INTRODUCTION

Mandibular bone is an essential component of the facial bones anatomically and functionally. The mandible plays a fundamental role in digestive and speech function, as well as facial aesthetics. It is a ‘V’ shaped bone that articulates with the temporal bone in the temporomandibular joint. The mandibular bone is divided into horizontal and vertical segments. The horizontal part of the mandibular bone is composed of two main parts, the basal bone and the alveolar bone. The symphysis, parasympysis, corpus and alveolar processes are the components that make up the horizontal segment of the mandibular bone. The vertical segment of the mandible consists of the angulus, ramus, condyle process and coronoid process.

The mandible is the bone with the second most frequent fracture after the nasal bone in the maxillofacial region. Mandibular fracture id the discontinuity of the mandibular bone. Mandibular fracture can lead to airway destabilization, malocclusion, joint dysfunction, pain, infection, and paresthesia. Several literatures have mentioned that mandibular fracture can be classified based on fracture type, fracture etiology, fracture conditions based on fracture fragment reduction, anatomical location, interfragmentary conditions, and the presence or absence of teeth. Classifications of mandibular fractures based on anatomical location are (a) symphysis; (b) parasympysis; (c) mandibular corpus; (d) angulus; (e) condyles; (f) coronoid. The symphysis is the area between the roots of the central incisors along the alveolar process towards the inferior border of the mandibular bone in a vertical orientation. The parasympysis is the area between the vertical median line and the canines extending from the alveolar process to the inferior border of the mandibular bone. The orientation of the fracture line can be linear or oblique. The bilateral tug from digastricus and suprahyoid muscle might pull the fracture fragments inferiorly.
leading to acute airway obstruction.\textsuperscript{9} The mandibular corpus is the area of the mandibular bone that is confined by the anterior border of the masseter muscle and the canines. Fractures of the mandibular body are often found in conjunction with another fracture line on the contralateral side or fracture of the ramus or condyle on the ipsilateral side. The mandibular angulus is defined as a triangular-shaped area based on the anterior border of the masseter muscle with the posterosuperior attachment usually located distal to the third molar. The ramus is the area between the posterior mandible borders to the level of the sigmoid notch. Schematically depicted in Figure 1.

Yu Lin, et al. conducted a study on the pattern of mandibular fractures that occurred in the city of Taiwan in October 2010 to September 2013. The most common fractures were fractures of the symphysis and parasymphyssy regions (38.9\%), followed by condyle fractures (26\%), mandibular corpus (14.3\%), and ramus fractures (6.6\%), with the most common etiology due to motor vehicle accidents (82\%), with the distribution of male:female sex is 9:5, with most frequent age of 21-30 years (31.3\%).\textsuperscript{10} In a study conducted by Ragupathy and Pasupathy on incidence, etiology, and pattern of mandibular fractures in the Pondicherry, India in January 2011 to December 2014, it was revealed that the most frequent fractures were parasymphyssy fractures (37.7\%), angulus fracture (19.8\%), and condyle fracture (19.4\%), with the most frequent etiology due to traffic accidents (56.5\%) and the male:female distribution is 16:1, with the largest incidence at the age range of 21-30 years (37.7\%).\textsuperscript{4} Astuti et al. mentioned that the results of their research on analysis and trends of mandibular fractures at the Arifin Achmad Regional Hospital in Riau Province, which were carried out in January 2011 to December 2013, revealed that the incidence rate of mandibular fractures based on anatomical location was as follows: No information (42.10\%), alveolar fracture (5.40\%), angulus fracture (9.20\%), condyle (7.10\%), symphysis/parasymphyssy fracture (26.70\%), corpus fracture (7.90\%), ramus fracture (1.70\%), with male to female distribution of 3:1, and the largest incidence was at the age of between 18-40 years (59\%).\textsuperscript{11}

The etiology of mandibular fractures varies and changes over time and is related to the culture of the people. The etiological differences depend on age, demographic patterns of a country, environmental conditions, social conditions, socioeconomic status and cultural configuration.\textsuperscript{8,12,13} In remote areas or developing countries, the general etiology of mandibular trauma is motor vehicle accidents, whereas for urban areas in developing countries, the most common etiology of mandibular trauma is interpersonal violence and gunshot wounds or falls from a high place.\textsuperscript{3,8,14}

Diagnosis of mandibular fractures can be done by using panoramic radiographs, posteroanterior Caldwell radiographs, lateral Oblique radiographs, occlusal mandibular radiographs, periapical radiographs, Reverse Towne's radiographs, and computed tomography (CT).\textsuperscript{3,5}

Management of mandibular fractures can be performed by closed reduction or open reduction.\textsuperscript{9,15}

Various epidemiological studies on the incidence, etiology, and pattern of mandibular fractures have shown varying results concerning the condition of the population in an area. Therefore it is necessary to study the characteristics of mandibular fracture cases at Dr. Hasan Sadikin General Hospital, Bandung. This study was conducted to determine the characteristics of mandibular fracture cases in the Oral and Maxillofacial Surgery Department of Dr. Hasan Sadikin General Hospital. Epidemiological studies regarding the characteristics of mandibular fractures are expected to become a reference for preventive measures of the public health system in the city of Bandung.

**METHODS**

This research is a retrospective descriptive study. The sample consisted of medical records of patients with mandibular fractures in the Oral and Maxillofacial Surgery Department, Dr. Hasan Sadikin General Hospital, from January 2017 to December 2020. The sample selection was based on inclusion and exclusion criteria. The inclusion criteria were hospitalized patient with mandibular fractures in the Oral and Maxillofacial Surgery Department, Dr. Hasan Sadikin General Hospital, from January 2017 to December 2020 who were received the treatment of mandibular fractures. Medical record with incomplete information of patient identification, trauma etiology, no panoramic roentgen, and refused the treatment of mandibular fractures were excluded. Characteristics recorded included age, gender, etiology of trauma, fracture location, and fracture treatment. The collected data were then tabulated and analyzed descriptively using SPSS version 17 software for windows. This study is permitted by the Ethical Commission of Faculty of Dentistry, Universitas Padjadjaran, with letter number No.LB.02.01/X.6.5/19/2021.

**RESULTS**

Based on the results, cases of mandibular fractures at the Dr. Hasan Sadikin General Hospital from January 2017 to December

![Diagram of mandibular fractures](image-url)
The etiology of mandibular fracture in Dr. Hasan Sadikin General Hospital during the period of January 2017 to December 2020 was traffic accidents, 101 cases (35.19%) of riders did not wear a helmet, and was primarily at the age range of adolescents (11-19 years), consisted of 58 people (57.42%).

The etiology of mandibular fracture most often occurs due to traffic accidents, 101 cases (35.19%) of riders did not wear a helmet, and was primarily at the age range of adolescents (11-19 years), consisted of 58 people (57.42%).

The incidence and characteristics of mandibular fracture cases in this study was traffic accidents. This result follows Mohammed et al., which stated significant differences in the etiology of mandibular fractures in developing and developed countries. The etiology of mandibular fracture in developing countries is dominated by traffic accidents, while in developed countries, the mandibular fracture is primarily violent. Poor road conditions may cause a high incidence of mandibular fracture due to traffic accidents, low public awareness of safe driving and low public compliance with traffic regulations. This condition can be seen in the results of this study, which states that of the 287 cases of mandibular fractures caused by traffic accidents, 101 cases (35.19%) of riders did not wear a helmet, and was primarily recorded in patients with the age range of adolescents (11-19 years), consisted of 58 people (57.42%).

**DISCUSSION**

The incidence and characteristics of mandibular fracture cases are closely related to the population's geographical, cultural, and socioeconomic conditions in a region. The increase in socioeconomic conditions will improve the quality of life, affecting the etiological factors of the trauma. This study indicates that the distribution of mandibular fracture incidence is higher in male patients than in female patients. This result is following the statements of several previous pieces of literature. The high incidence of mandibular fractures in male patients indicates natural male aggressiveness and refers to the cultural fact that women do more activities at home than physical activities outside of home.

This study stated that the incidence of mandibular fracture in patients aged 20-60 years was 215 cases (62.14%). This result also follows Jung et al.'s statement, who stated that the highest incidence of mandibular fractures was found in patients aged 20-29 years. This range is the productive age where most of the population in this age group has physical activity outside the home. The biggest etiology of mandibular fracture cases in this study was traffic accidents. This result follows Mohammed et al., which stated significant differences in the etiology of mandibular fractures in developing and developed countries. The etiology of mandibular fracture in developing countries is dominated by traffic accidents, while in developed countries, the mandibular fracture is primarily violent. Poor road conditions may cause a high incidence of mandibular fracture due to traffic accidents, low public awareness of safe driving and low public compliance with traffic regulations. This condition can be seen in the results of this study, which states that of the 287 cases of mandibular fractures caused by traffic accidents, 101 cases (35.19%) of riders did not wear a helmet, and was primarily recorded in patients with the age range of adolescents (11-19 years), consisted of 58 people (57.42%).

Based on the research data, the mandibular fracture most often occurs in the parasymphysis region, consisting of 94 cases (25.26%). This result follows Sultana et al.'s statement, who revealed that the protruding nature of the mandible in the facial region makes it vulnerable to injury. The high incidence of mandibular fractures in male patients indicates natural male aggressiveness and refers to the cultural fact that women do more activities at home than physical activities outside of home.
Conflict of Interests
The author states that he has no conflict of interest regarding the publication of this research.

Author Contribution
All authors are equally contributed to this study from the conception, design, defining intellectual content, literature research, data acquisition and analysis before reporting this study.

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CONCLUSION
This study found that mandibular fractures were more common in male patients with a ratio of 4.5:1; the highest age range is adults (20-60 years); the adolescent age range (11-19 years) is the age group that has the lowest level of awareness in wearing a helmet. The most common etiology of mandibular fractures is traffic accidents. The most common type of mandibular fracture is a parasymphysis fracture, and the most common treatment is open reduction.

DISCLOSURE
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