

A survey in understanding why the pedestrians and cyclists safety policies are ineffectiveness in Iran

Esfandiar Heidari Kani

Department of Civil Engineering, Islamic Azad University, Qaemshahr Branch, Iran

eheidarik@hotmail.com

Abstract

In this article, the tasks taken for improving the safety of cyclists and pedestrians in urban streets and rural highways in Iran, are introduced and analyzed. The final goals achieved by these tasks will also be discussed. The analyzing procedure includes the extent of consideration of rules in the byelaw, rules set by ministries, provinces' authorities and counties' authorities. The quality of road facilities and safety equipment considered for pedestrians and cyclists and their rule in increasing the level of safety on roads, is also discussed.

Evaluating these tasks with existing laws and the rules of geometric design, analyzing the facilities and behavior of road users, are the most highlighted parts of the research. Controlling the increasing number of accidents, which cyclists and pedestrians are involved in, is an important challenge for authorities in Iran. Even though a good number of safety improvement projects have been funded and completed in last few years, the result is not satisfactory and this is why the issue of pedestrian and cyclist safety, is considered to be a major national problem in Iran.

Finally, the parameters that would cause the failure of the mentioned safety projects will be identified and practical solutions will be provided.

Keywords: pedestrian safety, bicycle safety, regulation, safety policy.

1. Introduction

Nowadays, controlling road accidents is a challenging issue for all countries. Injuries and fatalities caused by accidents decrease welfare and satisfaction levels in the society. Yearly, 1.24 million people die worldwide in road accidents. 50% of them are vulnerable road users that include 280,000 motorcyclists (23% of total death), 270,000 pedestrians (22%) and 60,000 cyclists (5%) [1]. Pedestrians, cyclists, riders of motorized two-wheelers and their passengers are collectively known as "vulnerable road users".

92% of road traffic deaths happen in low and medium income countries. However, these countries have only 53% of the world's registered vehicles. Vulnerable road users account for half of all road traffic deaths globally. The proportion of road traffic deaths to number of vulnerable road users is greater in low-income countries compared to high-income countries [2].

In some countries this proportion is as high as two thirds of all road traffic deaths. Millions of pedestrians experience non-fatal injuries; some of them are left with permanent disabilities. These incidents cause suffering and grief as well as economic hardship. The capacity of the roads for supporting pedestrian safety is an important component to prevent road traffic injuries. Pedestrian collisions, like other road traffic crashes, should not be considered as inevitable accidents, because, they are both predictable and preventable.

The main risks pedestrians face in roads are well documented. These risks include issues related to a broad range of factors. Behavior of drivers particularly in terms of speeding and drink and driving, infrastructure in terms of a lack of dedicated facilities for pedestrians such as sidewalks, raised crosswalks and medians, and vehicle design in terms of solid vehicle fronts which are not forgiving to pedestrians. Poor trauma care services in many countries also thwart efforts to provide the urgent treatment needed to save pedestrians from accidents [3].

Road traffic crashes are predictable and can be prevented. Many countries have achieved sharp reductions in the number of crashes and in the frequency and severity of traffic-related injuries by addressing key issues. Interventions that have been proven to be effective on this issue, deal with speeding, seat-belts, child restraints, helmets, road design and infrastructure and emergency services [4].

2. Literature Review

There are no comprehensive and defragmented studies on pedestrian and bike accidents in Iran. But these topics have been considered in the thesis of a few master students. Because of the lack of bicycle facilities, it is reasonable that there are no specific studies about it. Besides, policies for pedestrian and bicycle facilities in Iran, are not available documented.

3. Facts

In Iran, collecting, processing and presenting pedestrian and bicycle accident statistics is not done regularly or even officially and consequently, most of the received information is incorrect and not reliable. National Legal Medical Organization is the only legal and valid reference for statistics and information of accident victims, including number of fatalities and injuries. Previously, the police, Ministry of Road and Urban Building and Legal Medical Organization had this responsibility and consequently, there were differences between the provided statistics by these organizations.

Traffic accidents on Iran roads cause thousands of deaths and injuries every year and cost the country's economy billions of dollars. UNICEF, together with Ministry of Health in Iran, State Welfare Organization, police forces, and the Municipality of Tehran, have begun an awareness-raising campaign to shed more light on these facts in order to reduce the mortality and injury rates caused by road accidents. Some of the key statistics of which any traffic participant in Iran should be aware are as follows [4].

- The rate of road accidents in Iran is twenty times more than the world's average.
- In Iran, among all unintentional fatal injuries inflicted on children fewer than five, traffic related fatalities are the leading cause of death.
- Each year, road traffic crashes kill nearly 28,000 people in Iran and injure or disable 300,000 more.
- Every 19 minutes one person dies on roads in Iran. Every two minutes one person survives a crash but with serious injury and in some cases, lifelong disability.
- Traffic fatalities cost Iran's economy six billion US dollars every year, which is equivalent to more than 5% of the country's Gross National Product.
- 25% of all road fatalities in Iran involve motorcycles. Over 60 per cent of those occur because the drivers did not wear a helmet and incurred head traumas.

4. The Status Quo

4.1. Statistics

4.1.1. Bicycle

The number of bicycles in Iran is not known. Large number of bicycles are owned in Iran, but most of those are children bicycles that are only used for entertainment and not for transportation purposes. Therefore, ownership capitation is not accessible. It is a fact that use of safety set is not obligatory for cyclists. There are not any bicycle facilities in Iran even though procedures and rules for urban and rural development emphasize on the existence of these facilities.

In Tehran around twenty years ago, one bicycle path about 2km was established in one of the streets. However, it had many functional problems and deficiencies that caused this path to breakdown practically. In some rural roads, the bicyclists have the permission to cycle in shoulders, and can also cross pass the road at the same place.

4.1.2. Pedestrian

Walk ways in urban streets and rural roads are very different. In urban streets, continuous network of walk ways cannot be found in any of the Iranian cities. There is no continuous path for both cross passing and in walk ways. The design of intersections and other pedestrian pathways are not sufficient for total pedestrian safety. The markings are defect or do not exist generally. In most of cities, there are pedestrian overpasses on high speed streets. But people do not use these overpasses for some reasons, such as height of the stairs and lack of equipment to support disabled users. In addition, full covering of the sides can decrease the security of the users inside the overpasses, in terms of robberies and other crimes that occur on the overpasses.

In rural roads, pedestrians are allowed to use the shoulders as walk ways. For cross passing, some overpassings are established over the roads near or in residential areas, which people do not have any interest in using them. Some fatal pedestrian accidents have occurred right underneath those structures, in spite established pedestrian barriers. In Iran, there is no formal and regular road safety training in schools or other organizations. Only in pre-primary schools, some simple training is explained without any practice.

5. Education

5.1. Regular Training

Iran does not have any regular training in any of ages. On the other hand, road safety training has a good position in education systems in most of the countries. In addition to formal training, there are many other informal trainings and programs in those counties. Some countries have developed dedicated training programs on road safety at schools, such as Great Britain, Australia and France, Spain, Nordic countries and New Zealand [5], [6], [7].

5.2. Non regular Training

Radio, TV, newspapers, magazines and other forms of media try to teach some safety concepts. However, they did not succeed because these kinds of trainings are without practice, exams and they do not teach all the required aspects in a responsible manner. Their programs are not specific and also, more attention is paid to the accuracy and perfection of social and journalism aspects, unlike the technical aspects

6. Rule Observance

Practically, there is no prohibition for pedestrians to stop them from using any part of the roads in Iran. In all cases the vehicle is in fault.

Cyclists on the other hand, do not have designated pathways in urban and rural areas. Thus, they usually use any part of the roads that they want and there is no practical rule for stopping them. Generally, they pass from everywhere they want. However, in case of accident, bicycle faults are analyzed the same as car faults are.

7. Rule Enforcement

Pedestrians are never fined in Iran. In addition, the law sees no difference between bicycles and vehicles, and after any crash, the approach is that the bicycle is a full vehicle and must have observed the road rules. However, like pedestrians, bicycles are never fined as well.

8. Regulations

8.1. Pedestrians

Issue number 144 “Pedestrian Facilities” by the Iranian Technical Criteria Office, a part of Management and Planning Organization of Iran, in 1996 is the basis for planning and design [8]. In addition, ministry of Housing and Urban Development has an issue about pedestrian facilities [9].

8.2. Bicycles

There is no bicycle regulation by the Iranian Technical Criteria Office. But like pedestrians, ministry of Housing and Urban Development has an issue for bicycle facilities [16]. In this issue, bicycle facilities are a small part of urban planning and bicycles are not important as a transportation alternative. In publication No.415 that was issued in 2012, bicycle was a minor subject. In police traffic regulations, bicycle issue is only penalty related.

9. Subject Importance and Consideration by Authorities

Even though there exist regulations for pedestrian and bicycle facilities, but authorities do not have any obligation and propensity for promotion of pedestrian and bicycle facilities status. It is safe to say that bikes and cyclists are forgotten in Iran. Also, despite many regulations for pedestrian facilities, in all cities in Iran, continuous walkways in traffic network are not seen. More importantly, disabled individuals never travel in the cities on safe and continuous walkways.

10. Accident Statistics

In a cross-sectional study designed and developed in Sina Trauma and Surgery Research Centre, out of 8323 victims of Road Traffic Accidents (RTA), a considerable portion were pedestrians (41%), followed by motorcyclists (34.1%), car occupants (19.6%), bicycle riders (3.8%) and others (1.6%) [10].

10.1. Pedestrian

Obtaining the correct number of pedestrian incidents is not an easy task. The police are responsible for collecting and processing accident information. Access to accidents' information details is very difficult and in some cases impossible. Also, the type of information is in a manner that cannot be used for analysis and planning.

Pedestrian accidents make up 40% of total accidents in urban areas and 25% in rural areas. Majority of the accidents have occurred in daytime. In two case studies in north of Iran, 42 fatal accidents in 33 months on multilane highways and 63 fatal accidents in 19 months on two lane highways were recorded [11][12].

10.2. Bikes

Due to the elimination of bicycles from forms of transportation, the information on bicycle accidents are fragmented and it is nearly impossible to use that information to analyze the parameters related to bicycle path. Bike accident in the cities is often fatal because cyclists have no choice but to use the motorway.

11. Safety Policies

In Iran, Ministry of Road and Urban Development has the responsibility of rural area traffic safety and also Ministry of Interior is responsible for urban area traffic safety. Both of these ministries have published regulations and required procedures for traffic safety which include geometric design, education and training, signs and other traffic control devices for vehicles, motorcycles, bikes and pedestrians. But a single committed policy with a careful plan and specific expected results is hard to find, and no action is taken to create such policies. This is because data collection system has many weak points. There is no network of bicycle pathway in Iran and the motivation for construction does not exist. Even the number of bikes that are used by people is not known. In recently built satellite towns of metropolitans, bicycle pathways were not constructed. Some of these towns are assigned for settling one million capita and yet, with no bicycle facilities.

The pedestrian facilities have interrupted network because of carelessness of estate owners. In Municipalities and Road and Urban Development Offices, authorities are often non-specialists. In the following paragraphs, the reasons for pedestrian and bicycle safety disorderliness in Iran, despite the existence of regulations and procedures, are listed.

11.1. Multidiscipline System

11.1.1. Urban Area

The following paragraph outlines the main reasons why pedestrians use the motorway surface instead of walkway. Generally, these reasons are related to the police and the municipalities.

- Municipality Related Reasons:
 - Municipalities' rules on parking, charge and discharge of goods, spread of commercial tapers along the streets, pedestrian involvement with all sections of the streets as a huge shopping area, possibility of using pedestrian walkway as building owners' material deposit, sidewalk pavement by building owners' without any surveillance and different levels and high slope on sidewalks.
- Police related reasons:

- Police interference into their non-duty task, allowing some mode like wireless taxi to use pedestrian crossing and alike reasons.

11.1.2. Rural Area

The functional hierarchy of highways (freeways, expressways, arterial etc.) and their interaction with the surrounding environmental development is the greatest factor for pedestrian safety. The most important pedestrian and bike accident factor is construction of roads with high speeds that pass through the residential areas. Access openings give pedestrians the right for cross passing on a road for which the design speed is 110 Km/h. There are direct accesses from roads with high speeds to all the lands around them. Generally the land use is residential, commercial, industrial and agricultural. In addition, access from land to road is not controlled and is direct as well.

11.2. Ignoring Regulations and Procedures

External factors such as economic, social and political forces, cause infrastructure builders and transportation system operators to not pay sufficient attention to traffic safety and convenience in urban and rural development.

11.3. Budget Restriction

It is known that in an investment in different parts of urban development, financial limitation affects construction solutions. This is illustrated in the project results. Due to financial restrictions, operation quality and proper functionality are at the second stage after infrastructure. In other words, completion of the project is more important than other aspects of the project. This behavior is obvious in all transportation projects in Iran. In some cases, it was observed that almost all of the budget was used at the infrastructure stage and a negligible amount (and sometimes none) was given to operation quality and proper functionality.

11.4. Ineffectiveness of Authorities' Proficiency in Related Offices

Governmental Transportation Departments or related offices do not require proficiency and qualification as the native rule of employment. Staff that are involved in decision making for performance and measure of investment on projects have no sufficient knowledge and experience. Political aspect of employment overweighs other aspects. In addition, they are not questioned and are not evaluated and are never afraid of their past. Therefore, irresponsibility is institutionalized in their behavior.

11.5. Ineffectiveness of Road Rescue

Victims will die if no medical aid is received four minutes after obstruction of respiratory tract. Arrival time of road rescue in Iran is about fifteen minutes. Although, cooperation between related and involved ministries is reasonable but, financial restrictions cause road rescue to remain at low level.

12. Conclusion

Transportation projects include two parts, hardware and software. In developing countries where financial restriction is an important factor to launch projects, budget allocation is

biased towards the infrastructure stage and quality of operation does not have a suitable position in budget allowance. Of course this satisfies the authorities because the only important matter for them is the sole existence of a project, and not the quality of it, so they can stay in power by attracting people's attention to the quantity of projects completed, regardless of the quality. Moreover, people are happy for having new facilities and do not consider the quality and safety as well as authorities. In addition, this current situation created by the authorities had led the people to pay no attention to the quality of the projects and feel satisfied with the fact that a project is completed for them.

Whenever this approach prevails in a society, authorities will forget safety and people get used to this trend, unfortunately, as the case is in Iran. The result is high number of accidents; especially for pedestrians and bikes, and also lack of dedication for solving the problem. Iran does not have any serious regular and irregular training for pedestrians and bicycle facility users.

The police does not possess the required knowledge about safety and they only penalize the users and do not have sense of responsibility for education and training.

Regulations and procedures are not enforced when it comes to pedestrian and bicycle safety. Even in new towns, which are supposed to be modern and possess multimodal, bicycle facilities are absent and pedestrians have a lower importance compared to vehicle traffic flow.

Pedestrian and bicycle facilities are not considered in governmental plans. Even in Iran's Fifth Five Year Plan Rule that began in 2010, no plan was mentioned regarding bicycle and pedestrian facilities. Moreover, authorities who can manage safety issues do not follow scientific processes and office positions are assigned to non-professional individuals who do not have proper and reasonable qualifications. An outcome of this system is the reduction in importance of accident data. Other result of this system is ignoring regulation and rule performance.

A result of multidiscipline system, is that transportation and urban management laws are in conflict, while they are both valid. Therefore, docility is unavoidable.

It must be expressed that financial restrictions, lack of education, ineffectiveness as well as unskillful and irresponsible authorities have caused Iran to not have specific pedestrian and bicycle safety policies. Moreover, there are no issues related to pedestrian and bicycle facilities' safety in none of the Five Year Plan Rules and these facilities are generally forgotten.

Finally, the longer no action is taken, the safety problems accumulate, especially for the case of pedestrians and cyclists.

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