

THE HELMET CONUNDRUM

JULY 2024



**AN ASSESSMENT OF
CHILD HELMET
USAGE AND
AVAILABILITY
IN CHENNAI**



CAG

Citizen consumer and civic Action Group

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About CAG

Citizen consumer and civic Action Group (CAG) is a 38 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

The penetration of two-wheelers in India is exceptionally high due to their accessibility and affordability, making them the preferred mode of transport for the majority. However, many riders neglect essential safety measures, significantly increasing the risk of road crashes and injuries. In India, two-wheelers are commonly used for daily activities such as commuting to work and shopping; and it's not unusual to see children being carried on them. Despite having only 1 percent of the world's vehicles, India accounts for 11 percent of global road crash deaths and injuries, according to a [2021 World Bank report](#)¹.

[According to UNICEF](#), India is home to 431 million children under the age of 18, including 250 million adolescents (ages 10-19), the largest adolescent population in the world.² The future development of the nation heavily relies on this demographic, highlighting the critical need to prioritise their safety, health, and education. Therefore, it is crucial to make concerted efforts toward the ambitious goal of eliminating road-related deaths and injuries among children. In India, the [Motor Vehicles \(Amendment\) Act of 2019](#) mandates that all children travelling as pillion riders on two-wheelers above the age of four must wear a helmet conforming to Bureau of Indian Standards (BIS).³ Further, the [Central Motor Vehicles Amendment Rule in 2022](#) said that children between nine months and four years old must wear either a crash helmet or a bicycle helmet conforming to American or European standards until specific standards are prescribed by the BIS.⁴ Besides this, they must also wear a safety harness.

To evaluate the public's ability to meet these legal requisites, CAG assessed the market availability and usage of helmets for children in Chennai. The survey involved 520 parents with children aged 0-17 years and 145 helmet shops, including retail and street

¹ Traffic Crash Injuries And Disabilities: The Burden On Indian Society, World Bank. Retrieved from [<https://documents1.worldbank.org/curated/en/761181612392067411/pdf/Traffic-Crash-Injuries-and-Disabilities-The-Burden-on-Indian-Society.pdf>]

² UNICEF Data: Monitoring the situation of children and women. Retrieved from [<https://data.unicef.org/how-many/how-many-children-under-18-are-there-in-india/>]

³ Motor Vehicles (Amendment) Act of 2019 (MVAA 2019). Retrieved from [https://morth.nic.in/sites/default/files/notifications_document/MV%20Act%20English.pdf]

⁴ Central Motor Vehicles (Second Amendment) Rules (CMVR 2022). Retrieved from [<https://static.pib.gov.in/WriteReadData/specifcdocs/documents/2022/feb/doc202221616301.pdf>]

vendors, across the north, central, and south regions of Chennai, to get a comprehensive coverage of the entire city.

The study found that helmet usage among children was significantly low. Out of 520 respondents, approximately 25% said that their children used helmets. Of these 25%, 12% indicated that their children used adult helmets. Most of the children wearing helmets were between the age group of 13-17 years. The majority of respondents (57%) stated that they purchased helmets for their children from retail shops. Bicycle helmets were the most commonly used type, accounting for 44% of all helmets used. Additionally, 88% of respondents believed it was necessary for children of all ages to wear helmets. Reasons for not using helmets included difficulty finding suitable helmets for children in shops, cost concerns, and the belief that their children were too young to need helmets.

Out of the 145 helmet shops surveyed, only 54% stocked helmets for children. Nearly half of these shops sold only 0-10 helmets for children per month. Half-face helmets were the highest-selling type, accounting for 78% of sales. The majority of shops (63%) reported that helmets for children cost more than those for adults. Among the 54% (78 shops) of the shops which stocked helmets for children, 33 brands of children's helmets were prominently sold. Although all the shops were aware of the ISI certification rule, about 9% admitted to selling non-ISI certified helmets. Additionally, 99% of the shops sold helmets for children with international certification.

To increase helmet usage among children, strategic and stricter law enforcement measures must be prioritised. Parents need to be aware of the significance of helmets for children and regular road safety education and awareness campaigns should be conducted. For the comfort and safety of children, particularly those under four years old, it is imperative for the BIS to develop specific design standards tailored to helmets for children. Ultimately, promoting the use of public transport in the long run will contribute to safer travel modes for children.

1 Background

Two-wheelers stand as the favoured means of transportation for the majority in our country. As per data from the [Road Transport Year Book 2020](#), two-wheelers top the list among registered vehicle categories in India, constituting approximately 75% of all registered vehicles.⁵ However, adherence to safety measures in India often falls short of safe standards, with two wheelers contributing prominently to this statistic. It's a common sight on Indian roads to observe riders without helmets; more so to see pillion riders without helmets. These observations underscore the low importance ascribed to road safety by motorists. With the rapid pace of urbanisation, the rate of motorization has surged, significantly heightening the risk of road crashes and traffic injuries.

In 2022, the [Ministry of Road Transport and Highways](#) (MoRTH) reported that nearly 30% of road crash fatalities were due to the absence of helmet usage, involving both riders and passengers.⁶ Tamil Nadu ranked first in driver fatalities and fourth in passenger fatalities the same year, largely due to non-compliance with helmet usage. [At the city level](#), 8.9% of road crash fatalities involving two-wheelers in Chennai were attributed to non-helmet usage, in 2023.⁷ Road crashes can occur due to road environment factors like poor infrastructure, as well as human factors such as speeding, violating traffic rules, and the lack of safety gear. While we have little control over the road environment, other road users' behaviour etc, wearing safety gear is a decision that we can make ourselves to enhance our safety in the unfortunate event of a crash. Data from the [World Health Organization \(WHO\)](#) highlights that wearing a helmet correctly can reduce the risk of fatality in a crash by over 6 times and the risk of brain injuries by up to 74%.⁸ Given the prevalence of two-wheelers as the primary mode of transportation for many Indians,

⁵ Road Transport Year Book 2019-20, Ministry of Road Transport and Highways. Retrieved from [[https://morth.nic.in/sites/default/files/RTYB_Publication_2019_20%20\(1\).pdf](https://morth.nic.in/sites/default/files/RTYB_Publication_2019_20%20(1).pdf)]

⁶ Road accidents in India 2022, Ministry of Road Transport and Highways. Retrieved from [https://morth.nic.in/sites/default/files/RA_2022_30_Oct.pdf]

⁷ Road Accident Analysis In Tamilnadu, Tamil Nadu State Transport Corporation. Retrieved from [https://tnsta.gov.in/pdfpage/pdfpage_en_4LPhMMh_2024_05_29.pdf]

⁸ Road traffic injuries, World Health Organization. Retrieved from [<https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>]

enhancing safety measures for this demographic could significantly improve overall road safety.

1.1 Children are vulnerable road users

In many countries, regulations prohibit children from being transported on a two-wheeler unless their feet can reach the passenger foot stand. Smaller children, ('smaller' defined by size and height, apart from age), are generally not permitted on two-wheelers due to concerns that they lack the physical and mental cognitive capacity to sit securely on a two-wheeler.

In India, [Section 128 of the Motor Vehicles Act](#) stipulates that no more than two individuals can ride a two-wheeler, with the passenger seated on a proper seat behind the driver's and with appropriate safety measures in place.⁹ However, enforcing this regulation is challenging, especially considering that many rely on two-wheelers for daily transportation. In India, it's not uncommon to see families of three or even four individuals, including parents and two children, travelling together on a two-wheeler. Despite its common occurrence, this practice poses significant dangers, particularly for children.

Children are considered vulnerable road users due to their limited physical, cognitive, and social development. In the event of a road crash, children are at a higher risk of sustaining severe injuries compared to adults. Additionally, the thinner skulls of younger children provide less protection to the brain, increasing the likelihood of significant head injuries. [Road traffic injuries](#) rank as the primary cause of death for children and adolescents aged 5–19 years.¹⁰ Vulnerable road users, such as pedestrians, cyclists, and motorcyclists, comprise more than half of all road traffic deaths. Therefore, children travelling on two-wheelers face elevated vulnerability and significant risks. As per the Road accidents in India, 2022 report from the [Ministry of Road Transport and Highways](#), 5.7% of road-related fatalities in India involved children under the age of 18.

To ensure the safety of children travelling on two-wheelers, Section 129 of the [Motor Vehicles \(Amendment\) Act of 2019 \(MVAA 2019\)](#) mandates that all individuals above

⁹ Motor Vehicles Act, Section 128. Retrieved from [https://www.indiacode.nic.in/show-data?abv=CEN&statehandle=123456789/1362&actid=AC_CEN_30_42_00009_198859_1517807326286§ionId=28401§ionno=128&orderno=138&orgactid=AC_CEN_30_42_00009_198859_1517807326286]

¹⁰ Technical Guidance for Child And Adolescent Road Safety, UNICEF. Retrieved from [https://www.unicef.org/media/130721/file/UNICEF_Child_and_Adolescent_Road_Safety_Technical_Guidance_2022.pdf]

the age of 4 being transported on a two-wheeler must wear helmets meeting Bureau of Indian Standards (BIS). The Bureau of Indian Standards has adopted [IS 4151](#), specifying headform sizes for helmets ranging from 500 to 620 mm.¹¹ Although there is no specific mention of sizes for children's helmets, the smaller sizes outlined in IS 4151 could potentially accommodate children's heads.

Moreover, in 2022, the [Central Motor Vehicles \(Second Amendment\) Rules \(CMVR 2022\)](#) mandated that children between 9 months and four years old must wear a safety harness and either a crash helmet or a bicycle helmet conforming to American or European standards (ASTM 1447/European (CEN) BS EN 1080/BS EN 1078) until specific standards are set by the Bureau of Indian Standards (BIS). Additionally, these rules specify that two-wheelers transporting children under four years of age should not exceed a speed of 40 kmph. Despite these regulations coming into force on February 15, 2023, enforcement and implementation is yet to begin.

2 Methodology

To gain insight into the current market landscape concerning helmets for children in Chennai, the Citizen consumer and civic Action Group (CAG) conducted a study from December 2023 to January 2024.

In assessing the usage of helmets among children, the study surveyed 520 respondents, who are parents with children aged 0 to 17. Using the Intercept surveying technique, respondents were randomly chosen from various locations such as schools, parks, markets, and other public spaces, representing a wide range of income groups and socioeconomic backgrounds. The survey encompassed different areas in north, south, and central Chennai, ensuring comprehensive coverage of the entire city.

In determining the availability of helmets for children in the market, the study surveyed 145 helmet shops, including both retail outlets and street vendors, randomly selected across north, south, and central Chennai.

3 Results and discussions

3.1 Child helmet usage

¹¹ Indian Standard Protective Helmets For Motorcycle Riders -Specification (IS 4151). Retrieved from [<https://law.resource.org/pub/in/bis/S03/is.4151.1993.pdf>]

The study findings revealed that among the 520 respondents, approximately 25% (129) reported that their children were using helmets, a notably low number. Of these 25%, 88% said that their children owned their own helmet, while the remaining 12% mentioned their children using adult helmets.

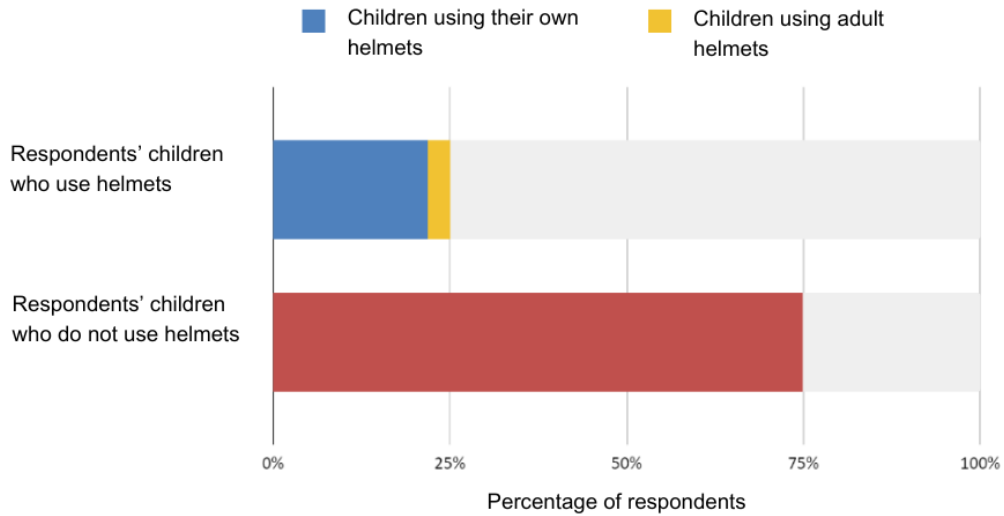


Figure 1: Child helmet usage (n=520)

Additionally, among the 25% of respondents whose children wore helmets, around 66% had a second child, of which around 84% of the parents stated having only one helmet for both children. Reasons cited included the other child being too young to wear one. Analysis based on the age groups of the respondents' children revealed the highest helmet usage among the age bracket of 13-17 years old (15%), whereas the lowest usage was observed among children aged 9 months to 4 years old (3%).

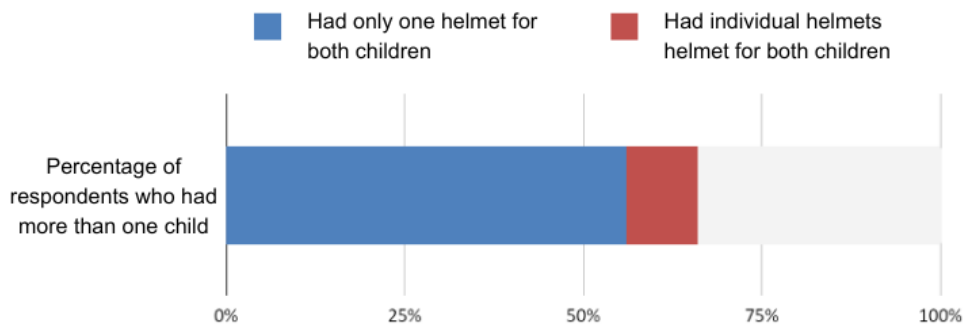


Figure 2: Child helmet usage among respondents with more than one child (n=129)

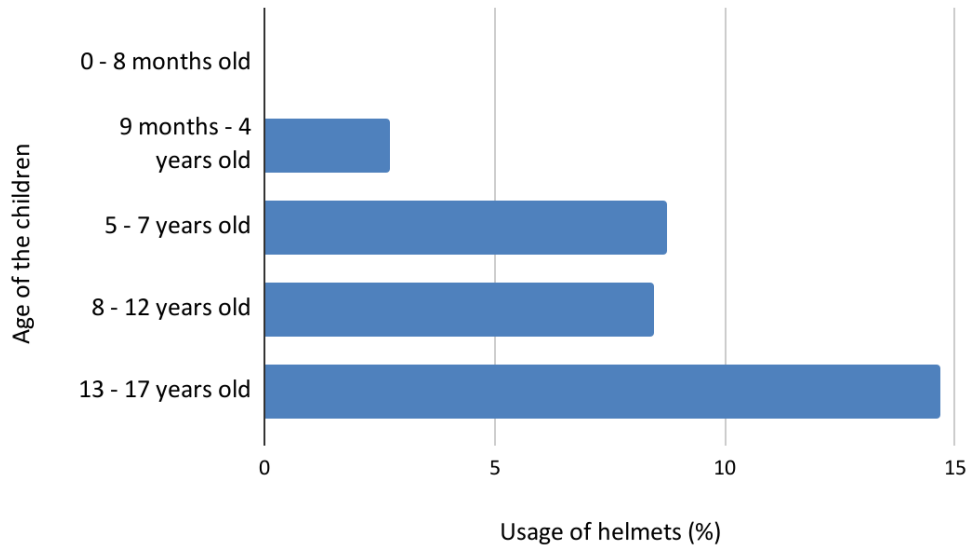


Figure 3: Child helmet usage among different age groups

[A 2021 study on helmet compliance conducted by CAG](#) revealed that despite awareness of the requirement for both the driver and pillion rider to wear helmets, compliance was lacking, citing reasons such as discomfort, excessive sweating, impacts on hairstyle, or the perception of safer travel on smaller roads.¹² Hence, when adults themselves harbour doubts about the necessity of wearing helmets, it's no surprise that they do not prioritise helmet usage for their children. Despite laws prohibiting more than two people from riding a two-wheeler, the prevailing practice involves children sitting in between held by an adult pillion rider or allowing them to sit on the pillion rider's lap, leading parents to believe their children are safe and helmets are unnecessary.

Among respondents whose children owned helmets, 57% mentioned purchasing them from retail stores, 24% from street vendors, and 19% from online sources. Regarding helmet types, bicycle helmets were the most commonly used at 44%, followed by half-face helmets at 23%, half-shell helmets at 21%, and full-face helmets at the lowest percentage of 12%. The majority of children using bicycle helmets fell within the age groups of 5-7 years old and 8-12 years old. When asked about issues encountered while using helmets, the primary concerns cited were weight-related discomfort, followed by complaints of head or neck pain, and challenges with finding the right size or fit.

¹² BUCKLED UP? An assessment of helmet and seatbelt law compliance in Chennai. Retrieved from [https://www.cag.org.in/sites/default/files/database/helmet-seatbelt%20survey%202021_report.pdf]



Figure 4: Types of helmet

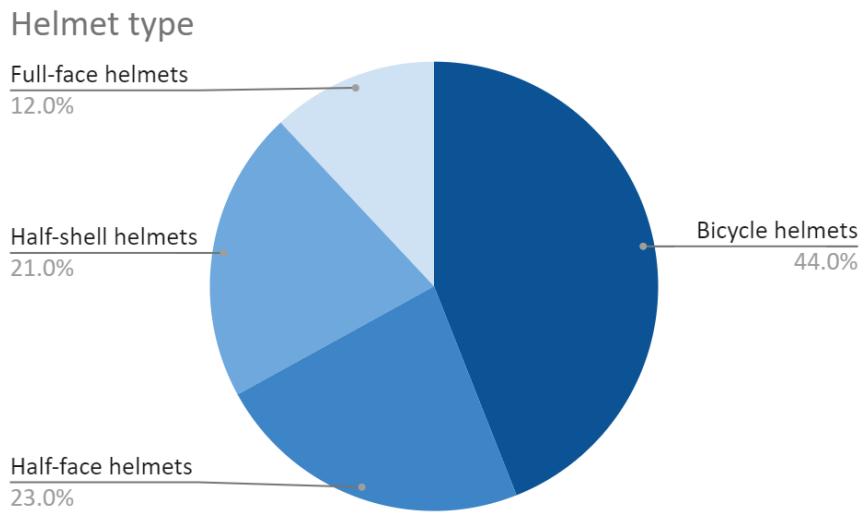


Figure 5: Usage based on helmet types (n=129)

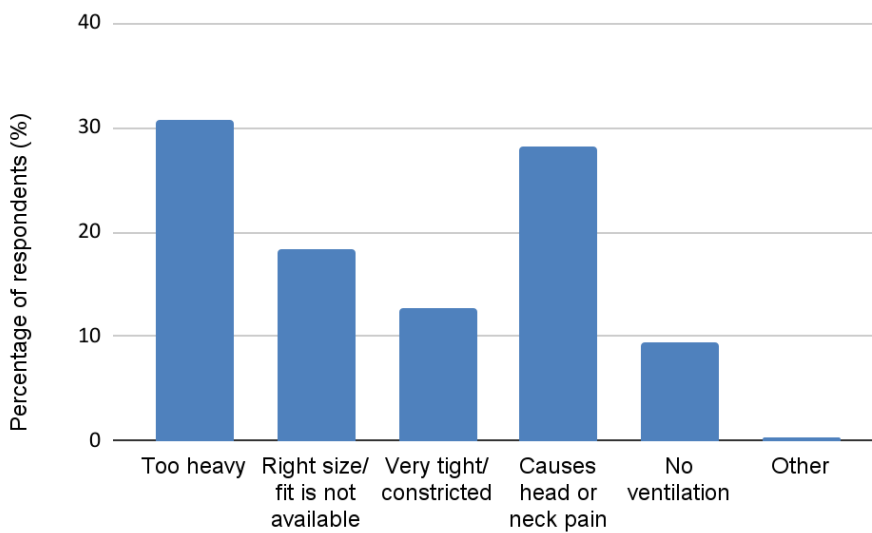


Figure 6: Issues faced by children while using helmets (n=129)

Although the CMVR 2022 permits the use of bicycle helmets for children between 9 months and 4 years old, the prevalent use of bicycle helmets extends up to the age of 12 years. Since the speed of two-wheelers is significantly higher than bicycles, the effectiveness of bicycle helmets is questionable. Currently, in India, there are no separate helmet design standards specifically for children's helmets. Given the delicate nature of children's necks and heads, the weight of helmets may pose difficulties, especially if they are designed for adults and are therefore too large and heavy. This might explain the preference for bicycle helmets, which are typically lighter.

3.2 Awareness and perception

Around 28% of respondents were unaware of the rule mandating the usage of helmets for children. Even among those who claimed awareness of the rule (373 respondents), approximately 70%, admitted to not using helmets for their children. About 26% of respondents were unaware of the ISI certification for helmets. Among those whose children wore helmets, 36% mentioned that ISI certification did not influence their purchasing decisions.

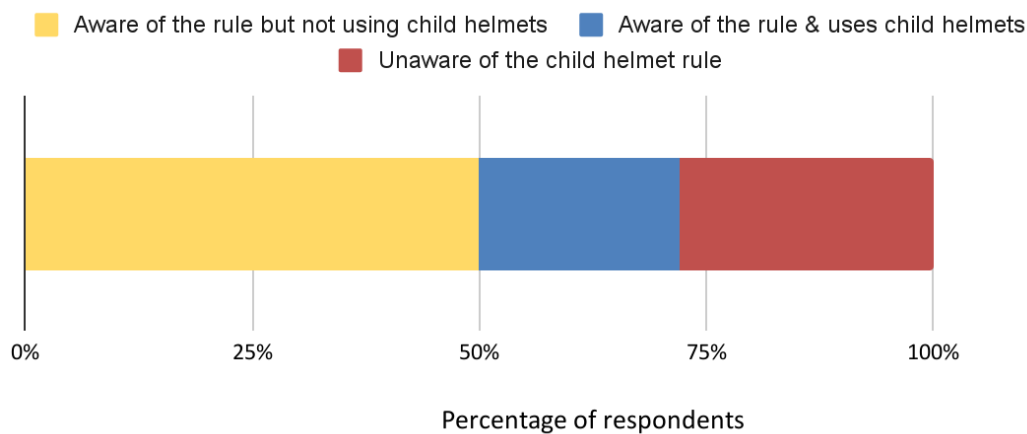


Figure 7: Awareness of the mandatory child helmet rule (n=520)

It's crucial to emphasise that ISI certification is mandatory for helmets in India and using non-ISI-certified helmets is illegal. Parents need to be educated about this requirement. Additionally, substandard helmets fail to provide adequate protection. [Studies](#) indicate that head injuries are more frequent and severe among riders wearing non-standard helmets compared to those wearing standard ones.¹³

¹³ Prevalence and factors associated with effective helmet use among motorcyclists in Mysuru City of Southern India. Retrieved from [<https://environhealthprevmed.biomedcentral.com/articles/10.1186/s12199-020-00888-z>]

The primary reason cited by the majority of respondents whose children use helmets was safety. Approximately 88% of the total respondents expressed the belief that it's necessary for children of all ages to wear helmets. However, around 73% of them admitted to not using helmets for their own children.

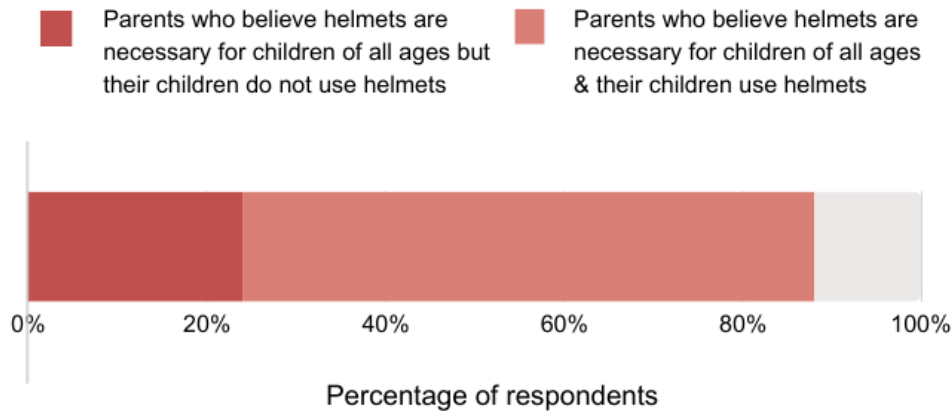


Figure 8: Opinions about necessity of child helmet usage (n=520)

The majority of the respondents' children who do not use helmets fall within the age groups of 9 months to 4 years and 8 to 12 years old. Reasons for non-usage included difficulty finding helmets for children in shops, cost concerns, or the belief that their children were too young to wear helmets. Helmets for children in India are relatively affordable compared to the cost of vehicles themselves. Parents should consider investing in helmets as a long-term investment in their children's health and safety, as the burden of injuries and medical expenses far outweighs the cost of helmets.

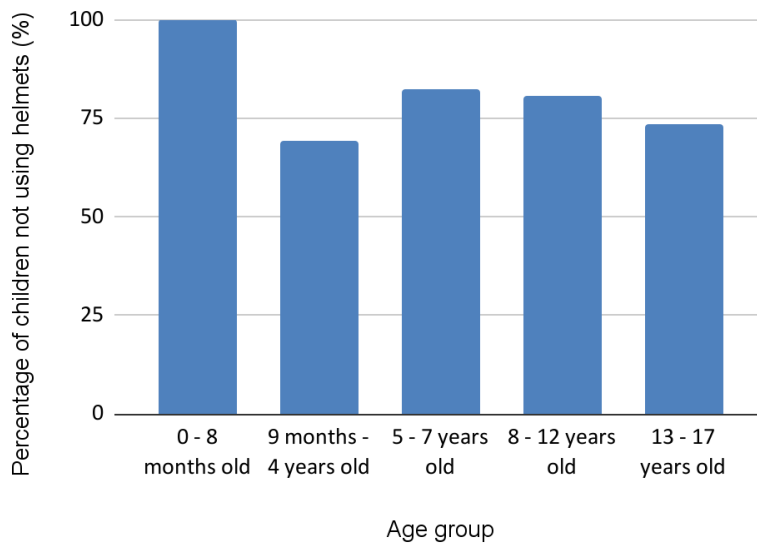


Figure 9: Non usage of child helmets based on age groups (n=391)

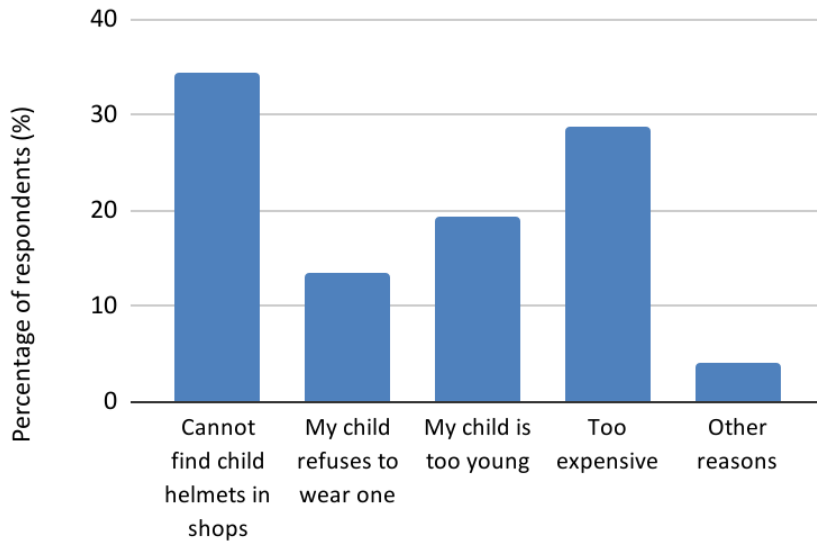


Figure 10: Reasons for non usage of helmets for children (n=391)

When asked what can be done to enhance the safety of children travelling on two-wheelers, suggestions encompassed increasing parental awareness, ensuring adherence to traffic regulations by all road users, bolstering road safety measures, promoting safe driving habits, and implementing surveillance cameras to monitor violations. Opinions diverged, with some underscoring the necessity for government-led actions like road safety campaigns and heightened awareness efforts, while others emphasised the significance of individual accountability and the practice of safe driving habits.

3.3 Helmet availability

To evaluate the availability of ISI-certified helmets for children, CAG conducted a survey of helmet shops. Out of the total 145 shops surveyed, 48% were street vendors, and 52% were retail outlets. Only 54% of these shops stocked helmets for children, accounting for slightly over half. Among these, retail shops constituted the majority, making up about 71%. Nearly half of the shops (47%) reported selling only between 0 and 10 children's helmets per month, while approximately 21% of the shops sold between 10 and 20 per month. The helmets for children aged 10 to 15 years were the highest-selling category in the majority of shops. This closely aligns with the findings from the parental survey, which indicated the highest helmet usage among the age group of 13 to 17 years old. The primary reasons cited by shops for not stocking helmets for children were a lack of demand and procurement difficulties. This cycle, where shops refrain from stocking helmets due to perceived lack of demand, while parents refrain from purchasing due to limited availability in shops, must be broken.

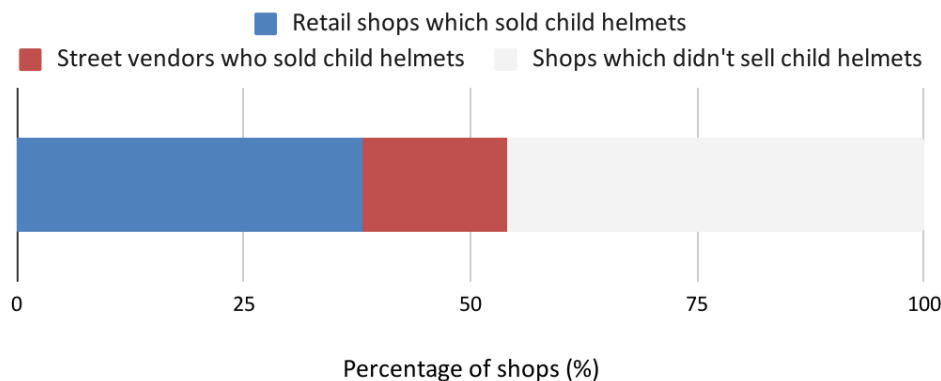


Figure 11: Shops which sold helmets for children (n=145)

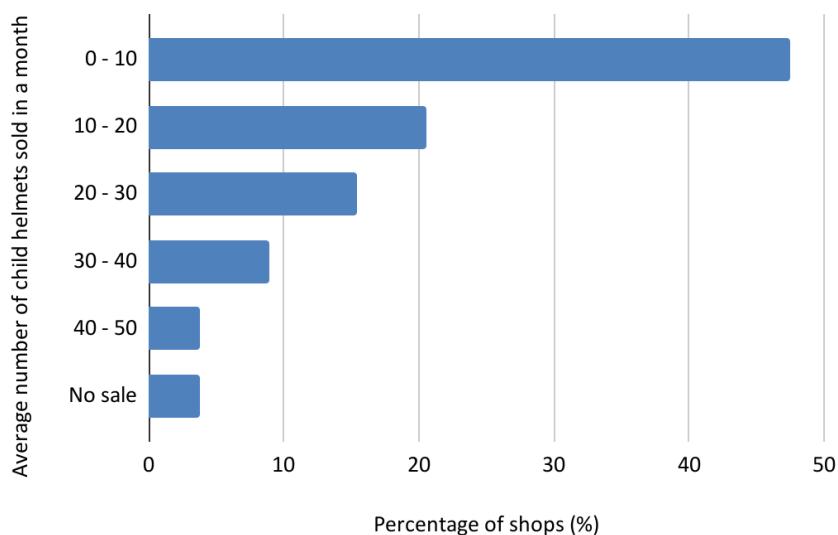


Figure 12: Child helmet sales per month (n=78)

3.4 Helmet types and affordability

Full-face and half-face helmets were the predominant types available in shops, followed by half-shell helmets. Among these types, half-face helmets (78%) were the highest-selling, followed by full-face helmets (76%). Half-shell helmets constituted 24% of sales. Helmets manufactured according to Indian Standards Institution (ISI) standards are designed to offer comprehensive protection to the head, neck, ears, and jaws. However, half-shell helmets, which do not fully cover the head, fail to comply with ISI standards and are therefore illegal for shops to sell. Despite this, shops continue to stock them due to their saleability, as they are perceived as a cheaper alternative and a way to avoid penalties.

Approximately 77% of shops either stated that there were no specific sizes for helmets for children or that sizes were determined based on the child's head size. The remaining 23% mentioned sizes such as small, medium, and large available in specific brands, although sizes may vary across brands. Additionally, the majority of shops (63%) reported that helmets for children were more expensive than adult helmets. Among the surveyed shops, 24% reported an average cost ranging from 800 to 1000 rupees, followed by 22% reporting a price range of 500 to 800 rupees.

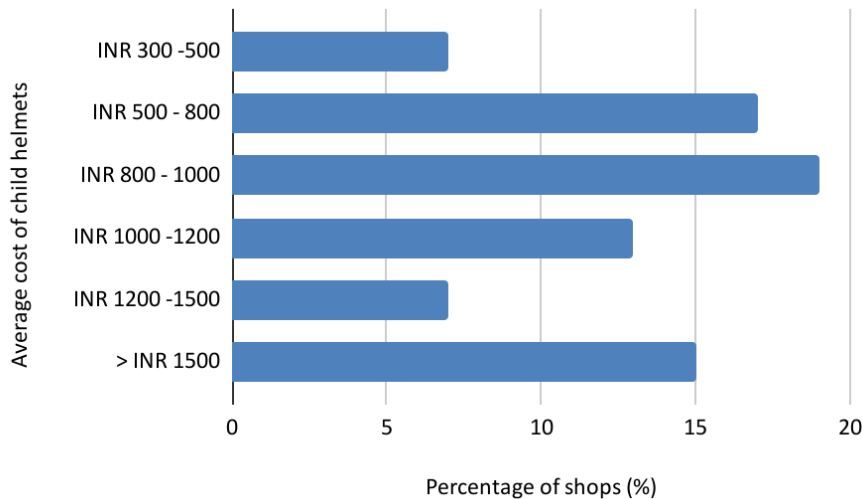


Figure 13: Cost of helmets for children (n=78)

The cost disparity may vary based on factors such as brand, quality, and certification, contributing to the low usage of helmets for children. Families may hesitate to purchase multiple helmets if they have more than one child, as this would increase their expenses. Hence, it is not solely the individual helmet's price that poses a barrier, but rather the cumulative cost of acquiring multiple helmets.

A total of 33 brands producing helmets for children were prominently sold in the surveyed shops which sold helmets for children. Popular brands included Steelbird, Vega, Active-Candy, and Saga, with prices ranging from 400 to 9000 rupees. Some brands offered helmets for children priced as high as 40,000 rupees, such as TVS, Asr, and Tru. The majority of shops indicated that brand was the primary factor influencing parents' purchasing decisions, followed by factors such as fit and price.

3.5 Certifications

All shops possessed knowledge regarding ISI certification. However, among those shops selling helmets for children, approximately 9% admitted to also stocking helmets lacking

ISI certification. The Bureau of Indian Standards (BIS) is responsible for ensuring that non-ISI helmets are kept out of the market. In a [gazetted order](#) issued in November 2020, the Union government mandated IS:4151 certification for helmets bearing the standard ISI marking, designating the BIS as the authority responsible for certification and enforcement.¹⁴

Nearly 99% of shops sold helmets for children with international certification. A total of 32 helmet brands with international certification were available in the surveyed shops which sold helmets for children. Prominent brands with international certification included Vega, Steelbird, and Saga. Prices for these internationally certified helmets ranged from 500 to 90,000 rupees. However, it's important to note that international helmets must also possess ISI certification to be legally sold in India; otherwise, they are deemed illegal, despite some international certification tests surpassing ISI standards.

4 Way forward

4.1 Standards for design

There is a pressing need for helmets specifically designed for children aged 9 months to 4 years, considering their unique requirements. Developing such standards may present challenges due to the absence of existing models, as many countries worldwide prohibit child passengers on two-wheelers. Balancing impact protection with minimal weight necessitates the utilisation of materials that provide sufficient safeguarding without adding unnecessary mass. Therefore, children's helmets may necessitate materials that effectively balance protection and weight. Hence, concerns regarding helmet design, including weight, ventilation, and size, should be addressed by the Bureau of Indian Standards (BIS) to ensure suitability for children.

4.2 Stricter enforcement of the law

Strict enforcement of child helmet laws is crucial and should involve surprise checks at various locations, including local streets. Effective enforcement can include the following principles:

1. Strict and consistent enforcement after an initial public warning period.
2. Repetition of enforcement campaigns to signal high risk of being caught.

¹⁴ Helmet for riders of two wheeler motor vehicles quality control order 2020. Retrieved from [<https://www.bis.gov.in/wp-content/uploads/2020/12/Helmet-for-riders-of-Two-Wheeler-Motor-Vehicles-Quality-Control-Order-2020.pdf>]

3. Increased visibility through strategically located checkpoints and roadblocks.
4. Well-publicised enforcement combined with education and publicity campaigns involving government, local authorities, media, and other agencies.

To enhance deterrence, individuals must perceive a high likelihood of being caught. However, manual identification of violators is impractical given the large population. Automated technologies like ANPR cameras can play a vital role in identifying offenders.

4.3 Awareness and education

Awareness and education play a critical role in ensuring children's safety on two-wheelers. Many parents falsely believe that young children, even those above 10 or 12 years old, don't need helmets because they can control vehicle speed and ensure safety. However, this misconception overlooks the limited ability of children to hold onto the bike during a crash. It's crucial to educate parents about these risks. Moreover, dispelling the misconception that helmets are unnecessary for short distances or smaller roads is essential, as many serious crashes occur close to home. Parents also need to understand the dangers of using substandard helmets.

Research shows that combining road safety education with law enforcement yields the most significant impact on helmet usage. Enforcement alone may lead to superficial compliance to avoid penalties, with behaviour reverting once enforcement is reduced. Therefore, education initiatives are vital to foster lasting behavioural change and ensure compliance with helmet laws. Integrating road safety education into the school curriculum can emphasise helmet importance and empower children to advocate for their use.

4.4 Increase the availability of helmets for children

To enhance access to helmets for children, the Tamil Nadu Transport and Road Safety Commission should take steps to boost the production and availability of standard helmets in stores. To stimulate demand and promote the manufacturing and sale of helmets for children, the government could explore subsidising their cost, making them more affordable for the public.

4.5 Public transport

The debate over allowing children, especially those under 4 years old, to travel as passengers on two-wheelers remains unresolved. While many countries have prohibited this practice, implementing such a ban may not be feasible in countries like India, where two-wheelers are the predominant mode of transport, particularly for low-income individuals. Hence, promoting public transport as a sustainable solution to enhance child safety is essential, though substantial enhancements are required to make it a viable alternative.

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