

RESEARCH ARTICLE

Physical violence cases in Pekanbaru, Indonesia: a 5 years retrospective study

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Abstract

Violence is a global public health problem. This study aims to identify the prevalence and patterns of injury among physical violence victims in Pekanbaru, Indonesia. **Methods:** A retrospective descriptive study was conducted at the Forensic Medical Service Center Bhayangkara Hospital Pekanbaru. All medicolegal reports of physical violence victims from January 1, 2010 to December 31, 2014 were studied for the prevalence of physical violence cases using basic data, such as sex, age, occupation, and forensic examination findings. **Results:** The average prevalence of sexual violence was 51.47/100,000 population/year. The total number of cases was 5,206, of which 75.7% were males. The 18-34-year-old age groups accounted for the highest proportion of cases for both genders. Bruises and abrasions were the most frequently found injuries (67.8% and 57.3%, respectively), with the head being the most common injury sites. The majority of victims had blunt and mild degree of injuries (85.6% and 83.8%, respectively). **Conclusions:** the prevalence of physical violence cases was high among study populated. Although most of the victims had non-fatal injury but physical violence can affect all age group and both genders.

Keywords: forensic examination; pattern of injury; physical violence; prevalence

Abstrak

Kekerasan adalah masalah global kesehatan masyarakat. Penelitian ini bertujuan untuk mengetahui prevalensi dan pola luka korban kekerasan fisik di Pekanbaru, Indonesia. **Metode:** penelitian deskriptif retrospektif dilakukan di Pusat Pelayanan Forensik Rumah Sakit Bhayangkara Pekanbaru. Semua laporan medikolegal korban kekerasan fisik mulai 1 Januari 2010 sampai 31 Desember 2014 di-review untuk mendapatkan prevalensi kasus kekerasan fisik, dan hasil pemeriksaan forensik. **Hasil:** Rata-rata prevalensi kekerasan seksual adalah 51,47/100.000 penduduk/tahun. Jumlah kasus adalah 5.206, dimana 75,7% adalah laki-laki. Kelompok usia 18-34 tahun merupakan proporsi kasus terbanyak untuk kedua jenis kelamin. Memar dan lecet adalah luka yang paling sering ditemukan (masing-masing, 67,8% dan 57,3%), dengan lokasi luka paling sering ditemukan pada daerah kepala. Mayoritas korban mengalami kekerasan tumpul dan derajat luka ringan (masing-masing 85,6% dan 83,8%). **Simpulan:** angka prevalensi kasus kekerasan fisik tinggi pada populasi penelitian. Meski sebagian besar korban mengalami luka non-fatal namun kekerasan fisik dapat ditemukan pada semua kelompok usia dan kedua jenis kelamin.

Kata kunci: kekerasan fisik; pemeriksaan forensik; pola luka; prevalensi

INTRODUCTION

Violence is a global public health problem. Violence can lead to injury, health consequences, psychological disorders and death. Accurate estimates of the exact number of deaths and morbidity due to violence are difficult to determine, especially in cases of nonfatal violence.¹ Violence also affects a country's economy because tackling this issue requires significant funding. A study in the United States reported that the overall cost of nonfatal injuries and deaths due to violence was more than \$70 billion, with an estimated \$5.6 billion needed for medical care in cases of intentional injury.² Deaths caused by intentional injury between low/middle-income and high-income countries showed a similar proportion, but the number of deaths was higher in low/middle countries than in high-income countries.³

In Indonesia, the latest data regarding intentional injury were obtained from the Ministry of Health (published in 2014), which revealed that physical injury due to blunt/sharp trauma ranked 4th in *intentional injuries* in *Indonesia*, with a total of 7.3%.⁴ Physical violence is one of the natural acts of violence, but studies on physical violence are less popular than those on other forms of violence. However, more cases of physical violence occur daily than for any other form of violence. There is a lack of data regarding the prevalence of physical violence in hospital settings, especially in urban areas.

This study aims to identify the prevalence and pattern of injury of physical violence victims based on records from the Forensic Medical Service Center (FMSC) at Bhayangkara Hospital Pekanbaru (BHP). This hospital is a teaching hospital of the Faculty of Medicine, Universitas Riau and is the hospital centre for forensic medical services in Pekanbaru. All violence cases reported to the police are referred to BHP. Pekanbaru is the capital city of the Riau Province, one of the 34 provinces in Indonesia. This city is the third largest (inland) urban area on Sumatra Island, with a population of 1,011,467 people. Pekanbaru is a heterogeneous city with 3 major tribes, namely, the Malay, Minang, and Batak.

METHODS

A retrospective descriptive study was conducted at the FMSC at BHP. The medicolegal reports of the physical violence cases referred by police investigators to the FMSC at BHP during a 5-year period starting from January 1, 2010 until the end of December 2014 were reviewed. The inclusion criteria for the physical violence cases were based on the medicolegal reports and the police's official inquiry letters. A case was categorized into a case of physical violence if the police's official inquiry letter contained article 351 or 352 of Indonesian Penal Code as the legal basis for the police to request a forensic medical examination. Official approval was obtained from the Director of BHP. Complete confidentiality

was ensured throughout the study. Ethical approval was granted by the Institutional Ethics Committee of the Faculty of Medicine, Universitas Riau.

All medicolegal reports of physical violence cases were studied for the prevalence and patterns of injury. The prevalence and demographic characteristics included sex, age, and occupation. The pattern of injury based on forensic medical examination

findings included the type, number and site of wounds; number of body regions; type of injury; and degree of injury. Determination of the degree of injury of physical violence among living victims was based on an interpretation from the Indonesian Penal Code and clinical judgment from a medical doctor. The degree of injury was classified as mild, moderate or severe.⁵⁻⁷

Table 1. Determination of the degree of injury of physical violence cases

Degree of injury	Indonesian Penal Code	Interpretation
Mild	Article 352 Except for Article 353 and 356, maltreatment that does not result in an illness or obstacle in the performance of official or professional activities, shall, as light maltreatment, be punished with a maximum imprisonment of three months or a maximum fine of three hundred rupiahs.	If the wounds found on the victim are minimal and can be cured by themselves without medication; injuries that do not require medical treatment; does not require hospitalization; total area of bruises and abrasions less than 47.2 cm ² .
Moderate	Article 351 Maltreatment shall be punished with a maximum imprisonment of two years and eight months or a maximum fine of three hundred rupiahs.	Heavier wounds of a mild degree but do not yet fulfill any of the conditions in article 90.
Severe	Article 351 If the act results in a serious physical injury, the offender shall be punished with a maximum imprisonment of five years. Article 90 "Serious physical injury" denotes: illness or injury that does not leave any prospect for a complete recovery or through which danger of life exists; continuous incompetence for performing official and professional activities; loss of the use of a sensory organ; mutilation; paralysis; disturbance of the intellectual capabilities that lasts for more than four weeks; and removal or death of the womb of a woman.	The circumstances of the injury suffered by the victim fulfill one or more conditions contained in article 90.

The collected data were analyzed statistically. For qualitative variables, a descriptive analysis was performed, and the results are presented as frequencies (percentages). The frequency of quantitative variables was calculated and represented by the mean \pm Standard

Deviation (SD) or median values if the data were not normally distributed. The chi-square test and other appropriate statistical tests were used to identify significant associations or perform comparisons between two qualitative

variables. A p-value less than 0.05 was considered significant.

RESULTS AND DISCUSSIONS

Overall, the total number of medicolegal injury reports of living victims in the FMSC during the study period was 6,876, and

75.7% of those cases (5,206) were identified as physical violence. The trend line of the number of physical violence victims increased over the years, with adults accounting for most of the physical violence victims and male victims outnumbering female victims in each of the study years.

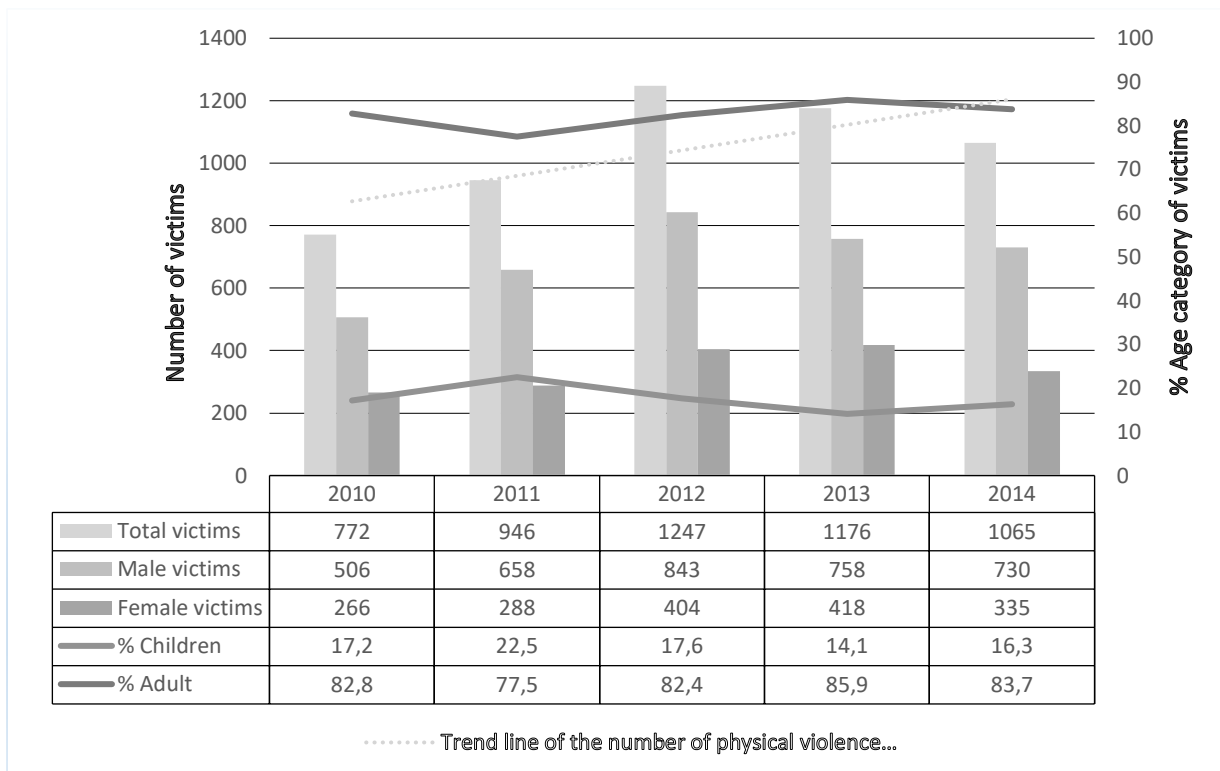


Figure 1. The number of physical violence victim cases, male and female victims and percentage of victims by age group per year

Data on cases of violence in hospital settings are required to supplement data from national surveys, as these data can provide actual information compared to surveys.^{1,8} The results of this study show an increasing trend of cases of physical violence across years. This is in line with the Global Burden of Disease study, which reported a 15% increase in intentional injury cases from 2005 to 2015 in 188

countries.⁹ The prevalence rate of physical violence cases in this study was 51.47/100,000 population, which is much higher than the national prevalence rate of cases of physical violence in Indonesia.⁴ This difference can be explained by differences in study methods and the number of study samples. The increased number of violence cases in this study may be because, starting in 2012, our hospital

waived the cost of examining victims of violence to create a medicolegal report. This can be considered a strategy to reduce

the number of violence cases through information from the data collected.

Table 2. Association of age category and age group with gender in physical violence cases in Pekanbaru, Indonesia

Age	Gender		Total n (%)	p-value
	Male n (%)	Female n (%)		
<i>Age category</i>				
Children	706 (20.2)	199 (11.6)	905 (17,4)	0.000
Adult	2789 (79.8)	1512 (88.4)	4301 (82.6)	
Total	3495 (100.0)	1711 (100.0)	5206 (100.0)	
<i>Age group, year</i>				
	27.05±10.78	29.37±10.57	27.81±10.76	0.000
0-4	8 (0.2)	5 (0.3)	13 (0.2)	0.081
5-9	30 (0.9)	15 (0.9)	45 (0.9)	
10-14	148 (4.2)	31 (1.8)	179 (3.4)	
15-<18	519 (14.9)	148 (8.6)	667 (12.8)	
18-24	1061 (30.3)	446 (26.1)	1507 (28.9)	
25-34	982 (28.1)	589 (34.4)	1571 (30.2)	
35-44	471 (13.5)	324 (18.9)	795 (15.3)	
45-54	195 (5.6)	121 (7.1)	316 (6.1)	
55-64	67 (1.9)	19 (1.1)	86 (1.7)	
≥65	14 (0.4)	13 (0.8)	27 (0.5)	
Total	3495 (100.0)	1711 (100.0)	5206 (100)	

Physical violence cases are more prevalent than other cases of violence reported at the hospital. Our study shows that 75.7% of violence cases experienced physical violence. This finding is similar to those from other studies in Lahore-Pakistan, which reported that as many as 86.4% of 2166 medicolegal were cases of physical violence.¹⁰ However, studies in South Africa¹¹ and Tanzania¹² reported much lower proportions of cases of physical violence, at 10.4% and 23.7%, respectively. This difference was due to the studies in South Africa and Tanzania comparing cases of physical violence with all trauma cases, while in this study and studies from Pakistan, a proportional rate was obtained for medicolegal cases.

Table 2 illustrates the age and sex distributions of physical violence cases; specifically, 67.1% were males (n=3,495), with a male-to-female ratio of 2:1. The mean age was 27.81±10.46 years, and there was a significant difference between males and females with respect to age ($p<0.001$). The 25-34 age group accounted for 30.2% of the total physical violence victims, while elderly victims aged ≥65 years constituted only 0.5% of the total physical violence victims ($p<0.001$). Most of the physical violence victims had irregular limited income work (56.2%), and 3.9% of the physical violence victims were unemployed.

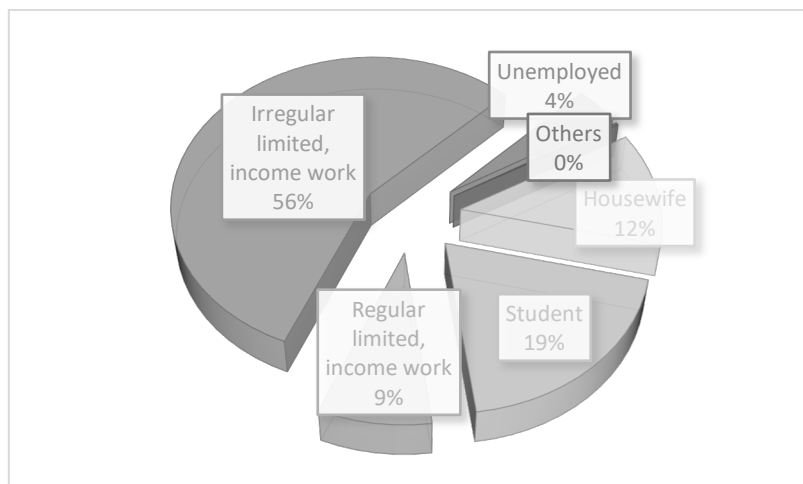


Figure 2. Distribution of cases according to the victim occupation

Males are more likely be victimized in cases of physical violence than women

These results were similar to those of other studies in Switzerland (56.6%), Leratong-South Africa (68%), Brazil (72.8%), India (74%), KwaZulu-Natal, South Africa (81.3%) and Pakistan (87.4%), which reported that males were more likely to be victims than females.^{8,10,11,13-15} A study based on survey results in Iran also reported that males were the most common victims (66.7%).¹⁶ This could be due to their active participation in risk-taking behaviours, greater activity outdoors, consideration of violence as an accepted strategy for resolving conflict, and the inherently more aggressive nature of males.^{11,12,14,17}

In total, most victims were 25-34 years old. In females, most of the victims were in the same age group, but most of the male victims were found in a younger age group (18-24 years, 30.3%). When both groups were combined, the 18-34 age group represented the highest proportion of cases among both genders, wherein individuals aged 18-34 were 58.4% of males

and 60.5% of females and accounted for 43% of all physical violence victims. This is consistent with the results of studies from India and Pakistan.^{10,14} Victims in this age group will affect the national productivity and the economy; therefore, it becomes challenging for the government and related parties to implement preventive programs.

Of the total cases of physical injuries, 85.6% were caused by blunt injury, which agrees with the results of studies conducted in Pakistan, India, Brazil, and South Africa.^{8,10,11,14} Our study revealed that bruising was the most common type of injury (67.8%), followed by abrasions (57.3%). Similar results were also reported in studies in India, Nepal and Tanzania.^{12,14,17} A survey in Iran also reported that 50% of the wound types found were superficial wounds.¹⁶ In this study, there were no firearm wounds, as reported by the research from Pakistan and India.^{10,14} This can be explained by the tight regulations in Indonesia regarding the possession of firearms.

Table 3. Association to the presence, number, site, type, and degree of injury with gender and age

Variable	Gender		Total n (%)	p- value	Age category		Total n (%)	p- value
	Male n (%)	Female n (%)			Children n (%)	Adults n (%)		
<i>Type of wound</i>								
Bruise	2310(66.1)	1221(71.4)	3531(67.8)	0.000 ^a	612(67.6)	2919(67.9)	3531(67.8)	0.887
Abrasion	2052(58.7)	929(54.3)	2981(57.3)	0.002 ^a	469(51.8)	2512(58.4)	2981(57.3)	0.000 ^a
Vulnus laceratum	462(13.2)	94(5.5)	556(10.7)	0.000 ^a	66(7.3)	490(11.4)	556(10.7)	0.000 ^a
Vulnus scissum	123(3.5)	24(1.4)	147(2.8)	0.000 ^a	15(1.7)	132(3.1)	147(2.8)	0.020 ^a
Burn	10(0.3)	5(0.3)	15(0.3)	0.969	3(0.3)	12(0.3)	15(0.3)	0.789
<i>Number of wounds</i>	1.42±0.75	1.33±0.68	1.39±0.73	0.000 ^b	1.29±0.72	1.41±0.72	1.39±0.73	0.000 ^b
None	302(8.6)	143(8.4)	445(8.5)	0.000 ^a	108(11.9)	337(7.8)	445(8.5)	0.000 ^a
1 wound	1653(47.3)	916(53.5)	2569(49.3)		460(50.8)	2109(49.0)	2569(49.3)	
2 wounds	1325(37.9)	605(35.4)	1930(37.1)		307(33.9)	1623(37.7)	1930(37.1)	
3 wounds	201(5.8)	40(2.3)	241(4.6)		27(3.0)	214(5.0)	241(4.6)	
4 wounds	14(0.4)	7(0.4)	21(0.4)		3(0.3)	18(0.4)	21(0.4)	
Total	3495(100.0)	1711(100.0)	5206(100.0)		905(100.0)	4301(100.0)	5206(100.0)	
<i>Site of wound</i>								
Head	2562(73.3)	1003(58.6)	3565(68.5)	0.000 ^a	615(68.0)	2950(68.6)	3565(68.5)	0.710
Neck	431(12.3)	183(10.7)	614(11.8)	0.086	102(11.3)	512(11.9)	614(11.8)	0.591
Chest	276(7.9)	126(7.4)	402(7.7)	0.499	70(7.7)	332(7.7)	402(7.7)	0.987
Abdomen	113(3.2)	48(2.8)	161(3.1)	0.402	27(3.0)	134(3.1)	161(3.1)	0.835
Back	383(11.0)	166(9.7)	549(10.5)	0.166	79(8.7)	470(10.9)	549(10.5)	0.050
Upper extremities	1041(29.8)	771(45.1)	1812(34.8)	0.000 ^a	265(29.3)	1547(36.0)	1812(34.8)	0.000 ^a
Lower extremities	380(10.9)	317(18.5)	697(13.4)	0.000 ^a	94(10.4)	603(14.0)	697(13.4)	0.004 ^a
Genital	3(0.1)	0(0.0)	3(0.1)	0.555	0(0.0)	3(0.1)	3(0.1)	1.000
<i>Number of body regions with wounds</i>	1.48±1.02	1.53±0.96	1.50±1.00	0.000 ^b	1.38±1.00	1.52±0.99	1.50±1.00	0.000 ^b
None	302(8.6)	143(8.4)	445(8.5)	0.000 ^a	108(11.9)	337(7.8)	445(8.5)	0.000 ^a
1 body region	1929(55.2)	852(49.8)	2781(53.4)		504(55.7)	2277(52.9)	2781(53.4)	
2 body regions	783(22.4)	470(27.5)	1253(24.1)		188(20.8)	1065(24.8)	1253(24.1)	
3 body regions	299(8.6)	180(10.5)	479(9.2)		64(7.1)	415(9.6)	479(9.2)	
4 body regions	132(3.8)	51(3.0)	183(3.5)		29(3.2)	154(3.6)	183(3.5)	
5 body regions	35(1.0)	13(0.8)	48(0.9)		9(1.0)	39(0.9)	48(0.9)	
6 body regions	11(0.3)	1(0.1)	12(0.2)		2(0.2)	10(0.2)	12(0.2)	
7 body regions	4(0.1)	1(0.1)	5(0.1)		1(0.1)	4(0.1)	5(0.1)	
Total	3495(100.0)	1711(100.0)	5206(100.0)		905(100.0)	4301(100.0)	5206(100.0)	
<i>Type of injury</i>								
None	302(8.6)	143(8.4)	445(8.5)	0.001 ^a	108(11.9)	337(7.8)	445(8.5)	0.000 ^a
Blunt injury	2959(84.7)	1496(87.4)	4455(85.6)		741(81.9)	3741(86.4)	4455(85.6)	
Sharp injury	195(5.6)	53(3.1)	248(4.8)		49(5.4)	199(4.6)	248(4.8)	
>1 type of injury	39(1.1)	19(1.1)	58(1.1)		7(0.8)	51(1.2)	58(1.1)	
Total	3495(100.0)	1711(100.0)	5206(100.0)		905(100.0)	4301(100.0)	5206(100.0)	
<i>Degree of injury</i>								
None	302(8.6)	143(8.4)	445(8.5)	0.000 ^a	108(11.9)	337(7.8)	445(8.5)	0.000 ^a
Mild	2871(82.1)	1493(87.3)	4364(83.8)		746(82.4)	3618(84.1)	4364(83.8)	
Moderate	317(9.1)	74(4.3)	391(7.5)		50(5.5)	341(7.9)	391(7.5)	
Severe	5(0.1)	1(0.1)	6(0.1)		1(0.1)	5(0.1)	6(0.1)	
Total	3495(100.0)	1711(100.0)	5206(100.0)		905(100.0)	4301(100.0)	5206(100.0)	

^a Chi-square test; ^b Mann-Whitney U test, P-values ≤ 0.05 were considered significant

Most of the physical violence victims had fewer than 3 wounds (90%; $p < 0.001$). The most common site of wounds was the head

(68.5%), followed by the upper and lower extremities, at 34.8% and 13.4%, respectively. This is in accordance with the

results of other studies from India and Pakistan that reported that injuries of the head and neck were the most frequent for physical violence victims (55.4% and 40.9%, respectively).^{10,14} The predominance of head and neck injuries was also reported by studies performed in Tanzania and Nepal.^{12,17} More than half of physical violence victims had 1 body region linked to the wound (53.4%), while 0.1% of the total physical violence victims had 7 body regions linked to the wound. Wounds on the genitals were found only in adult males (n=3, 0.1%). Blunt injuries affected most of the total physical violence victims (85.6%). Less than 10% of the total physical violence victims had no wounds ($p<0.001$). Most physical violence victims had mild injuries (83.8), and there were significant differences between males and females and between children and adults with respect to the degree of injury (both $p<0.001$). In general, the results of this study show that most of the victims had mild injuries. In the Indonesian legal system, determination of the degree of injury is one of the conclusions that doctors should write in a medicolegal report. This then serves as a basis for investigators, prosecutors, and judges to impose penalties on perpetrators.^{5,6,18}

Our study has several limitations. This work was based on medicolegal reports of physical violence victims and contains only data relevant to justice and law enforcement. A retrospective study cannot analyze many other important variables. A national violence survey with a representative sample of both public and private healthcare settings is recommended to provide the variables needed to thoroughly analyze the factors that lead to violence.

CONCLUSIONS

In conclusion, the prevalence of physical violence cases in victims in Pekanbaru was higher than the national prevalence rate in Indonesia, with most victims being adult males and a male-to-female ratio of 2:1. Bruising was the most frequent wound type, and the head was the most common wound site. Most of the physical violence victims had several wounds, and the number of body regions with wounds was predominantly less than 3. Blunt and mild injuries were present in the majority of victims. Although most of the victims had non-fatal injury but physical violence can affect all age group and both genders.

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