The Impact of COVID-19 on Road Safety in Australia: Insights and Lessons

Introduction

At the time of writing, official national road fatality figures for 2024 are still pending. However, it is known that the number of lives lost on Australian roads will exceed 1,300. During the 12 months ending in November 2024, there were 1,318 road deaths—an alarming increase of 6.1% compared to the same period ending November 2023.

This marks the fourth consecutive year of rising road fatalities in Australia, a trend not seen since the 1960s. Road deaths and serious injuries continue to occur at an alarming rate, underscoring a significant shift in road safety trends.

While the exact causes of this increase remain unclear, it is evident that something has fundamentally changed since the COVID-19 pandemic.

The COVID-19 pandemic profoundly impacted various aspects of life, including road safety. Governments implemented measures such as lockdowns, travel restrictions, and changes in commuting patterns to mitigate virus spread. In Australia, a nationwide lockdown was declared by April 2020, significantly altering the country's road safety landscape (Karantzas et al., 2023).

While aiming to reduce the impact on public health, these measures created complex dynamics in road use, community attitudes and safety outcomes.

Globally, the post-pandemic road safety picture is mixed. Some studies report reduced road traffic incidents and crashes due to lower vehicle usage, while others highlight new challenges, such as risky driving behaviours and heightened mental health issues among road users.

In Australia, while lockdowns led to decreased traffic volumes and fewer crashes, there has been an increase in crash severity, with reckless behaviours like speeding and impaired driving becoming more prevalent (Itani & Hollebeek, 2021).

Whilst there has been some research into road safety post the pandemic, many of these appear to explore issues around public transport and infrastructure challenges. Little appears to be known about the broader social changes around risk, compliance with road laws and personal/community responsibility.

There is also little research on the impact that lockdowns had on the generation of drivers that where on L or P plates during this period. Clearly, more research is needed to investigate these issues in greater detail.

This paper explores the pandemic's effects on road safety in Australia, examining key trends, contributing factors, and strategies for mitigating risks in a post-pandemic world.

Changes in Traffic Patterns and Road Safety Trends Post Covid

At the time of writing, the official national road fatality figures for 2024 have yet to be released.

However, it is already evident that the number of road deaths in Australia will exceed 1,300. Over the 12 months ending in November 2024, 1,318 lives were lost on the nation's roads—an alarming 6.1% increase compared to the same period in 2023.

This marks the fourth consecutive year of rising road fatalities since 2020, a pattern not seen in Australia since the 1960s.

The continued increase in road deaths and serious injuries highlights a concerning shift in road safety. While the underlying reasons for this rise remain unclear, it is evident that something has fundamentally changed since the COVID-19 pandemic.

The pandemic-induced lockdowns led to significant transformations in traffic volume and road usage, with both expected and unexpected outcomes on road safety dynamics.

During the initial lockdowns of March to April 2020, traffic incidents in Sydney decreased by 50% compared to pre-pandemic levels, with an even more pronounced reduction of 60% during the 2021 lockdowns.

These reductions, while seemingly positive, brought to light a paradox: fewer vehicles on the road led to decreased crash frequency but heightened crash severity. This was largely attributed to the emptier roads encouraging higher speeds and risk-taking behaviours, such as drink- and drug-driving.

While total fatalities decreased in 2020 compared to 2019, fatalities per 100 million vehicle kilometers travelled rose by 14.3% (Australian Bureau of Infrastructure and Transport Research Economics). This indicates higher risks associated with driving during periods of reduced traffic.

Empty roads emboldened some drivers to engage in speeding, drink-driving, and other risky behaviours. Studies in the Journal of Safety Research confirm a significant rise in speeding violations during lockdowns (Sacco et al., 2023).

For instance, data from the Fixed Digital Road Safety Camera (FDRSC) network highlighted a surge in excessive speeding during lockdowns, which aligned with increased crash severity. Additionally, the proportion of crashes involving towing rose significantly, reflecting a shift in crash characteristics.

Police resources were also deployed to other areas during the lockdowns, the reduction in traditional law enforcement activities, such as RBTs, and a reduced police presence on the road during the pandemic contributed to an increase in risky driving behaviours and fatal incidents.

This could be linked to a general view that the risk of getting “caught” was less likely during this period.

Additionally, there was a geographic shift in crash locations, with suburban areas witnessing a higher proportion of incidents due to changes in work and commuting patterns.

Domestic tourism and regional travel increased as international borders remained closed. This led to a rise in crashes on regional roads, where infrastructure is often less developed (Hubbard, 2016). Cyclists and pedestrians also faced increased risk, with a higher proportion of crashes involving these groups.

This underscores the need for safer infrastructure and public awareness campaigns (Itani & Hollebeek, 2021).

While certain regions, such as New South Wales and the Australian Capital Territory, saw a decrease in fatalities consistent with lower travel volumes, other states experienced a divergence.

For example, in Queensland, despite a 17.4% reduction in petrol sales, there was an 11% rise in fatalities.

Changes in geographic crash patterns also emerged, with suburban areas witnessing higher incident rates as people stayed closer to home. These patterns underscore the intricate relationship between road usage changes and crash outcomes, providing a unique opportunity to rethink road safety measures tailored to varying traffic conditions and behaviours.

Detailed case studies reveal the complexity of these changes. For example, suburban areas with increased residential traffic saw heightened risks at intersections and local streets.

Policymakers and stakeholders must consider these multifaceted changes to design adaptive and proactive road safety strategies that address the root causes and evolving nature of road incidents.

Emerging Risks and Behavioural Shifts

Despite reduced exposure, risk-taking behaviours surged during the pandemic, driven by a complex interplay of psychological and societal factors. It appears that this change has not altered and remains the case still today.

The isolation and stress associated with lockdowns likely exacerbated risky decision-making on the roads.

For instance, feelings of frustration and restlessness may have contributed to the rise in excessive speeding, as drivers took advantage of emptier roads to engage in thrill-seeking behaviour.

Additionally, disruptions to normal routines, including reductions in public transport availability and increased reliance on private vehicles, created new pressures and opportunities for risk-taking.

The closure of social venues and restrictions on gatherings may have led to a shift in drink- and drug-driving patterns, with more incidents occurring in suburban and residential areas. The significant increase in towing-related crashes during the first lockdown further underscores how these behavioural changes impacted road safety dynamics.

Also, as stated earlier, the reallocation of police resources and a reduced police presence would have contributed to this change in social attitudes.

Research found that, with fewer cars on the road, speeding and dangerous driving behaviors such as driving under the influence of alcohol or drugs increased. According to TAC, speeding violations surged by 34% in early 2020 compared to 2019.

The Australian National Road Traffic Accident Database recorded a 23% increase in alcohol-related crashes in rural areas during lockdown months (March–June 2020).

Instances of road rage and aggressive driving grew due to a perceived sense of freedom from traffic congestion, leading to more tailgating and unsafe lane changes.

The current crash data for the last four years is an enormous concern for the road safety community. The traditional countermeasures that have delivered a progressive decrease in road trauma are not providing the same returns. This will present significant changes for all road user groups in the coming years.

Vulnerable Road Users and Societal Impacts

The pandemic disproportionately affected vulnerable road users, including pedestrians, cyclists, and the elderly, in multifaceted ways. While overall traffic incidents declined during lockdown periods, the share of crashes involving these groups increased.

For instance, with fewer vehicles on the roads, pedestrians and cyclists felt safer venturing out, which, paradoxically, exposed them to greater risk due to higher incidences of speeding and risk-taking behaviours by drivers.

According to studies in metropolitan Adelaide, socially disadvantaged groups, particularly the elderly, faced heightened vulnerabilities exacerbated by factors such as poor urban design, limited public transport access, and high population density in certain areas.

Case studies underline the importance of understanding these dynamics. For example, one analysis found that in suburban areas with limited pedestrian infrastructure, elderly residents were at greater risk of being involved in crashes.

Similarly, cyclists using temporary bike lanes established during the pandemic reported feeling safer, yet some studies noted that the lack of permanent infrastructure led to increased conflicts with vehicles at intersections.

These examples demonstrate that while the pandemic highlighted the need for equitable road safety measures, it also underscored the structural shortcomings in protecting vulnerable road users.

Tailored interventions, such as enhanced pedestrian crossings, permanent bike lanes, and improved lighting in high-risk areas, can provide long-term safety benefits for these populations.

Policy Implications and Countermeasure Effectiveness

Effective road safety strategies during the pandemic relied on maintaining enforcement activities and adapting countermeasure delivery. For example, mobile speed cameras proved instrumental in mitigating excessive speeding, especially in suburban areas where risk-taking behaviours surged.

Some jurisdictions implemented innovative countermeasures, such as virtual driver education programs and real-time traffic monitoring systems, to adapt to the constraints of lockdowns.

These measures demonstrated measurable impacts, such as a 15% reduction in high-speed incidents in targeted areas during peak lockdown periods, underscoring the value of adaptive strategies in enhancing road safety.

Increased enforcement hours for mobile speed cameras and targeted infrastructure investments were associated with decreases in forecast fatalities.

However, reductions in roadside alcohol testing during the pandemic negatively impacted fatality rates, demonstrating the critical role of consistent enforcement in mitigating road trauma.

Leveraging Technology and Safe Systems Approaches

Emerging technologies, including automated vehicles, telematics, and impairment detection systems, present opportunities to enhance road safety. These innovations, coupled with the Safe Systems approach, offer a holistic framework to reduce motor vehicle crashes while promoting equity and sustainability.

However, given the increase in road trauma, some researchers and advocates have raised concerns on the Safe System philosophy. The system on its own may be too limited in its approach, relying on aspects like infrastructure and vehicle design without taking in the human factors into account.

There are variety of social, economic, educational and behavioural factors that also need to be considered in any road safety strategy going forward.

These areas may include the following:

1. Mental Health and Stress-Related Issues

Increased Mental Health Issues: The mental health consequences of the COVID-19 pandemic are substantial, with many people experiencing stress, anxiety, and depression due to isolation, economic uncertainty, and health fears.

These issues can affect driving behavior, increasing the likelihood of risky driving, distracted driving, and impaired concentration. Once formed, these views habits and beliefs can be difficult to alter.

Evidence: Research has shown a correlation between mental health issues and increased likelihood of road crashes. For example, individuals experiencing higher stress levels may be more prone to aggressive driving or making unsafe decisions on the road.

Fatigue and Sleep Deprivation: The pandemic led to disruptions in sleep patterns due to altered daily routines and work-from-home arrangements. This could contribute to driver fatigue, a major contributor to accidents, especially among long-haul drivers or people traveling for leisure.

2. Impact of Economic Factors

Economic Strain and Road Safety: Economic pressures caused by the pandemic could lead to an increase in unsafe driving behaviors. People facing financial difficulties might be more likely to take risks by:

Speeding to reach destinations faster (e.g., work or appointments), especially as a result of job losses or changing work conditions.

Using unsafe or uninsured vehicles to save on costs, leading to higher accident risks due to poor vehicle maintenance.

Decreased Public Transport Use: Public transportation has been significantly affected by the pandemic, with fewer people using buses, trains, and trams due to health concerns and lockdowns. This could have led to an increased reliance on private vehicles for commuting, contributing to higher traffic volumes and increased crash risk.

3. Change in Road Use and Infrastructure

Overcrowding in Certain Areas: While traffic volume dropped during lockdowns, once restrictions eased, there was a surge in people traveling for leisure, which may have led to congestion in previously less-traveled areas. For instance, regional roads might have seen an increase in traffic, leading to higher crash risks in areas not accustomed to heavy traffic.

Road Infrastructure Disparities: While urban areas may have received more immediate road maintenance and infrastructure upgrades, rural and regional areas may have been neglected during the pandemic.

This creates a disparity in the safety of roads, with poorly maintained or underdeveloped rural roads being more prone to accidents.

Infrastructure Australia reports that funding disparities between rural and urban areas were already a significant issue before COVID-19, and these gaps may have widened due to financial constraints during the pandemic.

It would appear road safety funding has also been a victim to the pandemic period. Despite examples such Australian Government recently pledging $7.2 billion as part of a $9 billion package aimed at enhancing safety on the Bruce Highway in Queensland. Road Safety Funding has been reduced across the country.

4. Vehicle Safety and Technological Factors

Changes in Vehicle Fleet and Safety Features: The pandemic also impacted the vehicle market, with more people buying used vehicles rather than new ones. Older vehicles may lack modern safety features such as lane-assist technology, automatic emergency braking, or advanced airbags, increasing the risk of incidents and injuries.

Increased Use of Technology: The rise in in-car technology (e.g., GPS systems, smartphone integration, and entertainment apps) could contribute to distracted driving if not managed properly. While some technologies can help reduce incidents (like lane-assistance or collision warnings), the improper use of in-car devices (such as using a phone for navigation or texting) can be a significant contributor to crashes.

5. Vulnerable Road Users (Pedestrians, Cyclists, Motorcyclists)

Pedestrians and Cyclists Post-Lockdown: As people began returning to outdoor activities, including walking and cycling, there was an increase in pedestrian and cyclist incidents. This is due in part to changes in road design or infrastructure not being adapted to accommodate a post-pandemic increase in vulnerable road users.

Motorcycle Incidents: As more people embraced motorcycling during the pandemic, especially as a cost-effective travel option, there was an uptick in motorcycle-related crashes.

Motorcyclists are inherently more vulnerable than car occupants due to lack of protection in crashes. NSW Police reported a 17% increase in motorcycle fatalities during the pandemic period.

6. Distracted Driving and the Rise of Digital Devices

Increased Use of Digital Devices: With the pandemic shifting more activities to digital platforms (e.g., online work, virtual socializing, online shopping), drivers may have been more prone to distractions such as texting, using mobile apps, or engaging in video calls while driving.

Research from The Australian Road Safety Foundation's found that 39% of drivers admitted to breaking road rules due to distractions. In addition, research from the Australian Automobile Association (AAA) suggests that distracted driving is a growing concern, particularly as drivers become more reliant on digital devices for navigation, entertainment, and work communication.

Rise in Delivery Services: The surge in online shopping during COVID-19 likely increased the number of delivery vehicles on the road.

This includes e-commerce and food delivery services, which can contribute to increased traffic congestion and incidents, especially in urban areas. The pressure to meet delivery deadlines could also lead to speeding or reckless driving behavior.

7. Alcohol and Drug Use

Alcohol and Drug-Related Incidents: During periods of isolation or lockdowns, some individuals may have turned to increased alcohol consumption or the use of recreational drugs, which can impair driving skills. Many road safety reports during COVID-19 noted a potential rise in drug and alcohol-related incidents during the pandemic.

Victoria Police observed a higher incidence of impaired driving in the first half of 2020 compared to the same period in 2019, despite the reduced traffic volume.

Underreporting or Misreporting of Incidents: The pandemic-induced restrictions on movement and law enforcement resources could have also led to underreporting of alcohol-related or impaired driving incidents.

Some accidents or violations might not have been properly recorded or investigated due to overwhelmed authorities during the crisis.

8. Delays in Legal and Regulatory Responses

Legal and Enforcement Delays: The pandemic may have caused delays in law enforcement, with fewer police officers on the road, reduced traffic patrols, or changes in law enforcement priorities. Some road safety initiatives or traffic monitoring programs may have been temporarily suspended or delayed.

Changes in Driver Licensing and Enforcement: Lockdowns and restrictions might have delayed the processing of driver’s licenses, road safety courses, or mandatory vehicle checks.

The backlog of individuals waiting for driver tests could result in more unlicensed drivers or those without proper qualifications behind the wheel, which could increase accidents.

9. Social and Cultural Factors

Social Norms and Road Safety Culture: The pandemic's social isolation and lifestyle changes may have led to a shift in social norms around driving behavior.

For example, people who had been used to working from home and engaging in fewer social activities might have adopted more relaxed attitudes toward driving, such as increased alcohol consumption before getting behind the wheel.

Impact of Regional Disparities: The effect of the pandemic on road safety in regional vs. urban areas may have been overlooked in some studies. The pandemic's impact on road safety likely differs between metropolitan cities and rural areas, where infrastructure and resources vary.

Delayed Long-Term Impacts: The long-term effects of the pandemic on road safety, such as sustained remote work patterns and shifts in the global vehicle market, may not yet be fully understood. Post-pandemic lifestyle changes could continue to affect traffic and safety for years.

Conclusion

The COVID-19 pandemic has underscored the dynamic interplay between exposure, risk-taking behaviours, and road trauma.

As Australia moves forward, it is crucial to develop road safety strategies that address these new challenges. Policymakers must focus on protecting vulnerable road users, curbing risky driving behaviours, and maintaining consistent law enforcement to reduce road trauma.

The current trends and insights from the pandemic provide an opportunity to reevaluate and reprioritize road safety strategies. This shift should focus on the human factor and embrace innovative approaches that go beyond traditional methods. Key opportunities include:

Investment in Childhood Education:

Road safety education for children offers a long-term strategy for fostering safer behaviours and attitudes. Programs tailored to younger audiences can embed safety awareness at an early age, reducing risks as they grow.

Enhanced Driver Training:

Modernizing driver training to address evolving road safety challenges, such as distraction, fatigue, and the integration of advanced vehicle technologies as well as driver bio-mechanics, can create more adaptive and safety-conscious drivers.

Community Road Safety Campaigns:

Engaging communities through targeted campaigns can build local awareness and ownership of road safety issues. Highlighting the societal benefits of safer roads can encourage shared responsibility and collaboration.

Innovation and New Investments:

The pandemic underscored that road safety is a constantly evolving issue. And, whilst there is a place for systems that have historically proceeded reductions, we can't simply rely of these.

There is a need for creative and data-driven solutions in road safety. New investments in training, education and community ownership can transform the way risks are managed and complement other traditional countermeasures.

By shifting focus to these areas, Australia has the chance to modernise its road safety strategies, reduce reliance on outdated methods, and invest in meaningful, innovative approaches to reduce road trauma effectively.

This holistic, human-centered approach can ensure safer outcomes for all road users.

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