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Campus Safety Riding: Establishing A Safe Campus Traffic Zone

Eti Rimawati[1*], Bayu Yoni Nugroho[2], RirinNurmandhani[3], Tiara Fani[4], Suhat[5], Asma Khalid[6]

[1,2,3,4]Fakultas Kesehatan, Universitas Dian Nuswantoro, Indonesia
[5]Fakultas Ilmu dan Teknologi Kesehatan, Universitas Jendral Achmad Yani, Indonesia
[6]Allama Iqbal Open University, Pakistan
eti.rimawati@dsn.dinus.ac.id*

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Abstract

Traffic-related accidents involving university students, particularly those aged 18–25, have become a growing concern in Indonesia, with many incidents occurring due to inadequate infrastructure and lack of traffic discipline in densely populated campus environments. This community service program was initiated by Universitas Dian Nuswantoro (UDINUS) in Semarang to address these challenges through the establishment of a Campus Safety Riding Zone. The program aimed to increase road safety awareness, promote safe behavior among students and residents, and improve campus-area traffic infrastructure. Activities included coordination with local authorities, painting red-marked safe zones and zebra crossings, installing speed limit signs (30 km/h), and distributing an educational pocketbook titled *"Crossing Etiquette on Campus"* The intervention area, located on Nakula I Street, was selected due to its high traffic volume between the subdistrict office and UDINUS Building A. Post-intervention observations indicated that drivers generally reduced their speed when entering the safety zone, although issues like improper parking persisted. The initiative demonstrated that a combination of infrastructure enhancement, community education, and multi-stakeholder collaboration can effectively foster a safer traffic culture in university environments. This model offers a replicable framework for other higher education institutions to support student and pedestrian safety through community-based strategies.

A. Introduction

Traffic-related fatalities among pedestrians have increased by 83% and now account for 18% of all traffic-related deaths. The highest pedestrian fatality rate occurs among individuals aged 20 and above (Mead et al., 2014). The Indonesian National Police reported 148,575 traffic accidents in 2023a significant increase from 139,364 cases in 2022, marking the highest rate in the past five years. Most of these incidents are attributed to human error (Ayuningtyas, 2023).

The Indonesian Ministry of Transportation issued Technical Guidelines (SK3582/AJ.403/DRJD/2018) prioritizing pedestrian safety through the establishment of Safe School Zones (Pedoman Teknis Pemberian Prioritas Keselamatan Dan Kenyamanan Pejalan Kaki Pada Kawasan Sekolah Melalui Penyediaan Zona Selamat Sekolah, 2018). However, previous studies indicate inadequate and poorly maintained traffic signs around educational institutions, with signage often obscured by vegetation and road markings fading over time. Many schools lack proper pedestrian facilities such as zebra crossings and pedestrian bridges, leading to unsafe conditions (Kamal et al., 2019). Educational institutions play a vital role in shaping pedestrian behavior and enhancing traffic safety (Wahyuni & Nur, 2020).

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Universitas Dian Nuswantoro (UDINUS) is a private university located in downtown Semarang, surrounded by residential areas. The university consists of three campuses dispersed across the Pendrikan Kidul neighborhood. Due to the high volume of pedestrian and vehicular traffic involving students and local residents, traffic congestion and disorder frequently occur. The Campus Safety Riding program was developed to increase awareness and knowledge of road safety among students, particularly motorcyclists, and to create a designated safe zone for pedestrians and vehicles.

B. Methods

This community service project was conducted through a collaboration between the Faculty of Public Health at Universitas Dian Nuswantoro (UDINUS) and local stakeholders in the Pendrikan Kidul subdistrict, Semarang. The target population included local residents, pedestrians, and road users along Jl. Nakula I. The scope of the project was limited to a 16-meter-long and 6-meter-wide segment of Jl. Nakula I, extending from the subdistrict office to the entrance of UDINUS Building A. As a pilot initiative, the intervention was limited in spatial and temporal scope. The project involved an estimated 50 individuals including students, pedestrians, and local residents who use the campus road daily. The sampling was purposive, targeting road users along Jl. Nakula I, which has high foot and vehicle traffic. Observations were made before and after the intervention in the same location.

The intervention was implemented over a five-month period (Desember 2024–April 2025) and followed a structured set of procedures: (1) coordination meetings with subdistrict officials and local leaders, (2) identification of high-traffic and high-risk pedestrian areas, (3) preparation and painting of road markings, (4) installation of traffic signs, (5) distribution of educational pocketbooks on pedestrian safety, and (6) observational monitoring of outcomes. Success of the intervention was measured through pre- and post-intervention direct observation, focusing on vehicle speed, compliance with new signage, and parking behavior. Data was documented through photographs, video recordings, and field notes, and then qualitatively analyzed to assess behavioral changes and infrastructure impact.

C. Results and Discussion

The implementation of a safe riding zone within the campus environment, as carried out at Universitas Dian Nuswantoro (UDINUS), represents a best practice in community-based traffic safety. The Government of the Republic of Indonesia (2022), through Law No. 22 of 2009, affirms that every educational institution is responsible for providing knowledge regarding traffic regulations and ethics as part of its educational curriculum (UU RI No.22 Tentang Lalu Lintas Dan Angkutan Jalan, 2009). Therefore, traffic engineering is needed in the form of prioritizing pedestrian safety and comfort. Based on coordination with local stakeholders, road markings were painted to establish a designated safety zone, with the following results:

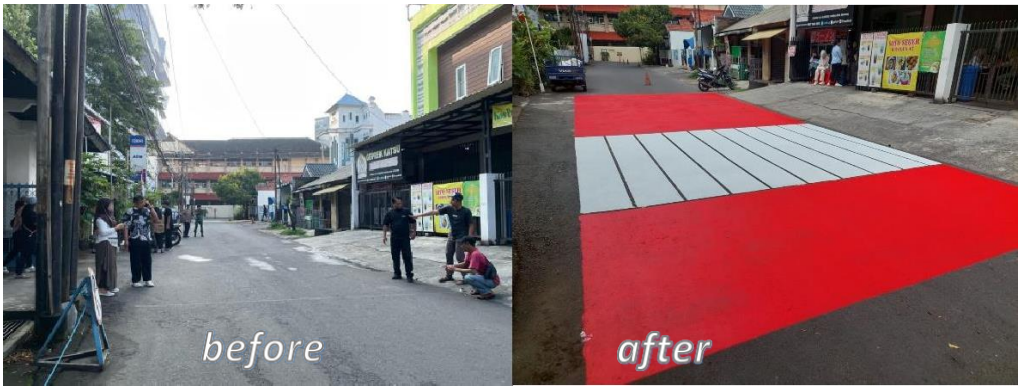

Figure 1. Before and After the Implementation of the Safe Zone Markings

The activity was carried out collaboratively by staff from the Pendrikan Kidul subdistrict office, Community Protection Officers (Linmas), Village Supervisory Non-Commissioned Officers (Babinsa), Community Police Officers (Babinkamtibmas), students, and lecturers from the Undergraduate Public Health Program. Documentation of the activity can be accessed at:

https://www.youtube.com/watch?v=FnOgLwLIjd4&list=PPSV. The safety zone markings included red-colored road sections and zebra crossings. The red markings signified a designated safety zone, indicating the need for traffic control in that area, especially concerning speed limits, parking restrictions, and pedestrian crossings. Such regulation is necessary given the high volume of students and community members accessing services at the subdistrict office. The World Health Organization (2023) reported that road traffic injuries remain the leading cause of death among individuals aged 15–29 globally, with estimated economic losses reaching 3% of GDP in developing countries (WHO, 2023). A pedestrian crossing (zebra crossing) is a designated path for pedestrians to cross the street, typically marked with white longitudinal stripes on the road surface. Infrastructure that is not designed with safety principles such as inadequate parking areas and poorly organized road layoutscan increase the risk of accidents, particularly in densely populated areas like campuses or cities (Teras et al., 2024). Research on the causes of campus traffic accidents shows that 66% involve motorcycles, 71.8% are due to inattentive driving, and 46.2% occur at speeds exceeding 40 km/h (Sari & Lestari, 2024). In addition to painting the safety zone markings, a traffic sign indicating a maximum speed limit of 30 km/h was installed 10 meters before the red zone. This serves as a warning for drivers to reduce speed when approaching the safety zone. Good infrastructure supports safer pedestrian behavior (Wahyuni & Nur, 2020).

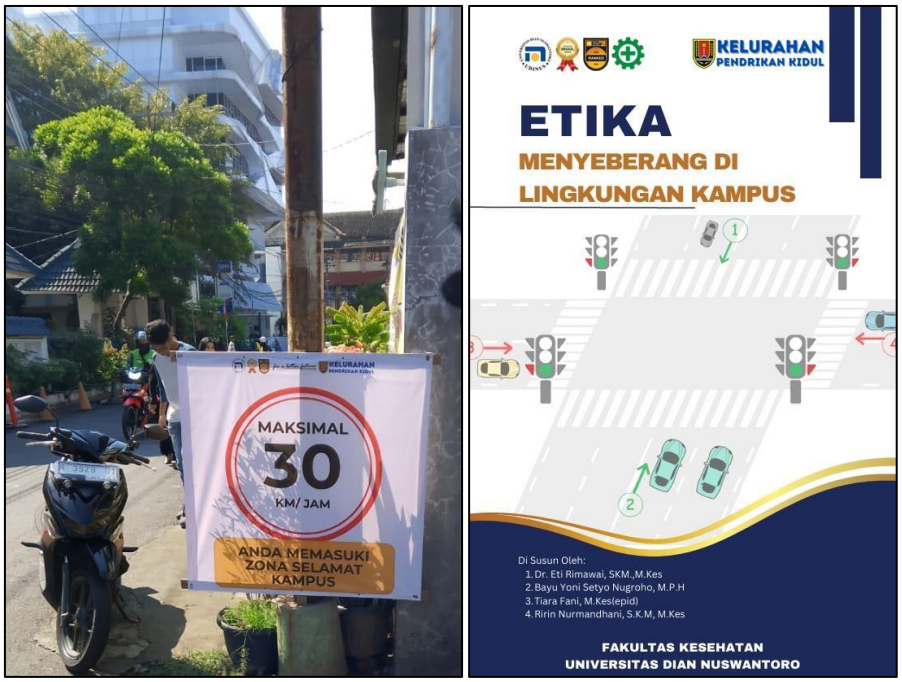

Figure 2. Speed Limit Sign and Pocketbook

To support the implementation of the campus safe zone, a pocketbook entitled *Crossing Etiquette on Campus*‖ was developed as a guide for students and residents when crossing busy campus roads. This pocketbook was distributed to students and community members in the Pendrikan Kidul subdistrict. A study conducted at another university revealed that traffic awareness among students remains low; observations showed that out of 20 students, 15 displayed unsafe riding behavior (Hanum et al., 2023). Safety riding education programs among university students have proven effective in increasing knowledge and understanding of safe riding practices (Bansa et al., 2024).

Based on monitoring and evaluation conducted after the implementation of the campus safety zone markings, it was found that some vehicles reduced their speed upon entering the red-marked zone. However, there were still incidents of drivers parking within the safety zone, which disrupted traffic flow. Literature reviews have identified knowledge and attitude as dominant factors influencing safety riding behavior, along with external factors such as supervision and social support (Hilmi et al., 2025). Campus-based road safety programs have shown significant effectiveness, particularly when they involve the formation of student peer educator communities to promote behavioral change (Asdar et al., 2015) (Wahyu Prima et al., 2015). Students with higher knowledge about traffic rules and safe riding practices are more likely to exhibit safe riding behaviors. Lack of knowledge is frequently associated with unsafe

practices such as not wearing helmets or ignoring traffic signs (Lilis Siagian et al., 2023). The role of peers is a major reinforcing factor. Supportive peers who model and encourage safe riding behaviors can positively influence others, while peers who engage in risky behaviors can increase the likelihood of unsafe riding (Salmawati & Puspita, 2020). Observers noted that prior to intervention, approximately 80% of vehicles exceeded safe speed levels, while post-intervention, 60% reduced speed upon entering the zone. Before the intervention, vehicles were frequently parked in non-designated areas, while afterward, signage and markings reduced such incidents by an estimated 40%. These findings support previous research highlighting the effectiveness of visual cues and traffic engineering in modifying driver behavior. For instance, Wahyuni & Nur (2020) reported similar results where visual signage increased pedestrian safety compliance around school zones.

The partnership established between the academic community and local authorities aims to enhance traffic awareness and discipline among university members and the surrounding community. Reports from the International Transport Forum (ITF) and the World Bank emphasize that effective road safety including safety riding requires integrated, multi-stakeholder partnerships. These collaborations break down policy silos and foster shared responsibility, transparency, and accountability. The Safe System approach is built on the premise that no single entity can address road safety challenges alone; instead, coordinated action across sectors is essential for meaningful progress (International Transport Forum (ITF), 2022). Partnerships include governments, multinational corporations, NGOs, academic institutions, and community organizations, each contributing unique resources and perspectives (Bekefi & Tamara, 2006).

D. Conclusion

The Campus Safety Riding initiative at Universitas Dian Nuswantoro demonstrates a successful model for creating safe campus zones through collaborative community action. Markings, signage, and educational materials improved awareness and influenced driving behavior. Despite some challenges, such as illegal parking, the initiative underscores the value of infrastructure, education, and multi-sector collaboration in shaping a safer traffic environment for students. Similar approaches can be adopted in other university settings to foster a culture of road safety.

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