



Understanding the Non-use of Rear Seatbelts in Iran: A Qualitative Exploration of Factors and Reasons

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ABSTRACT

Objective: This study explored the underlying reasons for non-compliance with seatbelt usage among rear-seat passengers in Iran.

Methods: This qualitative study was conducted in 2023 with a diverse group of participants, including driving instructors, drivers, psychologists, rear-seat passengers, and experts in the field of traffic accidents and driving from Tehran, Khuzestan, and Golestan (n=39 persons). Data were collected through semi-structured interviews and focus group discussions and analyzed using conventional content analysis. The interviews, which lasted between 40 and 90 minutes, were recorded using two digital recorders, transcribed verbatim, and analyzed following the conventional qualitative content analysis method.

Results: The findings revealed several factors contributing to the non-use of rear seatbelts, including lack of sufficient awareness of laws and regulations, incorrect behavioral and cultural attitudes, socio-economic influences factors, inadequate law enforcement and related organizations, and poor quality of seatbelts. Based on these findings, potential solutions were proposed, such as continuous education and awareness campaigns, improvements in seatbelt quality, and enhanced collaboration among relevant organizations to promote traffic safety culture. Education on the importance of seatbelt use should begin comprehensively in early childhood and continue into adulthood, with families playing a pivotal role in fostering this awareness.

Conclusion: This study identified key factors influencing the non-use of rear seatbelts, including awareness of laws, cultural attitudes, socio-economic influences, and seatbelt quality issues. To address these challenges, the study recommended prioritizing ongoing education on seatbelt use, improving the quality of seatbelts, and fostering collaboration among traffic police, media, and educational institutions. These measures aimed to enhance traffic safety, increase compliance with seatbelt laws, and ultimately reduce fatalities and injuries resulting from road accidents.

Keywords: Road accidents, Seat belt usage, Seat belts, Promote traffic culture, Rear-seat passengers.

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Introduction

Road accidents are one of the most significant public health challenges and leading causes of mortality worldwide [1-4]. Globally, approximately 1.3 million people die annually due to road traffic accidents, with around 93% of these fatalities occurring in low- and middle-income countries. Injuries resulting from road traffic accidents have profound societal and familial impacts, with such accidents costing up to 3% of the gross domestic product (GDP) in many countries [5].

According to the World Bank, seatbelt use is recognized as one of the most effective measures for reducing road accident fatalities. Drivers and passengers, whether seated in the front or rear, who do not wear seatbelts are injured at approximately similar rates, and the use of seatbelts significantly mitigates the risk of severe injuries. The World Health Organization (WHO) reported that seatbelt use could reduce the risk of death and serious injuries among drivers and passengers by up to 50% [5, 6].

Despite existing laws and regulations mandating vehicle safety measures, including seatbelt use, many drivers and passengers in Iran continue to neglect this critical safety practice [7, 8]. Various factors influence seatbelt usage. A study showed that beyond the existence of laws, the comfort of seatbelts plays a significant role. Two key mechanisms, reducing the perceived difficulty of fastening seatbelts and diminishing the perceived benefits of not using them, can enhance seatbelt usage, particularly among individuals with a health preservation mindset [9].

Therefore, a better understanding of the determinants of seatbelt non-use is essential for developing effective policies to promote usage and reduce the economic and social burdens of road accidents. This study aimed to explain the reasons and factors contributing to the non-use of seatbelts by rear-seat passengers in Iran. By addressing these factors, the study investigated the contributing strategies that enhanced seatbelt compliance, ultimately reducing fatalities and injuries resulting from road traffic accidents.

Materials and Methods

The study employed a conventional qualitative content analysis approach to explore the causes and factors influencing the non-use of seatbelts by rear-seat passengers. The study was conducted from July 2023 to February 2024.

The study included 39 participants (20 men), comprising traffic officers, drivers, psychologists, rear-seat passengers, driving instructors, and experts in the field of accidents and driving. Participants were recruited from three provinces in Iran: Tehran, Khuzestan, and Golestan (representing the capital, northern, and southern regions of the country).

To ensure comprehensiveness, the study did not

impose strict inclusion criteria, focusing instead on individual willingness to participate. Exclusion criteria included insufficient cooperation throughout the interview process and incomplete responses. The interview place was selected at the suggestion of the interviewees.

The participants were accessed through the following steps:

1. Introduction by the Research Center for the Promotion of Safety and Injury Prevention at Shahid Beheshti University of Medical Sciences
2. Dissemination of the research objectives, interview methods, and receiving informed consent forms via email.
3. Conducting interviews with participants at locations and times convenient to them to ensure comfort and promote open dialogue.

Data were collected through semi-structured, face-to-face interviews. For drivers and rear-seat passengers, the research objectives and interview procedures were explained in person, and informed consent was obtained face-to-face.

The interview guide was designed to cover the following domains:

- Awareness and understanding of laws and regulations regarding seatbelt use for rear passengers.
- Behavioral and cultural factors influencing seatbelt usage.
- Socio-economic factors affecting the willingness to use seatbelts.
- The role of law enforcement and other organizations in ensuring compliance.
- The effectiveness of educational interventions in promoting seatbelt usage.

Additionally, the study examined the laws concerning rear-seatbelt usage from six different perspectives: understanding applicable laws and regulations, key factors affecting compliance, behavioral and cultural influences, socio-economic impacts, the role of law enforcement, and the effectiveness of educational interventions. Participants were also encouraged to share additional perspectives or recommendations related to the topic.

Interviews were conducted using two digital recorders. In cases where participants expressed discomfort with recording, detailed notes were taken to transcribe the content. Purposeful and snowball sampling techniques were used to recruit information-rich participants. Interviews continued until data saturation was achieved, which occurred after 27 interviews when no new themes or codes emerged. However, interviews were conducted with 31 participants to ensure the representativeness of the findings [10].

This study employed a semi-structured, face-to-face interview method to collect data [11]. The researcher prepared an interview guide sheet containing a list of open-ended questions and key topics to be addressed during the interviews. While the guide outlined the main themes to be covered, the interviewer was not

strictly bound to follow the order of questions. Instead, the flow of the interview was adapted based on the responses and materials provided by the interviewees. This flexible approach allowed the researcher to ask follow-up questions and explore the subject in greater depth as the conversation unfolded.

Finally, a focus group discussion (FGD) was conducted with eight experts, including members of the Research Center for the Promotion of Safety and Injury Prevention at Shahid Beheshti University of Medical Sciences (Tehran, Iran), two traffic police officers, two road traffic police officers, two faculty members from the same Research Center, and a psychologist. The FGD lasted 150 minutes, with one researcher moderating the discussion and another taking detailed notes to ensure accurate recording of participants' ideas.

Data were analyzed using conventional qualitative content analysis based on the method described by Graneheim and Lundman's (2004) method [12]. The analysis process included the following steps:

1. Immediate transcription of interviews
2. Repeated reading of transcripts for deep understanding
3. Extraction of codes from the interviews
4. Grouping similar codes into content categories
5. Labeling each category based on its meaning

Two researchers (R.F & G.J) independently conducted and transcribed the interviews, which lasted between 40 to 90 minutes. Transcripts were carefully reviewed multiple times to extract codes, which were then grouped into subcategories based on similarities and differences. Finally, after a deep

understanding of it, the codes were extracted. Similar subcategories were further consolidated into main categories. MAXQDA software was used for data management, coding, categorization, and overall content analysis.

Trustworthiness was ensured through credibility, transferability, conformability, and dependability. Credibility was established through prolonged engagement, member checking, triangulation, and external checks. Researchers immersed themselves in the data over 11 months, and codes were returned to participants for verification.

Triangulation was achieved by using multiple data sources, including interviews, focus group discussions, and field notes. One of the researchers (H.P.) checked all processes of the study.

The transferability of the study was enhanced through detailed descriptions, maximum variation sampling, and multi-site research [13]. Several sampling methods, such as purposeful and snowball, were employed. Moreover, participants were selected from three heterogeneous provinces.

To establish dependability and confirmability, methods such as double coding, inquiry audit, and audit trail were implemented. Four interviews were coded independently by R.F. and G.J., with inter-coder agreement calculated using percentage agreement. The agreement between coders exceeded 90%. An external auditor (H.P.) reviewed all data collection, analysis, and reporting processes.

All interviewees spoke Persian. After extracting codes and categories, these have been translated into Persian under the supervision of an expert translator.

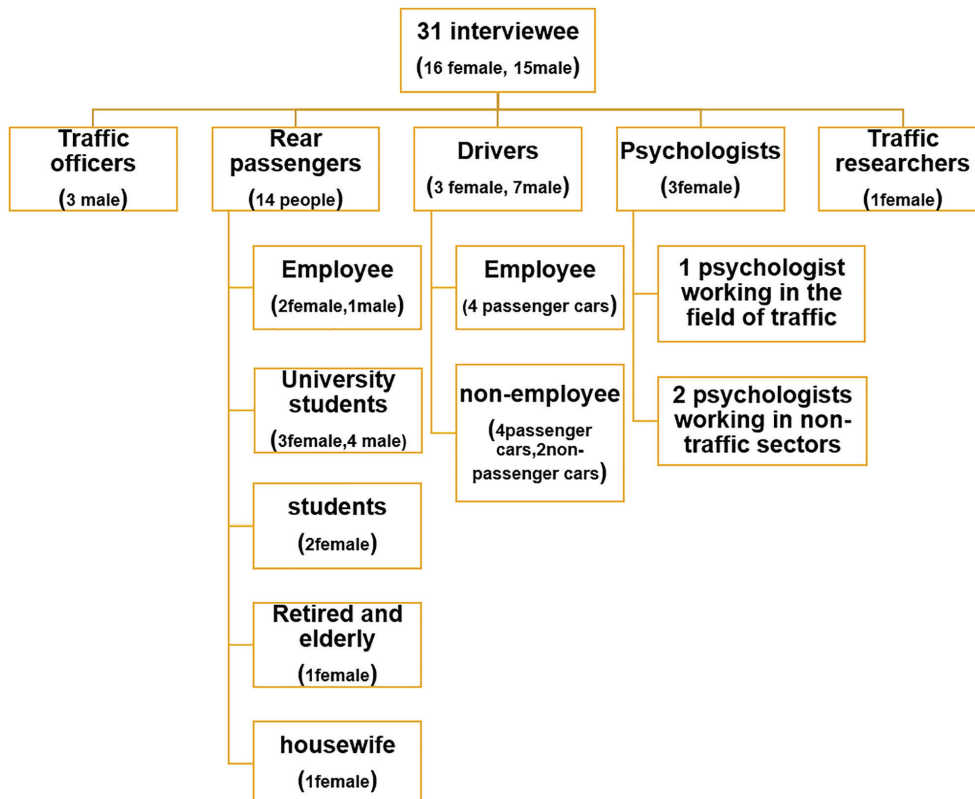


Fig. 1. Information on the characteristics of the participants

Results

Figure 1 presents the demographic and psychographic characteristics of the study participants. Data saturation was achieved after conducting 31 interviews.

The participants articulated 53 distinct codes, which were subsequently refined through the elimination of duplicates and alignment, resulting in a total of 19 unique codes (Table 1 and Figure 2).

The summary of the interview results of all groups is as follows:

1. Awareness and Educational Initiatives Regarding SeatBelts for Rear Passengers

The findings indicated a moderate level of community awareness regarding the importance of seatbelt use for rear passengers. However, there remained a significant requirement for enhancing education and promoting awareness.

Two key issues were identified:

- Initial awareness was limited due to inadequate and inconsistent education, which failed to translate into a shift in mindset and behavior.

Table 1. Various aspects of rear passenger safety belt usage/non-usage in vehicles

The aspect under consideration	The group of interviewees who commented on this issue.	Subset	Topics explained by the interviewee
Understanding the rules and regulations regarding rear-row seat belts	All groups interviewed	Education and Awareness	1. Inadequate and unprincipled education and training 2. Misperception of low risk for rear-row passengers
Factors related to behavior and culture that influence the use of seat belts by rear passengers	Drivers, rear passengers, psychologists	Behavioral factors	1- People's lack of positive view of some of the rules of society. 2-Rapid changes in legislation have opened up loopholes that allow individuals to evade the law, contributing to a culture of lawlessness to some extent within society.
	Traffic researchers, rear passengers, drivers, traffic officers, psychologists.	Cultural factors	1-Society's lack of understanding about the importance of rear passengers using seat belts. 2-Neglecting the principles and values of citizenship culture should be acknowledged. 3-The prevailing absence of a traffic culture within the society.
Social and economic factors influencing adherence to the law, as mentioned earlier	Researchers, psychologists, backseat passengers, drivers, Emergency workers	Social factors	Using social programs to encourage the majority of the community to use seat belts for rear-row passengers habitually makes it a fashionable trend.
	Drivers, psychologists, Rear passengers	Economic factors	1-The economic status influences life expectancy and the prioritization of people's health. 2-Low-quality domestic cars, primarily at low to moderate economic levels, often lead to a sense of discomfort during use. 3-Some cars lack rear-row passenger seat belts.
The role of corridor police or other entities that can be efficient in this domain	All groups interviewed	Law related	1-actions fairly without favoring punishment or rewards 2- Lack of seriousness regarding the laws and regulations related to passenger seat belts by the Traffic and Driving Police. 3- negative view on local laws and lack of cooperation among relevant organizations to improve adherence to this law
Educational interventions	All groups interviewed	Important educational groups	1-Education should be all-encompassing and lifelong, starting from childhood and continuing into adulthood. 2-Education should center around the family unit and engage the broader community. 3-Provide specialized training for first-time driver's license applicants and incorporate it into the license renewal process. 4- Implementation of diverse educational programs for different age groups by the corridor police.
	Traffic police officers, health researchers, psychologists	Collaboration between different departments of various educational organizations	Cooperation in education should involve all interested organizations, with three key players being the Broadcasting organization, education, and traffic police.

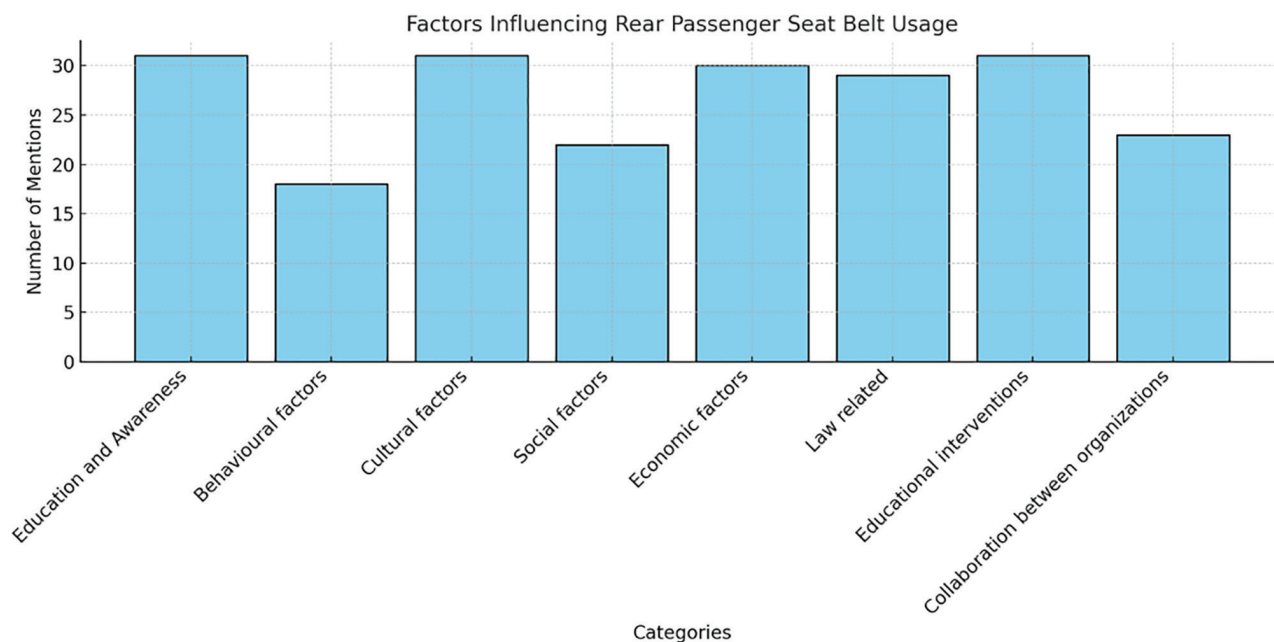


Fig. 2. Factors influencing rear passenger seat belt usage, categorized by the number of mentions.

• A prevailing belief existed that rear-seat passengers face lower risk and, therefore, there was no need to wear seat belts. Some participants did not attribute the lack of seatbelt use to ignorance but rather to other factors.

Psychologist 3: *"We have overlooked the impact of intellectual disabilities on individuals within families. In addition to not maintaining educational programs at kindergartens, schools, congresses, and seminars (which, of course, have become very rare today), family education should be the cornerstone of efforts in this field"*.

Education in this area should be comprehensive and continuous, starting from childhood, when individuals are more receptive to learning. It should focus on cultivating proper family values and behaviors. Stakeholder organizations across sectors should collaborate, with a particular emphasis on the Broadcasting organization, education, and traffic police.

The Broadcasting organization plays a critical role due to its broad reach across diverse societal groups. The Ministry of Education has the potential to embed traffic culture within an individual's character by integrating educational programs from an early age. The Traffic Police can enhance compliance through empathetic and innovative training methods coupled with incentive-based policies. Such approaches are more effective than punitive measures, which may enforce temporary compliance but fail to instill lasting behavioral change. Training initiatives, such as the "Police Assistant" plan implemented in the past, were proven highly effective in promoting compliance.

Similarly, targeted education for new drivers, who are highly receptive to learning traffic laws, can yield significant benefits. City-level education, through well-designed posters and banners strategically

placed in high-traffic areas and near schools, can also contribute to raising awareness and changing attitudes.

2. "Quality of Car Seat Belts"

A critical factor identified in this study was the absence of standardized seatbelts for rear-seat passengers. This deficiency could contribute to discomfort, respiratory difficulty, and increased risk in certain accidents. The issue could predominantly affect lower- to moderate-income vehicles, which constitute the majority of cars in society. Furthermore, some vehicles lack rear seatbelts entirely, requiring buyers to incur additional installation costs. To enhance public health and safety, stringent regulation of domestic automobile manufacturers' compliance with seatbelt standards is essential.

Rear passenger 4: *"Part of the reason rear passengers don't wear seatbelts is that some cars don't have rear seatbelts. Drivers have to go and install themselves, and some belts are not suitable for larger individuals"*.

3. "Seat Belt Quantity"

While many cars carry three passengers in the back seat, older or lower-cost vehicles often have only two seatbelts installed. The use of three seatbelts requires changes to the vehicles, necessitating legislative action. For example, manufacturers could be mandated to produce vehicles with five seatbelts as a standard requirement. Addressing such regulatory gaps could enhance public safety and promote compliance with safety regulations.

4. "Emphasizing the principles of citizenship and traffic culture"

The prevailing disregard for traffic culture

has normalized non-compliance, including the underappreciation of rear-seat seatbelt use. Cultivating a culture that recognizes the importance of these safety measures is crucial. Educational programs should be aligned with the cultural context and involve community members in social initiatives to increase adoption rates.

5. "Legislation and lawlessness"

The lack of public trust in certain laws and frequent changes in legislation have fostered a culture of lawlessness. To address this issue, it is essential to implement effective communication, education, and enforcement mechanisms that promote a culture of compliance and respect for the law. Comprehensive public awareness campaigns, integrated law-related education in schools, and consistent enforcement are essential strategies. Community policing strategies can also enhance collaboration between law enforcement and the public. These campaigns should utilize multiple media platforms to reach a broad audience and be customized to appeal to diverse demographic groups. Additionally, integrating law-related education into school curricula can foster a deeper understanding and appreciation of legal principles from an early age.

Moreover, consistent and transparent enforcement of laws is crucial. Law enforcement agencies must be equipped with the necessary resources and training to effectively uphold the regulations while maintaining public trust. This includes adopting community policing strategies that encourage collaboration between law enforcement and community members, thereby enhancing mutual respect and cooperation.

6. "Prioritizing Health in the Community"

In today's society, individuals with lower and middle incomes often prioritize economic and social challenges over their health. For many individuals, financial instability and pressing social issues take precedence, leading to a lack of focus on personal well-being. This trend highlighted the need for initiatives that address both the economic and health-related concerns of these communities, ensuring that health remains a priority despite competing challenges.

Traffic Officer 2: *"The poor socio-economic conditions of the society have reduced life expectancy and self-esteem. Additionally, many people cannot afford to buy vehicles that meet appropriate safety standards"*.

7. "Advertising in Traffic Safety"

High-quality and appealing advertisements play a significant role in capturing public attention. Collaborative efforts among organizations can enhance the effectiveness of these campaigns.

8. "Inter-Organizational Cooperation":

It is essential to recognize that the responsibility

for enforcing compliance with traffic regulations does not rest solely with the corridor police. A collaborative, multi-stakeholder approach is essential to effectively promote adherence to these laws. Notably, educational institutions play a pivotal role in this collective effort.

Broadcasting organizations are another key stakeholder that should collaborate closely with law enforcement. By airing educational programs at strategic times and demonstrating proper traffic conduct, they can significantly influence public attitudes and behaviors. These organizations can also partner with entities such as the Ministry of Health and Forensic Medicine, the Ministry of Road Transport, the police, and other relevant entities to create and distribute posters, informational materials, and real-life stories. These materials should highlight the rear seatbelt use, thereby raising public awareness about the importance of compliance.

Moreover, automotive regulatory agencies must prioritize improving vehicle safety and standards. Ensuring that rear seatbelts are designed to accommodate all users, including children and the elderly, a consideration that is increasingly important given the country's aging population.

Psychologists affiliated with the corridor police can also play a pivotal role in identifying, educating, and counseling individuals who frequently violate traffic laws. This approach can help foster greater community adherence to regulations. Additionally, psychologists working within the "FARAJA" organization (Iran's national police) can address concerns such as work stress and inadequate compensation among personnel. By providing psychological support, they can foster a more creative and productive work environment, particularly in developing promotional and educational initiatives regarding the use of seatbelts for rear passengers.

Discussion

The study outlined multiple factors contributing to the non-use of seatbelts by rear-seat passengers. The findings underscored the critical role of traffic education, enforcement of laws, and the need for inter-organizational collaboration to promote seatbelt usage.

According to the findings, there were several reasons why rear-seat passengers did not use seat belts or do so improperly, including a lack of knowledge and education, behavioral patterns, cultural norms, and socioeconomic factors. The involvement of relevant organizations, including the Traffic Police, was essential for enforcing legislation and implementing educational programs.

While the themes and codes identified in this study were broadly applicable to countries with similar socio-cultural contexts, such as other Middle Eastern nations, caution should be applied when generalizing these findings to other regions.

The findings of this study were in agreement with prior research on seatbelt usage. For instance, Jermakian and Wiest found that two-thirds of their study population did not feel the need to wear seatbelts, with many rear-seat passengers believing that the rear seat is much safer than the front seat [14]. Similarly, Oswalder *et al.*, emphasized the need for increased awareness among adults regarding the benefits of rear-seat seatbelts to prevent accidents [15].

Grossman and Stewart further supported the importance of shaping children's and teenagers' road behavior, thereby enhancing road safety [16].

The findings of these studies corroborated the current findings and highlighted the necessity of continuous, comprehensive education from childhood to adulthood. Family and societal influence, along with targeted training for novice drivers and diverse educational programs by law enforcement agencies, were found to be critical for improving seatbelt compliance.

The findings of the present study also highlighted the importance of law enforcement by the Traffic Police and other relevant agencies. Soltani *et al.*, highlighted the efficacy of mandatory seatbelt laws, automation, and decreased perceived rewards for non-compliance in promoting healthy behaviors [9]. This study found that weak enforcement of laws significantly influenced rear-seat passengers' seatbelt usage. Previous studies also highlighted the importance of health considerations and legal obligations in promoting seatbelt utilization [17, 18]. To foster compliance with the law's mandates, individuals must perceive seatbelt use as manageable and beneficial. Designing comfortable seatbelts could reduce perceived inconveniences, such as restricted movement, and reinforce their effectiveness. Ultimately, mindset plays a pivotal role in determining whether individuals wear seatbelts due to legal requirements or personal choice [9].

Creating a traffic culture that encourages voluntary compliance with traffic laws is crucial. Media advertising, as emphasized by Vinod *et al.*, (2019), could significantly boost seatbelt utilization [19, 20]. This study suggested that educational initiatives should utilize mass media platforms, such as Broadcast Organizations, in collaboration with relevant entities to enhance the impact of mass media on shaping traffic culture. Extensive education on the importance of rear seat belt usage should begin early in schools and continue throughout adulthood, with families playing a central role in fostering this culture.

The quality, standardization, and comfort of rear-seat seatbelts are critical factors influencing their use. Developing a proper traffic culture and emphasizing citizenship values through cultural and social programs could help institutionalize desirable behavioral patterns. However, frequent changes in laws and regulations, along with a negative public perception of certain laws, resulted in a tendency to evade legal compliance. To address

this, legislation must be consistent, logical, and aligned with societal values.

Recently, there has been a discernible shift in health prioritization among lower-income demographics, leading to a diminished emphasis on health outcomes. It is imperative to re-establish the importance of health by implementing comprehensive educational and cultural programs. These initiatives should reinforce the understanding that health remains a fundamental aspect of well-being, regardless of socioeconomic status.

Inter-sectoral cooperation between all relevant organizations and institutions, including Broadcasting organizations, educational bodies, Traffic Police, Ministry of Health, and others, is essential for the successful implementation of these programs. Collaborative efforts can amplify their impact and ensure a unified approach to promoting public safety and health.

One limitation of this study was its reliance on self-reported information about seatbelt usage. This approach carried the risk of over-reporting, as individuals might seek their compliance to present themselves as responsible citizens. A study conducted by Ozkan *et al.*, in Turkey highlighted this issue, revealing that self-reported seatbelt usage was much lower than the actual rate, indicating that drivers were significantly exaggerating their adherence to seatbelt usage [21].

The study was conducted as a qualitative exploration within a specific context in our country and was not intended to represent the entire population. Data saturation was achieved after 27 interviews. However, to strengthen the robustness of our findings, we conducted additional interviews, bringing the total number of participants to 31 participants. While the results provided valuable insights, their transferability to broader populations or different contexts should be approached cautiously, as is inherent in qualitative research.

The scope of the study was specifically concentrated on the utilization of seatbelts by rear-seat passengers. Consequently, the behavior of drivers and front-seat passengers was not examined. Comparative studies indicated that compliance with seatbelt usage was lower among front-seat passengers and decreased further for rear-seat passengers [22, 23]. One of the key strengths of this study was the diversity of participants, which included not only passengers but also drivers. This approach enabled a broader exploration of varying perspectives on seat belt usage.

Overall, the findings of this study, along with similar research, suggested that extensive and multifaceted traffic training delivered through educational systems, mass media, and relevant organizations could significantly enhance the community's traffic culture and increase compliance with traffic regulations, such as seat belt usage.

To enhance the current situation, it is essential to implement comprehensive and ongoing education

programs that span from childhood through adulthood, emphasizing the role of family and community engagement. Additionally, fostering a culture that recognizes the importance of seatbelt usage for rear passengers and establishing this practice as a societal norm is important. Concurrently, rigorous oversight of domestic automakers to ensure adherence to safety standards is necessary. Law enforcement should adopt incentive-based policies rather than relying solely on punitive measures. Furthermore, synchronization and collaboration among key organizations, including educational institutions, broadcasting entities, the Traffic Police, and the Ministry of Health, are vital for success. Through such coordinated cultural and organizational efforts, significant progress could be made in promoting the use of seat belts among rear passengers.

In conclusion, coordinated cultural and organizational efforts, along with cooperation among relevant stakeholders, could play a pivotal role in promoting traffic culture and increasing the use of seat belts by rear passengers.

Declaration

Ethics Approval: Ethical approval and consent were obtained for this study. The research was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (Ethics code: IR.SBMU.RETECH.REC.1402.037).

Consent for Publication: All the authors collectively

grant consent for the publication of this study.

Conflict of Interest: None declared.

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