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Are Urban Areas in Indonesia Noisy? Nope! A satirical statement

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ABSTRACT

Those living in developed countries, where many things are in good order, will immediately judge that Indonesia has bustling urban areas. Interestingly, previous studies have shown that noisy environments do not affect Indonesian society. However, the trend of psychiatric symptoms in Indonesian society has increased, with Indonesians becoming more emotional than usual, causing community strife, fights, and similar incidents. The study aims to report the noise levels of cities in Indonesia against data on strife, fights, and brawls to indicate a change in the community's emotional tension. This study collected primary and secondary data. A series of sound pressure level measurements in 30 of the most visited public places in ten major cities in Indonesia was conducted to ascertain the noise level. Data on community strife, fights, and brawls were collected as secondary data in quantitative (from the Indonesia Statistics Center) and qualitative (from online news portals) modes. The study concluded that noise levels in Indonesian cities are above the current standard and that fights, brawls, and crimes against public order tend to increase over time. The cause of these incidents was, in most cases, trivial. It is still a question whether the findings of this study will change the perception of Indonesians towards noise or continue to perceive noisy Indonesia as an enjoyable environment, which places the majority (those who like to be involved in noisy environments) and the minority (those who perceive noise as a nuisance) as victims of perpetual noise.

Keywords: Urban Area, City, Noisy, Community, Strife, Fights, Noise Victim

INTRODUCTION

Environmental noise, especially traffic noise, has been a significant problem affecting human health and well-being worldwide for many years. The World Health Organization (WHO) confirms that noise, whether by traffic or other sources (construction, business, and industrial areas), is the second most significant environmental cause of health problems after particulate pollution [1]. Unfortunately, only a few countries are prepared for this long-term problem. In developed countries, citizens' awareness of noise hazards is high. It triggers the authority to put effort into regulating noise, updating the regulation occasionally, and accommodating and solving noise complaints [2]. Even so, many developed countries struggle to overcome the noise problem. The data indicate that policy or regulatory objectives regarding environmental noise have yet to be achieved. If even developed countries are experiencing complexity in enforcing noise laws, then the situation in developing countries is certainly not much better. In 1999, Sheikh stated that noise is a constant issue in many developing countries [3]. That was over two decades ago, but today's conditions are not much different [4-9]. The persistent noisy conditions in these countries can be inferred due to a lack of awareness of the long-term impacts of noise [8-9], minimal legislation, and indifferent citizens [10-14].

Studying the possible correlation between the lack of awareness, lax rules, and society's indifference to noise will be interesting. These three aspects develop a vicious circle of noise in Indonesia. Although the WHO, supported by many studies, stated that noise affects health [1,15-17]. However, because noise takes time to affect one's physical health and even longer for the impact on mental health to manifest, it is a challenge to educate Indonesian society to be more attentive to noise. While the physical defects caused by noise are much easier to detect and measure, it is not easy to quantify the mental effects. Once, a study showed no direct relationship between environmental noise and mental health. However, it stated that symptoms of anxiety and depression seemed to be more common in people living around high noise levels, in this case, a large airport, than those living further away [18]. Years later, it is still difficult to provide high-quality evidence on a direct correlation between noise and mental health [19-20]. Higher noise exposure was indirectly associated with worse mental health, but more noise nuisance was associated with less social cohesion and poorer mental health [21]. However, recent studies have found consistent evidence of the negative impacts of environmental noise on mental health [22]. This study can be relied upon because it substantiates earlier studies with large-scale longitudinal data sets, which were processed with a robust analytical approach.

Nonetheless, this research is not intended to investigate the effect of noise on severe mental disorders as previously studied but to present data on more uncomplicated psychiatric symptoms, such as anger and high emotionality. Anger elicits the likelihood to aggress [23], and aggressive behaviour, such as fighting, occurs in anger and high emotionality [24]. It would be too naive to say that the strife and fights in the community are caused only by noise. However, since there is evidence that noise plays a vital role in one's mental symptoms, it is possible that noise also affects their emotions, leading to anger. An earlier study has shown that noise triggers quarrels, strife, and fights between community members and between community members and authorities [2]. This study aims to report current urban noise levels in Indonesia and data on fights, brawls and crimes against public order in Indonesian society to serve as a reference for further studies to investigate possible correlations between the two by using a more related subject approach.

METHODS

The study was conducted by collecting primary and secondary data both quantitatively and qualitatively. The sound environment in Indonesia is represented by the sound pressure level (SPL) of public places in ten major cities – namely, Medan, Palembang, Jakarta,

Bandung, Yogyakarta, Surabaya, Banjarmasin, Makassar, Denpasar and Kupang. These are the capitals of the Provinces covering western to eastern Indonesia - namely, North Sumatra, South Sumatra, the Special Capital Region, West Java, the Special Region of Yogyakarta, East Java, South Kalimantan, South Sulawesi, Bali, and East Nusa Tenggara, respectively. Based on Carr's classification [25], public places in each city were selected, and the SPL was collected at the city's three most visited public places. It was measured at three to five points in each public place based on area size and variations in activity, resulting in sound variations (Table 1). At each measurement point, SPL was measured for 10 minutes using a class 2 sound level meter connected to the Soundlab software, which was then processed as $L_{eq,\ 10\ min}$. The Leq will be compared with the current noise standard in Indonesia, namely the Decree of the Ministry of the Environment (Bahasa Indonesia: Keputusan Menteri Negara Lingkungan Hidup) number 48 dated 1996 [26].

Table 1: Thirty most visited public places in ten major cities in Indonesia and number of SPL measurement points.

	Cities	**The three most visited public places**		
1	Medan	Taman Merdeka (5)	Taman Sri Deli (5)	Taman Teladan (5)
2	Palembang	Plaza Benteng Kuto Besak (5)	Kolam dan Taman Kambang Iwak Besak (5)	Pedestrian Sudirman (5)
3	Jakarta	Lapangan Monas (3)	Lapangan Banteng (3)	Gelora Bung Karno (3)
4	Bandung	Alun-alun Bandung (3)	Jalan Braga (3)	Taman Vanda-Badak (3)
5	Yogyakarta	Malioboro (3)	Tugu (3)	Alun-alun Kidul (3)
6	Surabaya	Taman Bungkul (5)	Tunjungan Plaza (4)	Taman Flora (3)
7	Banjarmasin	Ruang Terbuka Siring Tendean (4)	Pasar Terapung Kuin Utara (3)	Taman Kamboja (3)
8	Makassar	Pantai Losari (3)	Lapangan Karebosi (3)	Center Point of Indonesia (4)
9	Denpasar	Lapangan Niti Mandala Renon (4)	Lapangan I Gusti Ngurah Made Agung (3)	Taman Kota Denpasar (Lumintang) (3)
10	Kupang	Taman Nostalgia (4)	Pantai Tedis or Tedys (3)	Bundaran Tirosa (4)

Meanwhile, data on the possible effect of noise on society was collected from the annual report, namely "Crime Statistics" by the Central Bureau of Statistics (Bahasa Indonesia: Badan Pusat Statistik Indonesia). The data collection focused on community strife (Bahasa Indonesia: perselisihan), fights (Bahasa Indonesia: perkelahian), and brawls (Bahasa Indonesia: tawuran). These terms are used because they are directly evoked by increased emotional tension [23-24,27]. Data on criminal cases or crime rates were disregarded because many factors, instead of emotional ones, trigger criminal actions. The causes of emotional-based actions in society were investigated using Indonesia's leading online news portals as they detail strife, fights and brawls in society, sometimes even revealing the root causes. Specific keywords in Bahasa Indonesia were entered into the Google search engine to collect data from online news portals. The keywords are quarrels (Bahasa Indonesia: pertengkaran), strife, fights, and brawls. All results were aggregated by scrolling until the message "In order to show you the most relevant results, we have omitted some entries very similar to the ... (number of entries) already displayed. If you like, you can repeat your search by including omitted results" was displayed. Often, the "repeat search with include omitted results" message was clicked on to ensure that all relevant entries were collected even if the entries provided were all irrelevant. Multiple entries were possible, but errors in collecting entries, such as duplicates, unrelated cases, etc., were minimised by careful inspection.

RESULTS AND DISCUSSION

The noise level of the most visited public places in ten major cities has been measured to describe the sound environment of Indonesia. The data shows that Indonesia remains noisy, as described in 2007 [28]. It may even be noisier than in 2007 because the use of motorised vehicles is getting heavier [29-30]. The presentation of SPL statistics in Figure 1 shows that noise levels in 30 public places in ten major cities are all above the current standard for open places (50 dBA) and public facilities (60 dBA)[26]. On several occasions in several public places, the SPL was even more than 70 dBA which Excel calculated as the trend of the entire data. Kupang, Yogyakarta, Makassar, and Palembang are cities where noise levels in public areas have reached over 80 dBA on several occasions. Noise sources mainly come from human activities in public places and the surrounding traffic noise [9]. However, it is interesting that most Indonesians visit public places to involve communal yet noisy activities (Figure2)[9]. Thus, it is understood that high noise levels are not a problem as they contribute to creating and enjoying noise simultaneously. It is a unique condition that may only be found in developing countries, Indonesia in particular.

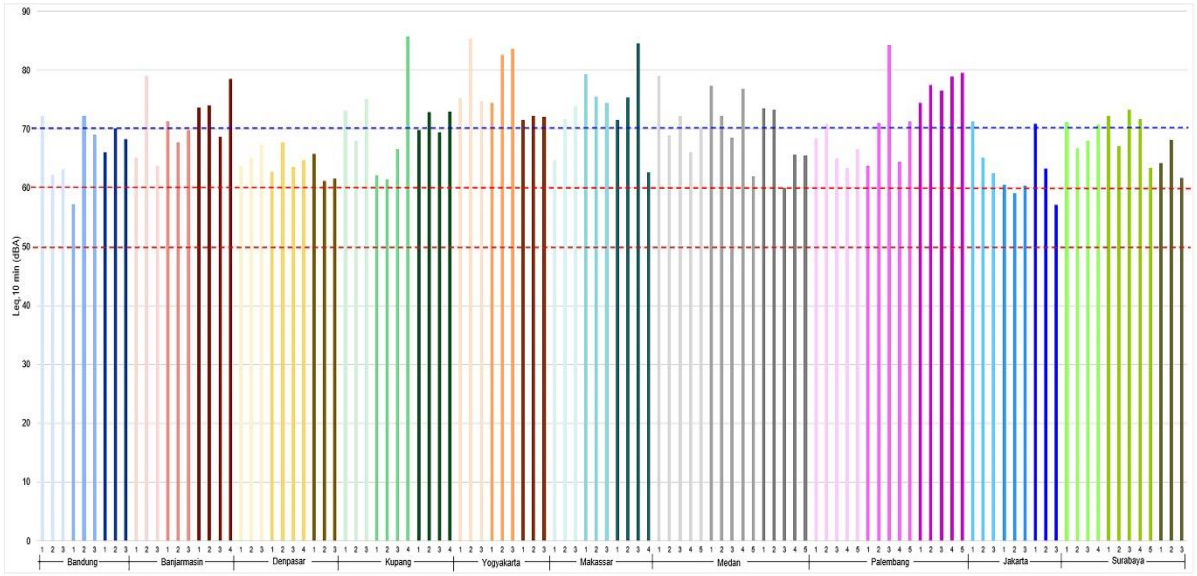
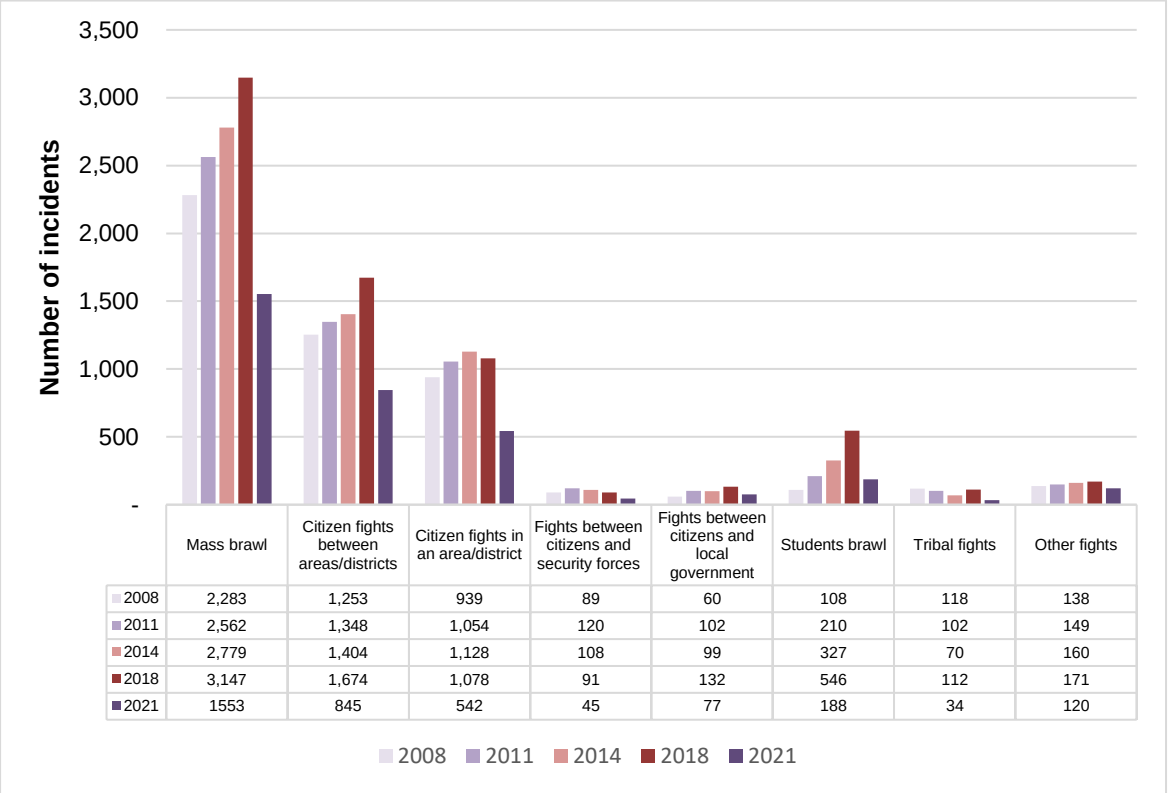


Figure 1: SPL at the 30 most visited public places in ten major cities in Indonesia

Figure 2: Snapshots of communal activities enjoyed by Indonesians in public places. (A) Aerobics community in Alun-alun Selatan, Yogyakarta, (B) sporting community in Taman Merdeka, Medan, (C) children and parents in Taman Flora, Surabaya, and (D) youth gathered at night in Lapangan I G Ngurah Made Agung, Denpasar [31].

Nonetheless, when noise is above standard and many studies have shown that high noise levels trigger various physical and mental health issues [1,15-17,22], it is wise for the Indonesian authorities to consider noise a severe problem. The quantitative data from the Central Bureau of Statistics shows that societal fights have increased over time (Figure 3) [32]. An exception occurred in 2021, allegedly due to the Covid-19 pandemic when people's mobility was minimal. Apart from fight data, the Bureau also reports data on crimes against public order, which shows a similar trend with a decline in 2021 (Figure 4). According to Indonesian Law, crimes that are categorised 'against public order' are (1) desecration of the national flag, national anthem, and national symbol, (2) using bad words against the Government, (3) using bad words against certain groups, and (4) public incitement of hatred [32]. In response to an era when people use social media to express their feelings, including posting hateful words to show their disapproval, dislike, or anger, the Indonesian Government enforced a law of Electronic Information and Transactions (Bahasa Indonesia: UU ITE) in 2008. There has been an increase in legal cases brought to court by this law from 2008 to 2019, totalling 285 cases [33].



	Mass brawl	Citizen fights between areas/districts	Citizen fights in an area/district	Fights between citizens and security forces	Fights between citizens and local government	Students brawl	Tribal fights	Other fights
2008	2,283	1,253	939	89	60	108	118	138
2011	2,562	1,348	1,054	120	102	210	102	149
2014	2,779	1,404	1,128	108	99	327	70	160
2018	3,147	1,674	1,078	91	132	546	112	171
2021	1553	845	542	45	77	188	34	120

Figure 3: Fights and brawls in Indonesian society, as reported by the Central Bureau of Statistics [32]

Qualitative data collected from online news portals (detik.com | kompas.com | okezone.com |antaranews.com | cnnindonesia.com | tribunenews.com | liputan6.com | sindonews.com) shows that the causes of societal strife and fights were mostly as simple as, getting angry at being honked, accidentally being grazed by another motorist, parking vehicles on an inappropriate space, misunderstanding, misinformation, jokes that end in ridicule, girlfriend/ boyfriend affairs, and many other things that can be considered trivial (Figure 5).

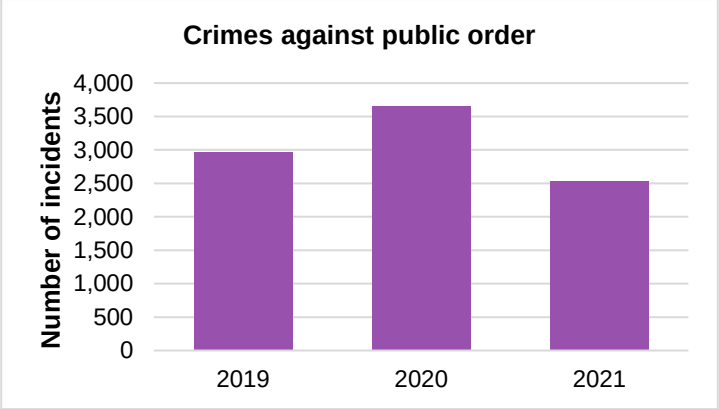


Figure 4: Crimes against public order, as reported by the Central Bureau of Statistics [32]

Figure 5: Footage of fights on streets sparked by anger. (A) Anger at being honked, (B) being grazed by another motorist, (C) being suddenly cut off by another car, and (D) a youth brawl due to miscommunication at a parking lot.

CONCLUSION

The study reports that the noise level in ten major cities in Indonesia, represented by the 30 most visited public places, is high. However, the noisy environment is enjoyed by most Indonesians because they enjoy being involved in communal activities. High noise levels are ignored as they contribute to creating and enjoying noise at the same time. The noise levels recorded in this study were all above the current noise level standard in public places. There is not enough evidence to conclude that high noise levels directly correlate with strife, fights, brawls, and crimes against public order in society. However, the data shows a trend of increasing incidents over time. This initial finding shall trigger the Indonesian authority and community to work hand in hand to be attentive to noise issues to promote a healthier sound environment instead of placing the majority (those who like to be involved in noisy environments) and the minority (those who perceive noise as a nuisance) as victims of perpetual noise. Further studies from more related subjects are recommended to investigate the possible association between high noise levels and the increased trend of fighting and brawling in society.

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