CAG
Citizen consumer and civic Action Group

ARE WE THERE YET?

AN ASSESSMENT OF HELMET COMPLIANCE ACROSS DISTRICTS IN TAMIL NADU

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About CAG

Citizen consumer and civic Action Group (CAG) is a 39 year old non-profit, non-political and professional organisation that works towards protecting citizens' rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision-making.

Executive summary

Road traffic injuries continue to pose a major public health challenge worldwide. According to the World Health Organization (WHO), road traffic crashes are the leading cause of death among children and young people aged 5 to 29 years. Of the fatalities reported by WHO in 2016, 28% involved powered two and three-wheelers (PTWs).

In 2022, India recorded 4,61,312 road crashes, leading to 1,68,491 fatalities and injuries to 4,43,366 individuals. Among those who lost their lives, 50,629 were not wearing helmets, accounting for approximately 30% of total fatalities. Tamil Nadu consistently reported the highest number of road crashes for five consecutive years, from 2018 to 2022.

The Motor Vehicles (Amendment) Act (MVAA) of 2019 and the Central Motor Vehicles Rules (CMVR) of 2022 highlight helmet use as a crucial safety measure. Recognizing the importance of helmet usage for two-wheeler riders, CAG conducted a study in November 2024 across 11 districts in Tamil Nadu to assess compliance with helmet laws. This study was conducted in observance of the World Day of Remembrance for Road Traffic Victims.

The districts surveyed included Chennai, Kanchipuram, Chengalpattu, Trichy, Madurai, Tirunelveli, Tiruvannamalai, Tiruvarur, Coimbatore, Cuddalore, and Salem. Two major intersections in each district were observed to evaluate helmet compliance among adults and children on two-wheelers. Both drivers and pillion riders were categorized as adults not wearing helmets, as the law imposes equal penalties for both. Helmets that were unfastened or improperly secured were classified as non-compliant.

Adult helmet compliance rates were notably low in seven districts: Chengalpattu, Kanchipuram, Madurai, Cuddalore, Trichy, Tiruvarur, and Tiruvannamalai, all reporting less than 50%. Conversely, compliance rates exceeded 50% in Chennai, Tirunelveli, and Salem, with one intersection in Tirunelveli showing over 75% compliance due to active traffic policing. Helmet use among children ranged from negligible to very low. Compliance was zero in Trichy, Madurai, Chengalpattu, and Kanchipuram. In Chennai, Cuddalore, Tiruvarur, and Tiruvannamalai, rates were below 25%. Surprisingly, Tirunelveli and Salem exhibited relatively higher compliance, exceeding 50% at three out of four intersections.

The non-use of helmets is attributed to several factors. Daily commuting without a crash reinforces a false sense of security, leading drivers to believe that helmets are unnecessary. Overconfidence in their driving skills further reduces the perceived need for helmets, as individuals assume they can avoid accidents.

Strengthening enforcement through regular traffic checkpoints, higher fines, and increased visibility of traffic personnel can improve compliance. Automated solutions like ANPR cameras may prove more effective in the long run. Public awareness campaigns should target diverse demographics and utilize regional languages for broader reach. Educational institutions and workplaces can insist on helmet use among students and employees, making adherence to the helmet law a shared responsibility.
The State should ensure helmets are widely available and affordable to remove economic barriers to compliance. Periodic evaluations of enforcement measures can help assess progress and improve strategies. Collaboration among law enforcement, public health organizations, helmet manufacturers, and civil society can foster a supportive ecosystem for helmet compliance.

By combining education, enforcement, and stakeholder collaboration, Tamil Nadu can enhance helmet usage and improve road safety, potentially saving thousands of lives each year.

1 Background

Road traffic injuries remain a significant public health concern globally. Every two minutes, two lives are lost to road traffic injuries, with low- and middle-income countries bearing the brunt of these tragedies.1 In 2019, road traffic injuries ranked as the 12th leading cause of death worldwide, resulting in approximately 1.3 million fatalities. Additionally, according to WHO, road traffic crashes are the leading cause of death globally among children and young people aged 5 to 29 years.2 Among the fatalities reported by the World Health Organization (WHO) in 2016, 28% involved powered two- and three-wheelers (PTWs). This is particularly alarming as the use of powered PTWs is rising rapidly in developing countries. Despite this increase, helmet usage among riders remains critically low, exacerbating the severity of injuries and fatalities in road crashes.

In 2022, India reported a total of 4,61,312 road crashes, resulting in 1,68,491 fatalities and injuries to 4,43,366 individuals.3 Among the people who lost their lives, 50,629 were not wearing helmets, accounting for approximately 30% of the total fatalities caused by road crashes. Tamil Nadu recorded the highest number of road crashes in the country, contributing 13.9% of the total, and ranked second in terms of fatalities. Notably, Tamil Nadu has held the top position in road crash numbers for five consecutive years, from 2018 to 2022.

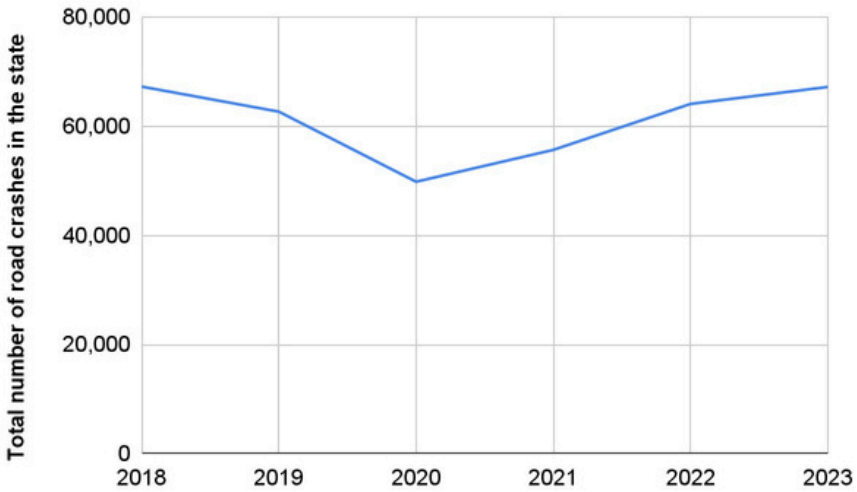

Table 1: Road crashes in Tamil Nadu from 2018 to 2023, MoRTH & TNSTA

[1] World Health Organization. “Helmets: A Road Safety Manual for Decision-makers and Practitioners, Second Edition,” 2023. https://iris.who.int/bitstream/handle/10665/366578/9789240069824-eng.pdf?sequence=1
[2] World Health Organization: WHO. “Road Traffic Injuries,” December 13, 2023. https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries
[3] Road Accidents in India 2022. Ministry of Road Transport and Highways. https://morth.nic.in/sites/default/files/RA_2022_30_Oct.pdf

Tamil Nadu (2023)		Increase in numbers wrt 2022
Number of road crashes	67,213	3,108
Number of fatalities	18,347	463

Table 2: Increase in road crashes and fatalities in Tamil Nadu4

On average, the state witnessed 50 fatalities daily due to road crashes. Two-wheelers accounted for 44.22% of all road crash fatalities, with the majority (29.9%) of these deaths involving individuals not wearing helmets. Among the districts, Cuddalore recorded the highest and Kancheepuram recorded the second-highest number of fatalities related to non-helmet usage. These trends highlight the critical need for stricter enforcement of helmet laws and targeted interventions to reduce preventable deaths.

The Motor Vehicles (Amendment) Act (MVAA) of 2019 5and the Central Motor Vehicles Rules (CMVR) of 20226 emphasize helmet use as a critical safety measure. Section 129 of the MVAA mandates that all individuals above four years of age, including pillion riders, wear protective headgear that conforms to government-prescribed standards. For children aged 9 months to 4 years, the CMVR specifies the use of crash or bicycle helmets when traveling on two-wheelers. Non-compliance with helmet regulations is punishable under Section 194D of the MVAA, with a fine of ₹1,000 and disqualification of the offender's license for three months. The revised penal provisions were adopted by the Tamil Nadu government only in 2022. Helmet regulation enforcement in Chennai, the capital city, has shown progress, with the Greater Chennai Traffic Police (GCTP) reporting a commendable 90% compliance rate among drivers. However, only 63% of pillion riders adhere to helmet regulations, with parents transporting children to school displaying the lowest compliance rates.7 Despite these figures, there is limited information on helmet compliance in other cities and districts across Tamil Nadu. This study seeks to address this gap by examining helmet compliance in other districts in Tamil Nadu.

[4] "ROAD ACCIDENT ANALYSIS IN TAMILNADU DURING THE YEAR 2023 (Final Data)," 2023. https://tnsta.gov.in/pdfpage/pdfpage_en_4LPhMMh_2024_05_29.pdf.
[5] "THE MOTOR VEHICLES (AMENDMENT) ACT, 2019." Legislation. THE GAZETTE OF INDIA EXTRAORDINARY, August 9, 2019. https://morth.nic.in/sites/default/files/notifications_document/MV%20Act%20English.pdf
[6] Ministry of Road Transport and Highways, "Central Motor Vehicles (Second Amendment) Rules, 2022," February 15, 2022. https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/feb/doc202221616301.pdf
[7] The Hindu Bureau. "Helmet Compliance Rate Low Among Parents Transporting Children to Schools, Say Traffic Police." The Hindu, August 8, 2024. https://www.thehindu.com/news/cities/chennai/helmet-compliance-rate-low-among-parents-transporting-children-to-schools-say-traffic-police/article68501237.ece.

1.1 Significance of helmets

In developing countries like India, two-wheelers serve as an essential mode of transportation, especially for low- and middle-income populations, due to their affordability. For many, two-wheelers provide access to essential services such as healthcare, education, and livelihoods. Families often rely on this mode of transport to meet their children's needs, including attending school and accessing medical care. This reliance highlights the critical need to ensure the safety of children being transported on two-wheelers, as any limitations on this mode of transport could effectively deny a significant portion of the population access to basic necessities.

Given that two-thirds of road users in India rely on two-wheelers, ensuring their safety becomes a crucial public health priority. Multiple factors contribute to road crashes, including inadequate road infrastructure and lack of proper signage. While many of these factors are external, one critical element within the control of road users is the use of safety gear. The importance of wearing protective equipment, such as helmets, is often underestimated, even though it significantly reduces the risk of severe injuries during crashes.

Two-wheelers fall under the category of vulnerable road users, as they lack the protective enclosures that shield occupants in cars or larger vehicles. This makes riders more susceptible to severe injuries from fixed objects, other vehicles, and road hazards during collisions. The risks are increased when two-wheelers share road space with faster and larger vehicles such as cars, buses, and trucks.

The vulnerability of two-wheeler riders is evident even in countries with a relatively low share of PTWs. According to a WHO report8, countries where PTWs constitute just 20% of vehicles still report a disproportionately high share of injuries and fatalities involving these vehicles. This underscores the pressing need for enhanced safety measures for two-wheeler riders.

Head trauma is the leading cause of death among motorcycle riders involved in crashes9. Studies have shown that wearing high-quality helmets can reduce the risk of fatal injuries by over six times and decrease the likelihood of brain injuries by up to 74%.

[8] "Helmets: A Road Safety Manual for Decision-makers and Practitioners, Second Edition," 2023. https://iris.who.int/bitstream/handle/10665/366578/9789240069824-eng.pdf?sequence=1

[9] World Health Organization: "New WHO guide aims to boost the use of life-saving helmets for motorcycle riders," April 5, 2023. https://www.who.int/news/item/05-04-2023-new-who-guide-aims-to-boost-the-use-of-life-saving-helmets-for-motorcycle-riders.

Research by the European Union's Safety Cube Horizon 2020 10project further highlights the effectiveness of helmets in reducing injury risks for two-wheeler riders:

- Fatal injuries: Reduced by 28–64%
- Head injuries: Reduced by 58–60%
- Brain injuries: Reduced by 47–74%
- Facial injuries: Reduced by 14–63%
- Neck injuries: Reduced by 14–48%

Proper usage of helmets is equally important. Helmets that are not securely fastened may be dislodged during a crash, rendering them ineffective. Riders with loosely fastened helmets face a twofold increase in the risk of head injuries compared to those wearing properly secured helmets. This emphasizes the need for helmet laws to mandate proper fastening as part of compliance. The MVA amendment of 2019 defines protective headgear as a helmet securely fastened to the wearer's head using straps or other fastening mechanisms. This regulation aligns with global best practices for enhancing rider safety.

Recognizing the critical importance of helmet usage for two-wheeler riders, and in observance of the World Day of Remembrance for Road Traffic Victims in November 2024, CAG conducted a study across 11 districts in Tamil Nadu to assess compliance with the helmet law.

Districts	Road crashes	Fatalities	Fatalities due to non usage of helmets
Chennai	3654	504	9
Cuddalore	3121	585	84
Tiruvarur	893	227	11
Thiruvanamalai	1913	697	12
Trichy	2426	720	12
Madurai	2660	890	13
Chengalpet	3402	936	15
Kancheepuram	1039	297	31

[10] European Road Safety Decision Support System, and H2020 project SafetyCube. "PTW Helmets," 2018. https://www.roadsafety-dss.eu/assets/data/pdf/synopses/PTW_Helmets_23022018.pdf

Tirunelveli	1531	415	10
Salem	3199	797	12
Coimbatore	3657	1044	15

Table 3: Road crashes, road crash fatalities and fatalities due to non usage of helmets across the 11 districts in Tamil Nadu, TNSTA

2 Methodology

The primary aim of this study was to assess helmet usage across various districts in Tamil Nadu. Specifically, the report focuses on analyzing compliance with helmet laws in 11 districts: Chennai, Kanchipuram, Chengalpattu, Trichy, Madurai, Tirunelveli, Tiruvannamalai, Tiruvarur, Coimbatore, Cuddalore, and Salem. By emphasizing the critical role of helmets and examining compliance trends, the study aims to provide valuable insights for policymakers and stakeholders to implement effective measures for improving road safety for vulnerable two-wheeler users.

To examine helmet compliance trends across the districts, observational surveys were conducted during the month of November 2024, focusing on both drivers and pillion riders traveling on two-wheelers. The study targeted two major intersections in each of the 11 districts, to ensure comprehensive and representative data collection. The surveys involved counting the number of adults and children wearing helmets while traveling on two-wheelers. For the purpose of this study, individuals appearing to be under 18 years of age, including school-going children, were surveyed as ‘children’. While the exact age could not be confirmed, the categorization was based on visual estimation and contextual indicators such as school uniforms or the presence of school bags. Volunteers conducted the surveys on weekdays during morning and evening peak traffic hours to capture typical commuting patterns.

Both drivers and pillion riders were grouped under the category of adults not wearing helmets, as the law does not distinguish and the penalty is the same for both violations. Moreover, helmets that were unfastened or improperly secured were classified as non-compliant, as they do not provide adequate protection and significantly increase the risk of severe or fatal injuries in the event of a crash.

The number of people surveyed (adults and children) varied, with an overall sample size of approximately 1,000 at each intersection. *(Refer Appendix 1 for all data).*

The following are the intersections surveyed in each of the districts :

Chengalpet

1. Medical College Road
2. Paranur Tollgate Road

Salem

1. Kondalampatti bypass
2. Collector office road

Chennai

1. Gemini flyover
2. Parry's corner

Cuddalore

1. ECR Road - Anandha Bhavan(hotel) Kirishnalaya theater signal
2. ECR Road - Allpet signal (New collector office stop) crossing

Tiruvarur

1. Thiruvarur - Thanjavur Road (Spot: Taluk Office Opposite)
2. Thiruvarur -Thiruthuraipoondi-Nagapattinam-old bus stand road (Sport:rail roundana)

Thiruvanamalai

1. Kanchipuram road
2. Vellore road

Coimbatore

1. Saradha mill road, Podanur
2. Pollachi bus stand

Trichy

1. Trichy bus stand road- bus stand signal
2. Malaikottai -Malaikottai Signal

Madurai

1. Madurai Town bridge road- town bridge signal
2. Mattuthavani road

Kancheepuram

1. Kancheepuram town bus stand - Chennai Bangalore NH
2. Chetpet Road

Tirunelveli

1. Palayamkottai bus stand TVM road (near LIC)
2. Vannarapettai- Nellaiappan high road (near chennai silks)

📷 Compliance audit at ChennaiPhoto: Road Safety | CAG

📷 Compliance audit at CuddalorePhoto: Road Safety | CAG

3 Study findings

The number of two-wheeler riders and pillion riders observed varied across districts and intersections *(Refer Appendix 2 for the sample size)*. Helmet compliance during morning and evening peak hours did not show significant variation across all districts. When examining helmet compliance among adults, including both drivers and pillion riders, it was notably low in seven districts: Chengalpet, Kanchipuram, Madurai, Cuddalore, Trichy, Thiruvarur, Tiruvannamalai, all falling below 50%. In Chennai, Tirunelveli, and Salem, compliance rates among adults exceeded 50%. However, in Tirunelveli, specifically at the Vannarapettai Nellaiappan High Road near Chennai Silks intersection, helmet compliance among adults was over 75%. Upon inquiry, it was found that this intersection consistently has the presence of traffic police, with strict enforcement of penalties, contributing to the higher compliance observed at this location.

Helmet compliance among children across districts ranged from very low to negligible. In Trichy, Madurai, Chengalpattu, and Kanchipuram, helmet compliance among children was zero. In Chennai, Cuddalore, Tiruvarur and Tiruvannamalai, compliance rates were low, falling below 25%. Surprisingly, in Tirunelveli and Salem, helmet compliance among children was relatively high, exceeding 50% at three of the four junctions. In Tirunelveli, the intersection near the Vannarapettai Nellaiappan High Road showed higher compliance than the Palayamkottai bus stand due to the proximity of schools and consistent police presence. In Salem, stricter enforcement of helmet laws, including penalties imposed on parents, contributed to higher compliance rates among children.

Overall, helmet compliance among adults remains very low, even in Chennai, where compliance rates did not exceed 75% at any intersection. The consistently low compliance among adults directly influences the low or nearly non-existent helmet use among children, as previously observed. When parents fail to recognize the life-saving importance of helmets for themselves and remain negligent, it is not surprising that they do not emphasize the need for their children to wear helmets either.

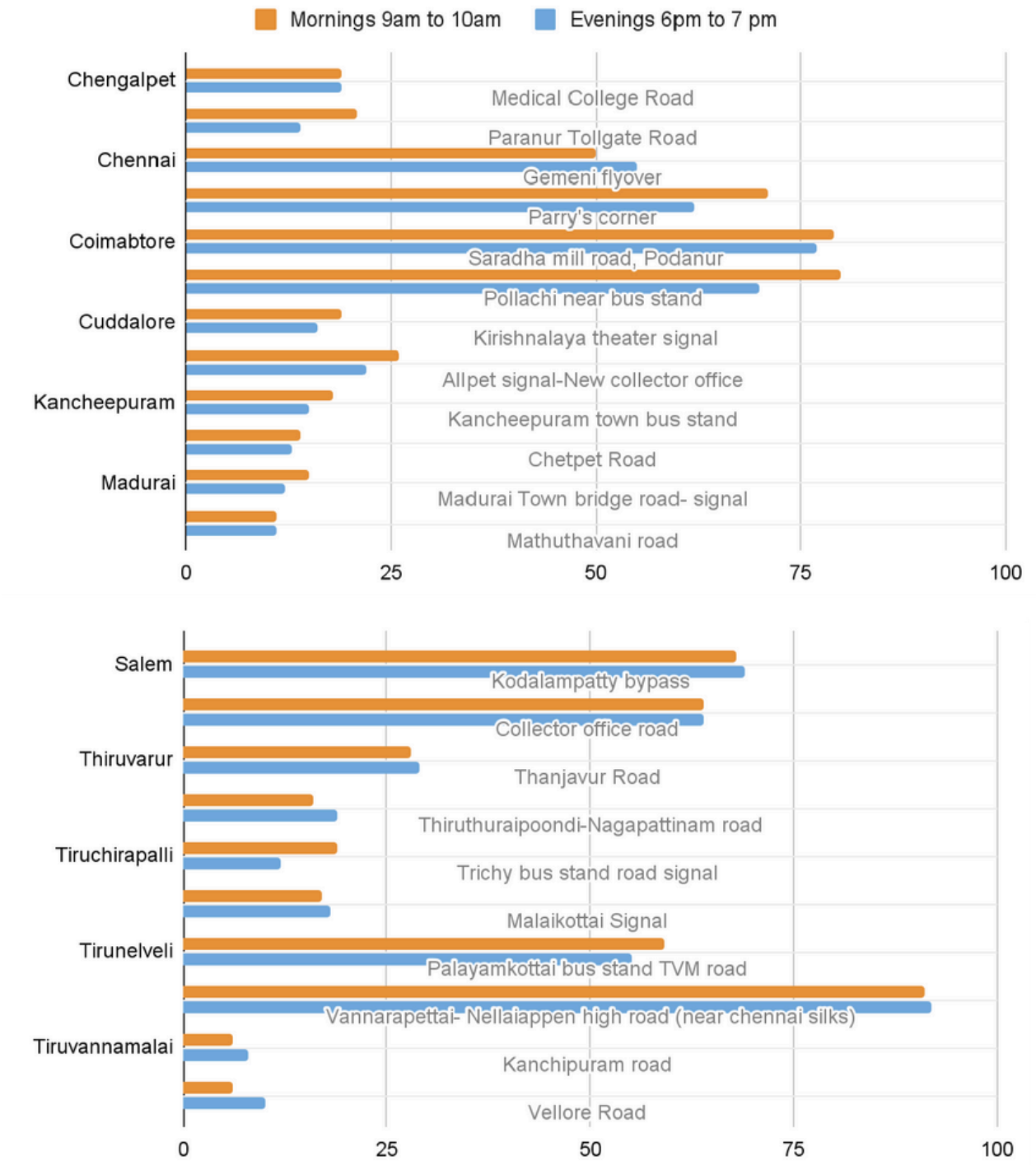

Figure 1 : Percentage of adults wearing helmets across districts

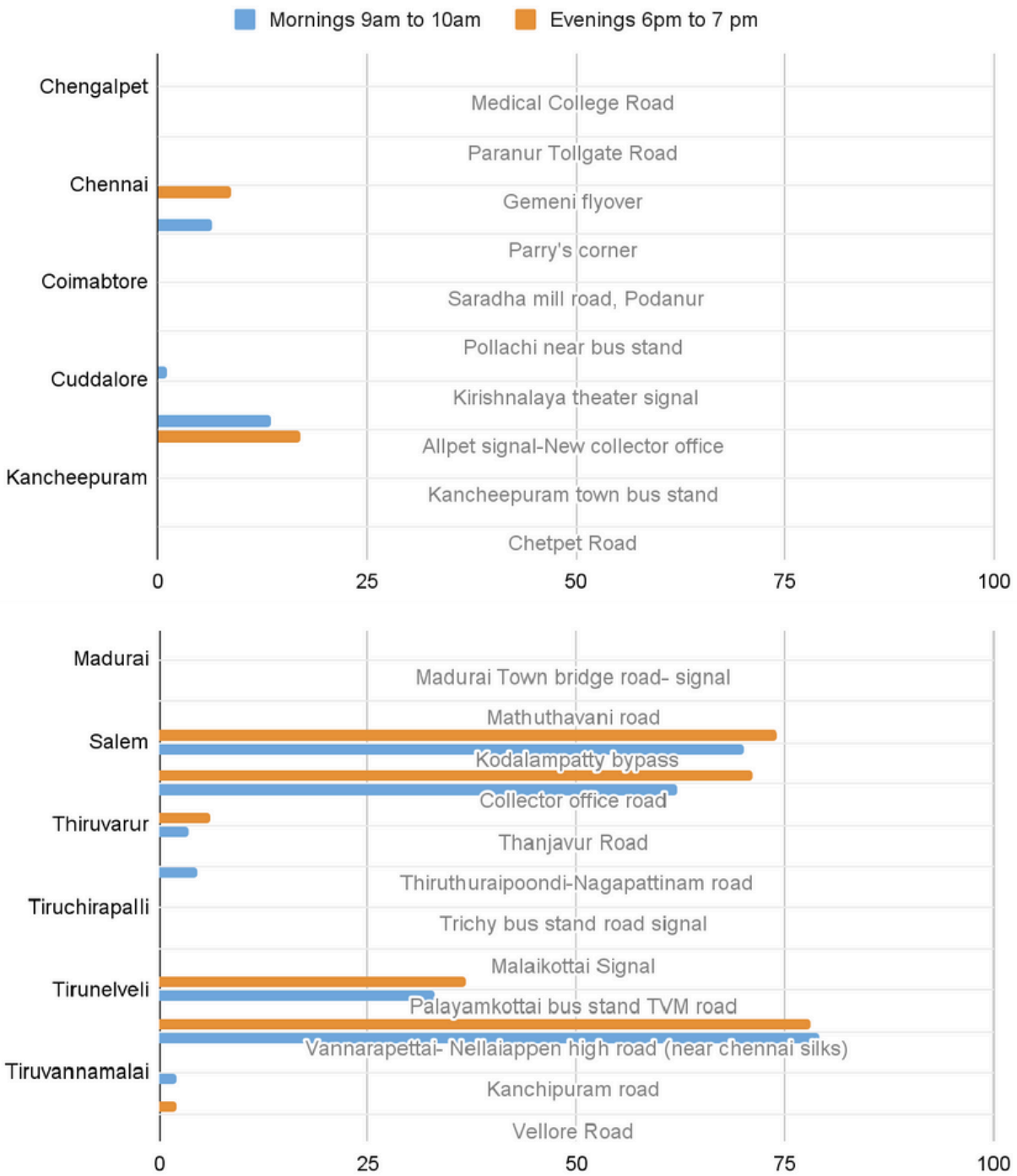

Figure 2 : Percentage of children wearing helmets across districts

The districts of Coimbatore, Tirunelveli, Salem and Chennai have the highest helmet compliance levels among adults. The districts of Salem and Tirunelveli have the highest helmet compliance levels among children.

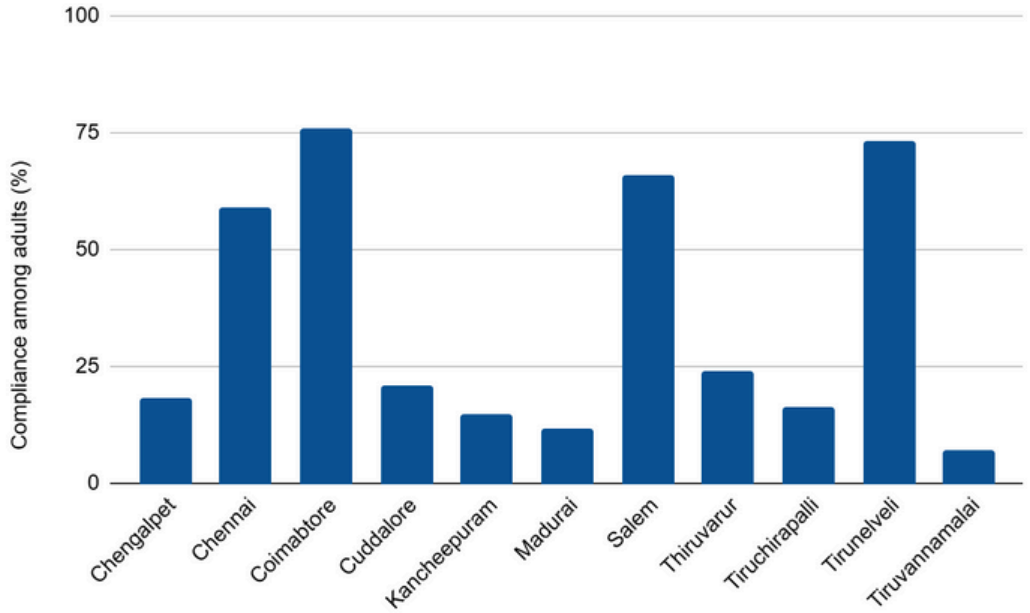

Figure 3 : Overall helmet compliance among adults

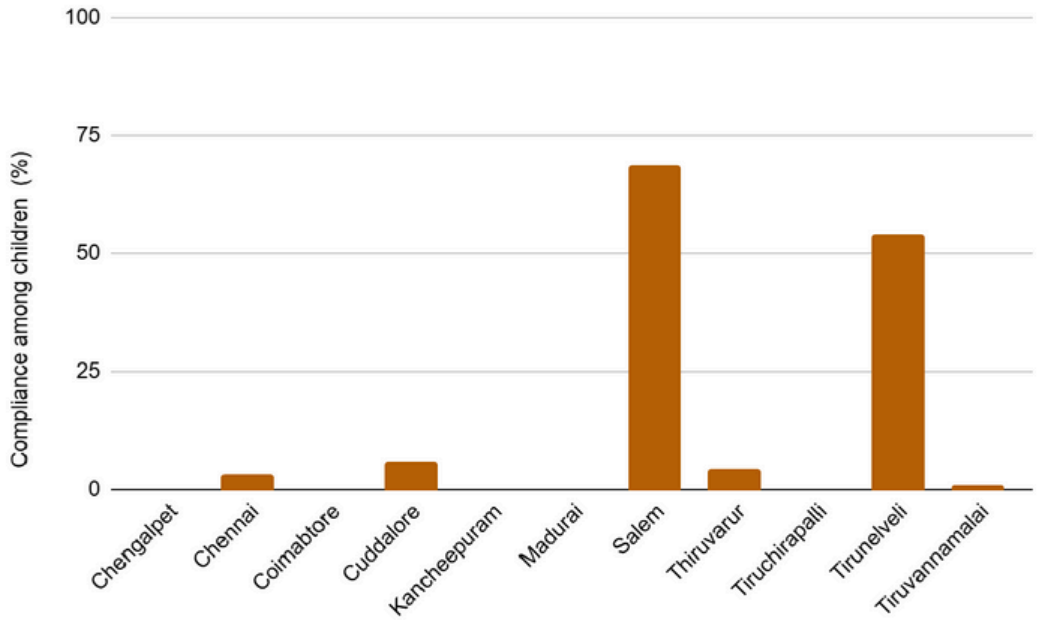

Figure 3 : Overall helmet compliance among children

4 Helmet Type

The study focuses on the usage of helmets by both adults and children. However, the type of helmet worn plays a crucial role in safety, particularly whether it is ISI-certified or a counterfeit product. Counterfeit helmets, often made from poor-quality materials, fail to provide adequate protection during a crash. A notable example is novelty helmets, which lack an expanded polystyrene (EPS) lining inside the outer shell. These helmets are typically made of thin plastic and do not meet safety standards.

In certified helmets, the EPS lining is a vital feature that absorbs and redistributes the energy generated from an impact, thereby protecting the head. Studies have shown that riders wearing novelty helmets are twice as likely to die in a crash compared to those using standard helmets.11 On the other hand, the risk of fatality among riders using full-face, half-face, or open-face helmets does not show significant differences.

The Bureau of Indian Standards (BIS) is the authority responsible for eliminating substandard helmets from the market and enforcing helmet laws. According to these laws, the sale of non-ISI-certified helmets is illegal. Despite these regulations, challenges persist, particularly concerning helmet sizes for children. Currently available helmets are not specifically designed for children, and there is an urgent need for BIS to establish standards for helmets catering to children below the age of four.

5 Reasons for Non-Usage

There are numerous reasons for the non-use of helmets. For most road users, traveling is a daily activity, and the occurrence of road crashes is relatively rare. As a result, each time a journey is completed without a crash, drivers feel implicitly rewarded for their behavior, regardless of whether they wore a helmet. This perceived reward for completing trips safely without an incident often leads to complacency and a lack of seriousness regarding helmet usage. Both drivers and pillion riders who do not wear helmets experience this psychological reinforcement, which discourages regular helmet use.

Additionally, drivers tend to overestimate their ability to avoid crashes and believe they possess the necessary skills for safe driving. This overconfidence leads them to

[11] "Novelty Helmet Use and Motorcycle Rider Fatality," ***Accident Analysis & Prevention*** 103 (April 19, 2017): 123–28, https://doi.org/10.1016/j.aap.2017.04.002.

undervalue the importance of helmets, assuming that their awareness and driving experience are sufficient to keep them safe. Despite efforts to educate drivers about helmet safety, education alone is insufficient to bring about behavior change. In the Indian context, a combination of education and practical incentives is essential to encourage safer practices. Strict enforcement of helmet laws, along with appropriate penalties for non-compliance, can serve as an effective deterrent, providing a strong monetary incentive for individuals to adhere to regulations. For this strategy to be effective, enforcement must be visible and sustained. Research indicates that many motorcycle users report avoiding penalties as a primary motivation for wearing helmets. However, some riders circumvent enforcement by not securing the helmet chinstrap or by loosely fastening it to make removal easier after crossing police checkpoints. Given India's diverse traffic conditions and enforcement challenges, integrating community-based awareness programs and leveraging technology for monitoring compliance can further strengthen the impact of these measures.

Another common perception is that helmets are unnecessary for short trips, as riders believe they are less exposed and travel at lower speeds. However, this assumption is flawed because even at low speeds (10–15 km/hr), head injuries can result from falling off two-wheelers.12 Drivers often overestimate their driving skills and lack awareness of critical concepts such as stopping and braking distances. This lack of understanding means that even experienced drivers may fail to account for reaction time and stopping distances, leaving them unable to control their vehicles effectively in the event of a crash.

In a perception survey conducted by the Citizen consumer and civic action Group (CAG) in 2021, drivers cited various reasons for not wearing helmets.13 These included discomfort, feeling restricted, believing themselves to be safe drivers, and mostly using smaller roads perceived as safer. Other concerns included the belief that helmets cause hair fall, mess up hairstyles, or appear unfashionable. Interestingly, many participants acknowledged that better enforcement and higher penalties would encourage them to wear helmets consistently.

[12] "Helmets: A Road Safety Manual for Decision-makers and Practitioners, Second Edition," 2023. https://iris.who.int/bitstream/handle/10665/366578/9789240069824-eng.pdf?sequence=1
[13] "BUCKLED UP? An Assessment of Helmet and Seatbelt Law Compliance in Chennai." CAG, 2021. https://www.cag.org.in/sites/default/files/database/helmet-seatbelt%20survey%202021_report.pdf.

6 Recommendations

6.1 Combine Enforcement with Education

Enforcement alone is insufficient to bring about sustained behavioral change. Combining it with educational initiatives significantly enhances effectiveness, making joint campaigns eight times more effective than enforcement alone and 12 times more effective than education alone.14 Sustained campaigns that run over longer periods are more effective. These should be run with consistent messaging, emphasising the dangers of riding without helmets and highlighting their life-saving benefits.

6.2 Address Enforcement Gaps

Strengthening enforcement is critical to ensuring compliance. Measures include:

- Random and periodical checkpoints to monitor helmet use.
- High penalties to deter non-compliance.
- Increased visibility of law enforcement personnel on all types of roads.

However, manual enforcement is limited by police manpower, especially due to the high population. Automated measures, such as ANPR cameras, can address this gap by efficiently identifying traffic violations and imposing penalties.
Evidence suggests that structured and consistent enforcement is far more effective than ad hoc or intermittent efforts.

6.3 Ensure Accessibility and Affordability of Standard Helmets

The state must ensure standard helmets are widely available and affordable, especially in rural and low-income areas. Policies such as subsidies for helmet manufacturers and sellers or tax exemptions can help achieve this. Additionally, standards must be developed for lightweight and climate-appropriate helmets that can address common complaints about discomfort.

6.4 Design Impactful Public Awareness Campaigns

Mass media campaigns should target diverse demographics and utilize regional languages to ensure greater reach. These campaigns can focus on:

- The dangers of riding without helmets.

[14] "The Effect of Motorcycle Safety Campaign on Helmet Use: A Systematic Review and Meta-Analysis." IATSS Research, June 2021. https://doi.org/10.1016/j.iatssr.2021.06.001.

- The financial and human costs of head injuries.
- Real-life stories of individuals whose lives were saved by helmets.
  For instance, Vietnam's "Wear a helmet. There are no excuses" campaign successfully used emotional and shocking messaging to drive awareness and compliance.15

6.5 Engage Corporates and Educational Institutions

Corporates can play a significant role in promoting helmet use through workplace policies and sponsorships for public awareness initiatives. Schools and colleges can introduce helmet safety education, encouraging the adoption of safe practices from an early age. Schools and colleges also have the power to mandate helmet use by using negative reinforcements, even punishments.

6.6 Tailor Solutions to Address Behavioral Barriers

Strategies to overcome resistance to helmet use in India include:

- Promoting helmet designs suited to Indian weather conditions.
- Encouraging helmet usage by incorporating storage options in two-wheelers to accommodate two helmets, making it convenient for users to carry them .
- Targeting specific cultural or social misconceptions that discourage helmet use through community engagement.

6.7 Monitor and Evaluate Initiatives

The state should establish systems to monitor and evaluate the impact of helmet compliance initiatives. Regular data collection on helmet usage rates and public attitudes, combined with analysis of enforcement efficacy, can guide future strategies and ensure sustained progress.

6.8 Foster Collaborative Governance

Collaborative efforts involving law enforcement, public health organizations, helmet manufacturers, and civil society can create a supportive ecosystem for compliance. Vietnam's coordinated efforts between government, suppliers, and the public provide a useful model for multi-stakeholder collaboration.

By adopting these evidence-based strategies, Tamil Nadu can significantly enhance helmet compliance, reduce fatalities, and ensure safer roads for all users.

[15] Centre for Global Development: "Improving Road Safety - Vietnam's Comprehensive Helmet Law" https://millionssaved.cgdev.org/case-studies/vietnams-comprehensive-helmet-law

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Appendix

1. Number of adults and children observed in each intersection

Intersections surveyed across districts	Time	Adults wearing helmets	Adults not wearing helmets	Children wearing helmets	Children not wearing helmets	Total sample in each intersection
Salem						
Kondalampatti bypass	9am to 10am	325	150	54	19	1129
Kondalampatti bypass	6pm to 7 pm	345	157	55	24	
Collector office road	9am to 10am	348	197	87	35	1324
Collector office road	6pm to 7 pm	341	196	75	45	
Chennai						
Gemini flyover	9am to 10am	206	210	0	84	1010
Gemini flyover	6pm to 7 pm	260	216	3	31	
Parry's corner	9am to 10am	290	116	6	88	1000
Parry's corner	6pm to 7 pm	267	164	0	69	
Cuddalore						
ECR Road - Anandha Bhavan(hotel) Kirishnalaya theater signal	9am to 10am	224	977	1	84	3029
ECR Road - Anandha Bhavan(hotel) Kirishnalaya theater signal	6pm to 7 pm	271	1381	0	91	
ECR Road - Allpet signal (New collector office stop) crossing	9am to 10am	388	1113	7	45	3266
ECR Road - Allpet	6pm to 7 pm	368	1298	8	39	

signal (New collector office stop) crossing						
Tiruvarur						
Thiruvarur - Thanjavur Road (Spot: Taluk Office Opposite)						
Thiruvarur -	9am to 10am	166	428	3	47	1167
Thanjavur Road (Spot: Taluk Office Opposite)						
Thiruvarur-Thiruthura	6pm to 7 pm	142	353	1	27	
ipoondi-Nagapattinam -old bus stand road (Sport:rail roundana)						
Thiruvarur-Thiruthura	9am to 10am	58	294	0	19	866
ipoondi-Nagapattinam -old bus stand road (Sport:rail roundana)						
Thiruvanamalai	6pm to 7 pm	86	365	2	42	
Kanchipuram road						
Kanchipuram road	9am to 10am	21	359	0	127	1007
Vellore Road	6pm to 7 pm	27	323	3	147	
Vellore Road	9am to 10am	21	339	3	136	983
Coimbatore	6pm to 7 pm	29	274	0	181	
Saradha mill road, Podanur						
Saradha mill road, Podanur	9am to 10am	796	214	0	29	2256
Pollachi near bus stand	6pm to 7 pm	915	270	0	32	
Pollachi near bus	9am to 10am	514	127	0	33	1188
	6pm to 7 pm	340	144	0	30	

stand						
Trichy						
Trichy bus stand road-bus stand signal	9am to 10am	90	380	0	76	1170
Trichy bus stand road-bus stand signal	6pm to 7 pm	67	489	0	68	
Malaikottai -Malaikottai Signal	9am to 10am	80	398	0	78	1072
Malaikottai -Malaikottai Signal	6pm to 7 pm	87	389	0	40	
Madurai						
Madurai Town bridge road- town bridge signal	9am to 10am	73	423	0	107	1184
Madurai Town bridge road- town bridge signal	6pm to 7 pm	60	460	0	61	
Mattuthavani road	9am to 10am	56	459	0	67	1103
Mattuthavani road	6pm to 7 pm	53	450	0	18	
Chengalpet						
Medical College Road	9am to 10am	90	389	0	76	1062
Medical College Road	6pm to 7 pm	79	339	0	89	
Paranur Tollgate Road	9am to 10am	100	378	0	88	1089
Paranur Tollgate Road	6pm to 7 pm	67	396	0	60	
Kancheepuram						
Kancheepuram town bus stand - Chennai Bangalore NH	9am to 10am	86	398	0	90	1120
Kancheepuram town bus stand - Chennai Bangalore NH	6pm to 7 pm	67	389	0	90	

Chetpet Road Chetpet	9am to 10am	69	410	0	80	1094
Road	6pm to 7 pm	60	419	0	56	
Tirunelveli						
Palayamkottai bus stand TVM road (near LIC) Palayamkottai bus stand TVM road (near LIC) Vannarapettai-Nellaiappan high road (near chennai silks)	9am to 10am	583	403	36	62	2033
	6pm to 7 pm	476	388	28	57	
Vannarapettai-Nellaiappan high road (near chennai silks)	9am to 10am	723	74	64	18	1755
	6pm to 7 pm	756	62	46	12	

2. Number of adults and children observed in the survey

Districts	Adults observed	Adults wearing helmets	Adults not wearing helmets	Children observed	Children wearing helmets	Children not wearing helmets
Chennai	1729	1023	706	281	9	272
Coimbatore	3320	2565	755	124	0	124
Chengalpet	1838	336	1502	313	0	313
Madurai	2034	242	1792	253	0	253
Salem	2059	1359	700	394	271	123
Tirunelveli	3465	2538	927	323	174	149
Kancheepuram	1898	282	1616	316	0	316
Trichy	1980	324	1656	262	0	262
Thiruvannamalai	1393	98	1295	597	6	591
Thiruvarur	1892	452	1440	141	6	135
Cuddalore	6020	1251	4769	275	16	259

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