adult Maltreatment Exposure

Adult victims of violent abuse have significantly higher risks of poor prognosis than victims of non-violent abuse. Among them, the three adverse outcomes with the greatest risk (Adults, Overall) difference were PTSD (Hazard Ratio (HR) = 34.86), bipolar disorder (HR = 4.44), and manic disorder (HR = 4.10) (Table 2).

Table 2. Comparison of the risk of poor prognosis between victims of violent abuse and control (Adults, Overall).

| Poor Prognosis         | Victims of Violence (n = 8726) | Not Victims (n = 34,904) | HR (95% CI) | p-Value |
|------------------------|-------------------------------|--------------------------|-------------|---------|
| Incidence (1/10^4)     | Incidence (1/10^4)            |                          |             |         |
| **Psychiatric comorbidity** |                          |                          |             |         |
| Anxiety                | 216.0                         | 142.0                    | 1.50 (1.41–1.60) | <0.0001 ** |
| Depression             | 138.0                         | 61.2                     | 2.27 (2.08–2.47) | <0.0001 ** |
| Manic disorder         | 9.2                           | 2.2                      | 4.10 (2.84–5.94) | <0.0001 ** |
| Bipolar disorder       | 34.0                          | 7.9                      | 4.44 (3.66–5.40) | <0.0001 ** |
| Sleep disorder         | 338.1                         | 264.1                    | 1.29 (1.23–1.36) | <0.0001 ** |
| Post-traumatic stress disorder | 9.0                           | 0.3                     | 34.86 (15.94–76.2) | <0.0001 ** |
| Acute stress disorder  | 21.3                          | 9.0                      | 2.52 (2.04–3.12) | <0.0001 ** |
| Eating disorders       | 12.9                          | 5.3                      | 2.42 (1.84–3.19) | <0.0001 ** |

**: p < 0.05. HR = Hazard Ratio.
When divided by gender, adult male victims of violence have significantly higher risks of poor prognosis than non-violent victims. Among them, the three adverse outcomes with the largest risk (Adults, Males) difference were PTSD (HR = 30.0), bipolar disorder (HR = 3.81), and manic disorder (HR = 2.85) (Table 3).

### Table 3. Comparison of the risk of poor prognosis between victims of violent abuse and controls (Adults, Males).

| Poor Prognosis | Victims of Violence (n = 5853) | Not Victims (n = 23,412) | HR (95% CI) | p-Value |
|----------------|-------------------------------|--------------------------|-------------|---------|
| psychiatric comorbidity |                               |                          |             |         |
| Anxiety         | 832 (14.2)                    | 45,697 (182.1)           | 187,568 (124.6) | 1.43 (1.32–1.55) <0.0001 ** |
| Depression      | 535 (9.1)                     | 46,526 (115.0)           | 191,689 (57.7) | 2.18 (1.96–2.44) <0.0001 ** |
| Manic disorder  | 29 (0.5)                      | 48,412 (6.0)             | 194,539 (2.2)  | 2.85 (1.74–4.67) <0.0001 ** |
| Bipolar disorder| 132 (2.3)                     | 48,053 (27.5)            | 194,270 (7.5)  | 3.81 (2.97–4.89) <0.0001 ** |
| Sleep disorder  | 1350 (23.1)                   | 43,928 (307.3)           | 182,982 (238.4) | 1.30 (1.22–1.38) <0.0001 ** |
| Post-traumatic stress disorder | 16 (0.3)                  | 48,481 (3.3)             | 194,281 (0.2)  | 2.09 (1.55–2.81) <0.0001 ** |
| Acute stress disorder | 71 (1.2)                    | 48,276 (14.7)            | 194,281 (7.4)  | 2.23 (1.54–3.23) <0.0001 ** |
| Eating disorders | 48 (0.8)                      | 48,369 (9.9)             | 194,494 (4.3)  | 2.23 (1.54–3.23) <0.0001 ** |

**: p < 0.05. HR = Hazard Ratio.

Adult female victims of violent abuse have significantly higher risks of poor prognosis than victims of non-violent abuse. These victims had a higher risk for PTSD (HR = 36.8), manic disorder (HR = 6.71), and bipolar disorder (HR = 5.65) (Table 4).

### Table 4. Comparison of the risk of poor prognosis between victims of violent abuse and controls (Adults, Females).

| Poor Prognosis | Victims of Violence (n = 2873) | Not Victims (n = 11,492) | HR (95% CI) | p-Value |
|----------------|-------------------------------|--------------------------|-------------|---------|
| psychiatric comorbidity |                               |                          |             |         |
| Anxiety         | 567 (19.7)                    | 19,057 (297.5)           | 82,249 (181.5) | 1.62 (1.46–1.79) <0.0001 ** |
| Depression      | 381 (13.3)                    | 19,842 (192.0)           | 84,945 (78.3)  | 2.39 (2.10–2.73) <0.0001 ** |
| Manic disorder  | 35 (1.2)                      | 21,342 (16.4)            | 86,673 (2.2)   | 6.71 (3.75–12.0) <0.0001 ** |
| Bipolar disorder| 103 (3.6)                     | 21,151 (48.7)            | 86,550 (8.8)   | 5.65 (4.12–7.73) <0.0001 ** |
| Sleep disorder  | 759 (26.4)                    | 18,457 (411.2)           | 79,691 (323.0) | 1.28 (1.17–1.39) <0.0001 ** |
| Post-traumatic stress disorder | 47 (1.6)                    | 21,246 (22.1)            | 86,727 (0.7)   | 36.8 (14.62–92.61) <0.0001 ** |
| Acute stress disorder | 77 (2.7)                    | 21,188 (36.3)            | 86,505 (12.6)  | 3.09 (2.28–4.18) <0.0001 ** |
| Eating disorders | 42 (1.5)                      | 21,355 (19.7)            | 86,621 (7.4)   | 2.69 (1.79–4.03) <0.0001 ** |

**: p < 0.05. HR = Hazard Ratio.

### 4. Discussion

The results showed that the risk of poor prognosis in adults who have been subjected to violent abuse is significantly higher than in those who have been subjected only to non-violent abuse, which is similar to the results of foreign studies [19–25]. One study demonstrated a significant documented mental health burden associated with IPV in primary care at baseline and after exposure [20]. Clinicians must be aware of this association to reduce delays in psychiatric diagnosis and improve the management of psychological outcomes in this group of patients [20]. The study provides evidence that severe physical IPV poses a significant threat to the mental health of black women in the United States [22]. In our study, there were three adverse outcomes with the largest risk (Adults, Males) difference: PTSD (HR = 34.86), bipolar disorder (HR = 4.44), and manic disorder (HR = 4.10). The three adverse outcomes with the largest risk (Adults, Males) difference were PTSD (HR = 30.0), bipolar disorder (HR = 3.81), and manic disorder (HR = 2.85) and those with
higher risk for women were PTSD (HR = 36.8), manic disorder (HR = 6.71), and bipolar disorder (HR = 5.65). Adults subjected to violent abuse have higher risks of poor prognosis; in particular, a higher risk of developing PTSD, bipolar disorder, and manic disorder.

Many different types of traumas have been found to cause PTSD, bipolar disorder, and manic disorder [26–29]. These types, and the proportion of PTSD, bipolar disorder, and manic disorder cases they make up, include the following:

- Sexual relationship violence—33% (e.g., rape, childhood sexual abuse, intimate partner violence).
- Interpersonal traumatic experiences—30% (ego, accidental death of a loved one, life-threatening illness in a child, other traumatic events in a loved one).
- Interpersonal violence—12% (e.g., childhood physical abuse or witnessing interpersonal violence, physical attack, or threat of violence).
- Exposure to organized violence—3% (ego, refugees, kidnappings, civilians in war zones).
- Participation in organized violence—11% (e.g., combat exposure, witnessing death/serious injury or finding a dead body, accidental or intentional death or serious injury).
- Other life-threatening traumatic events—11% (e.g., life-threatening motor vehicle collisions, natural disasters, exposure to toxic chemicals).

The risk of poor prognosis for violently injured people was significantly higher than that for non-violently injured people [30]. Traumatic events, such as domestic and social violence, rape and assault, disasters, wars, accidents, and predatory violence, expose people to such terror and threats that it may, temporarily or permanently, alter their coping abilities, perceptions of biological threats, and their conception of themselves [31]. The human response to psychological trauma is one of the world’s most important public health problems [32]. For all injuries and violence, providing victims with high-quality emergency care can prevent deaths, reduce the number of short- and long-term disabilities, and illustrate how those affected are physically, emotionally, financially, and legally responding to the injury or violence impacting their lives [33]. Therefore, improving the organization, planning, and access to trauma care systems, including telecommunications, hospital transport, pre-hospital, and hospital care, are important strategies for minimizing death and disability due to injury and violence [34]. Several studies have explored the association of risk of poor prognosis for those who have experienced violence, but the number of study cases is small and the follow-up time is not long enough, so the association between the risk of poor prognosis for adults in Taiwan and suffering from violence remains unclear. The sample size of our study was large enough to represent Taiwan’s population of 23 million “adults exposed to violence at risk of poor prognosis” and to provide “violence injury” risk factors on various kinds of poor prognosis. Through NHIRD, we were able to confirm the relationship between “adults exposed to violence at risk of poor prognosis”. We found that violent injury had a significant risk of poor prognosis for the victims of violence, and, through precise matching, the differences between the victims and those who had not suffered violent abuse were minimized. Moreover, the results were similar in both males and females, reinforcing the researchers’ confidence in the consistency of the results.

The study has several limitations that warrant consideration. First, similar to the previous study using the NHI research database on psychiatric disorders [35], we were unable to evaluate genetic, psychosocial, or environmental factors, severity, or psychological assessments in the patients with psychiatric disorders, since these data were not recorded in the NHI research database. Second, the subjects of this study were adults who had been exposed to violence and sought medical care. Therefore, only those who have experienced more severe violence were observed, and the total incidence of violent abuse may be underestimated. Individuals who have suffered psychological abuse without obvious trauma, or those who did not seek medical treatment, due to fear, could remain unaccounted for.
5. Conclusions

The results of this follow-up study support a strong association between abused adults and an increased risk of PTSD, bipolar disorder, manic disorder, etc. Adults subjected to violence have a higher risk of poor prognosis, in particular of developing PTSD, bipolar disorder, and manic disorder. Through this study, it is recognized that violent injury prevention has the potential to completely prevent or alleviate the poor prognosis of some of the health problems faced by adults, or to delay their onset and/or reduce their severity. Therefore, in addition to striving to avoid violent incidents, medical and social welfare personnel should pay attention to the mental state of adult abuse victims, as well as the risk of poor prognosis (especially in PTSD, bipolar disorder, and manic disorder).

Future studies should investigate whether there have been any changes in the poor prognosis, including PTSD, bipolar disorder, manic disorder, etc., over the observation period from 2016 to 2022.

Author Contributions: L.-Y.F., C.-C.C., C.-P.Y., Y.-C.H., S.-H.H., I.-J.L., B.-L.W., C.-A.S., C.-W.H., W.-C.C. and C.-H.L.: conception and design, analysis and interpretation of the data, critical review, and approval of the final version submitted for publication; L.-Y.F., C.-P.Y., Y.-C.H., S.-H.H., B.-L.W., I.-J.L., C.-C.C., C.-H.L. and C.-A.S.: statistical analysis, critical review, and approval of the final version submitted for publication; C.-P.Y., Y.-C.H., S.-H.H., B.-L.W., C.-A.S., C.-H.L. and W.-C.C.: drafting of the paper, critical review, and approval of the final version submitted for publication. All authors have read and agreed to the published version of the manuscript.

Funding: This study was funded by the Tri-Service General Hospital, grant number: TSGH-B-111018.

Institutional Review Board Statement: This study was conducted according to the Code of Ethics of the World Medical Association (Declaration of Helsinki). The Institutional Review Board of the Tri-Service General Hospital approved this study and waived the need for individual consent since all the identification data were encrypted in the NHIRD (C202105014).

Informed Consent Statement: Not applicable.

Data Availability Statement: Data are available from the National Health Insurance Research Database (NHIRD) published by the Taiwan National Health Insurance (NHI) Administration. Due to legal restrictions imposed by the government of Taiwan concerning the “Personal Information Protection Act”, data cannot be made publicly available. Requests for data can be sent as a formal proposal to the NHIRD (https://dep.mohw.gov.tw/DOS/lp-2506-113.html, accessed on 3 July 2022).

Acknowledgments: We appreciate the support from the Tri-Service General Hospital Research Foundation and the Medical Affairs Bureau, Ministry of Defense, Taiwan, ROC. We also appreciate the database provided by the Health and Welfare Data Science Center, Ministry of Health and Welfare (HWDC, MOHW).

Conflicts of Interest: The authors declare no conflict of interest.

References
1. Arnold, R.P.; Rogers, D.; Cook, D.A.G. Medical problems of adults who were sexually abused in childhood. BMJ 1990, 300, 705–708. [CrossRef] [PubMed]
2. Bifulco, A.; Bernazzi, O.; Moran, P.M.; Ball, C. Lifetime stressors and recurrent depression: Preliminary findings of the Adult Life Phase Interview (ALPHI). Soc. Psychiatry Psychiatr. Epidemiol. 2000, 35, 264–275. [CrossRef] [PubMed]
3. Lippard, E.T.C.; Nemeroff, C.B. The devastating clinical consequences of child abuse and neglect: Increased disease vulnerability and poor treatment response in mood disorders. Am. J. Psychiatry 2020, 177, 20–36. [CrossRef] [PubMed]
4. Nelson, C.A.; Scott, R.D.; Bhutta, Z.A.; Harris, N.B.; Danese, A.; Samara, M. Adversity in childhood is linked to mental and physical health throughout life. BMJ 2020, 371, m3048. [CrossRef]
5. Belete, H.; Misgan, E.; Mihret, M. The effect of early childhood sexual abuse on mental health among postpartum women visiting public health facilities in Bahir Dar City, Ethiopia: Multicenter study. Int. J. Women’s Health 2020, 12, 1271–1281. [CrossRef]
6. Strathearn, L.; Giannotti, M.; Mills, R.; Kisely, S.; Najman, J.; Abajobir, A. Long-term cognitive, psychological, and health outcomes associated with child abuse and neglect. Pediatrics 2020, 146, e20200438. [CrossRef]
7. Mercy, J.A.; Hillis, S.D.; Butchart, A.; Bellis, M.A.; Ward, C.L.; Fang, X.; Rosenberg, M.L. Interpersonal Violence: Global Impact and Paths to Prevention, 3rd ed.; The International Bank for Reconstruction and Development/The World Bank: Washington, DC, USA, 2017.
8. World Health Organization. Understanding and Addressing Violence against Women. Available online: https://apps.who.int/iris/bitstream/handle/10665/77432/WHO_RHR_12.36_eng.pdf (accessed on 6 April 2022).

9. World Health Organization. World Report on Violence and Health. Available online: https://www.who.int/violence_injury_prevention/violence/world_report/en/full_en.pdf?ua=1 (accessed on 6 June 2022).

10. Tennakoon, L.; Hakes, N.A.; Knowlton, L.M.; Spain, D.A. Traumatic injuries due to interpersonal and domestic violence in the United States. J. Surg. Res. 2020, 254, 206–216. [CrossRef]

11. Park, C.W.; Lee, S.H.; Choi, D.Y.; Yang, H.Y. Victimization characteristics and severity of physical injury by domestic violence. Korean J. Fam. Pract. 2018, 8, 244–251. [CrossRef]

12. Chen, L.P.; Murad, M.H.; Paras, M.L.; Colberson, K.M.; Sattler, A.L.; Goranson, E.N.; Elamin, M.B.; Seime, R.J.; Shinozaki, G.; Prokop, L.J.; et al. Sexual abuse and lifetime diagnosis of psychiatric disorders: Systematic review and meta-analysis. Mayo Clin. Proc. 2010, 85, 618–629. [CrossRef]

13. Soleimani, R.; Ahmadi, R.; Yosefnezhad, A. Health consequences of intimate partner violence against married women: A population-based study in northern Iran. Psychol. Health Med. 2017, 22, 845–850. [CrossRef]

14. Levy, H.A.; Levy, M.A.; Kaufman, J.S.; Lo, B.; Zonderman, A.B. Intimate partner violence against adult women and its association with major depressive disorder, depressive symptoms and postpartum depression: A systematic review and meta-analysis. Soc. Sci. Med. 2012, 75, 959–975. [CrossRef]

15. Romito, P.; Molzan Turan, J.; De Marchi, M. The impact of current and past interpersonal violence on women’s mental health. Soc. Sci. Med. 2005, 60, 1717–1727. [CrossRef]

16. Deyo, R.A.; Cherkin, D.C.; Ciol, M.A. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. J. Clin. Epidemiol. 1992, 45, 613–619. [CrossRef]

17. Lin, Y.-J.; Tian, W.-H.; Chen, C.-C. Urbanization and the utilization of outpatient services under National Health Insurance in Taiwan. Health Policy 2011, 103, 236–243. [CrossRef]

18. Charlson, M.; Szatrowski, T.P.; Peterson, J.; Gold, J. Validation of a combined comorbidity index. J. Clin. Epidemiol. 1994, 47, 1245–1251. [CrossRef]

19. An, J.H.; Moon, C.S.; Kim, D.E.; Lee-Tauler, S.Y.; Jeon, H.J.; Cho, S.J.; Sung, S.J.; Hong, J.P. Prevalence of intimate partner violence victimization and its association with mental disorders in the Korean general population. Arch. Women’s Ment. Health 2019, 22, 751–758. [CrossRef]

20. Chandan, J.S.; Thomas, T.; Bradbury-Jones, C.; Russell, R.; Bandyopadhyay, S.; Nirantarakhakumar, K.; Taylor, J. Female survivors of intimate partner violence and risk of depression, anxiety and serious mental illness. Br. J. Psychiatry 2020, 217, 562–567. [CrossRef]

21. Howard, L.; Trevillion, K.; Khalifeh, H.; Woodall, A.; Agnew-Davies, R.; Feder, G. Domestic violence and severe psychiatric disorders: Prevalence and interventions. Psychol. Med. 2009, 40, 881–893. [CrossRef]

22. Lacey, K.K.; Mouzon, D.M.; Parnell, R.N.; Laws, T. Severe intimate partner violence, sources of stress and the mental health of U.S. black women. J. Women’s Health 2021, 30, 17–28. [CrossRef]

23. Panayayong, B.; Tantirangsee, N.; Bogoian, R.R.D. Psychiatric disorders associated with intimate partner violence and sexual violence in Thai women: A result from the Thai National Mental Health Survey. Gen. Psychiatry 2018, 81, e000008. [CrossRef]

24. Roesch, P.T.; Velonis, A.J.; Sant, S.M.; Habermann, L.E.; Hirschtick, J.L. Implications of interpersonal violence on population mental health status in a low-income urban community-based sample of adults. J. Interpers. Violence 2019, 36, 8891–8914. [CrossRef][PubMed]

25. Yu, R.; Nevada-Holgado, A.J.; Molero, Y.; D’Onofrio, B.M.; Larsson, H.; Howard, L.M.; Fazel, S. Mental disorders and intimate partner violence perpetrated by men towards women: A Swedish population-based longitudinal study. PLoS Med. 2019, 16, e1002995. [CrossRef][PubMed]

26. Sareen, J. Posttraumatic stress disorder in adults: Impact, comorbidity, risk factors, and treatment. Can. J. Psychiatry 2014, 59, 460–467. [CrossRef][PubMed]

27. Rowland, T.A.; Marwaha, S. Epidemiology and risk factors for bipolar disorder. Ther. Adv. Psychopharmacol. 2018, 8, 251–269. [CrossRef][PubMed]

28. Suppes, T.; Cosgrove, V.E. Bipolar Disorder in Adults: Clinical Features; UpToDate: Waltham, MA, USA, 2014. Available online: http://www.uptodate.com/content/bipolar-disorder-in-adults-pharmacotherapy-for-acute-mania-and-hypomania (accessed on 5 November 2021).

29. Dou, W.; Yu, X.; Fang, H.; Lu, D.; Cai, L.; Zhu, C.; Lin, X. Family and psychosocial functioning in bipolar disorder: The mediating effects of social support, resilience and suicidal ideation. Front. Psychol. 2021, 12, 807546. [CrossRef]

30. World Health Organization. Injuries and Violence. Available online: https://www.who.int/news-room/fact-sheets/detail/injuries-and-violence (accessed on 16 April 2022).

31. Rezaeian, M. The association between natural disasters and violence: A systematic review of the literature and a call for more epidemiological studies. J. Res. Med. Sci. 2013, 18, 1103–1107. [PubMed]

32. Magruder, K.M.; McLaughlin, K.A.; Elmore Borbon, D.L. Trauma is a public health issue. Eur. J. Psychotraumatol. 2017, 8, 1375338. [CrossRef][PubMed]
33. Huang, Y.C.; Yu, C.P.; Wang, B.L.; Chung, R.J.; Lin, I.J.; Chung, C.H.; Sun, C.A.; Yu, P.C.; Huang, S.H.; Chien, W.C.; et al. Trend Distribution of Violent Injuries in Taiwan from 2000 to 2015. *Int. J. Environ. Res. Public Health* **2022**, *19*, 7874. [CrossRef] [PubMed]

34. Koome, G.; Atela, M.; Thuita, F.; Egondi, T. Health system factors associated with post-trauma mortality at the prehospital care level in Africa: A scoping review. *Trauma Surg. Acute Care Open* **2020**, *5*, e000530. [CrossRef]

35. Wang, D.-S.; Chung, C.; Chang, H.; Kao, Y.; Chu, D.; Wang, C.; Chen, S.; Tzeng, N.; Chien, W. Association between child abuse exposure and the risk of psychiatric disorders: A nationwide cohort study in Taiwan. *Child Abus. Negl.* **2020**, *101*, 104362. [CrossRef]