Challenges for Controlling Road Traffic Injuries in the Islamic Republic of Iran: a qualitative study

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Abstract

Introduction:

Iran has one of the highest death rates due to road traffic Injuries in the world. The number of people died annually is estimated to be higher than the number died of the earthquake in Bam in 2005. This study aimed at exploring the challenges for the control of road traffic Injuries (RTI) in the Islamic Republic of Iran.

Methods:

A qualitative study design was used to collect data from key informants working in the public sectors in Tehran, Iran. The key informants were interviewed using an interview guide and saturation was reached after interviewing 30 key informants. Content analysis was done after transcribing the responses and identifying thematic areas using MAXQDA 10 software.

Results:

This study explored that governance, evidence-based policy-making, proactive approach, information, challenges related to road and vehicles, and low use of helmets were among the reported challenges.

Conclusion:

A real leading agency with the required authority could play great role in the prevention of the identified and other related problems through developing a road map, integrating organizations, defining duties and etc.

Introduction

Road traffic Injuries and injuries are a serious public health problem the world is facing. Each year about 50 million people face Injuries globally, of which about 1.2 million people lose their lives (1, 2). The national report on the burden of disease of the Ministry of Health of Iran reveals that RTI is one of the main causes of death and disability in the country. Besides, Iran has one of the highest rates of death due to road traffic Injuries in the world. Reports show that the annual number people dying from road traffic Injuries are estimated to be higher than the number of persons died in 2005 from the earthquake in Bam (3–5).

According to the Iranian Legal Medicine Organization (ILMO) 2014, mortality rate due to road traffic accident was 24.14 per 100,000 populations. In other words, the report indicates a total of 16, 872 deaths(6). According to WHO report the death rate in developed countries such as Sweden, Norway and
Britain is about 5 to 6 per 100,000 populations(7). Recently a promising decline in the number of deaths due to road traffic injuries has been noted in Iran following the enforcement and implementation of the national road traffic law. However, the death rate due to road traffic accident is still high terrifically. The experience shows slowly reduction in road traffic accident rates in the country. This condition is challenging to the lives of many people(8, 9).

Many researches have been done in the scope of RTA in the country. The majority of them are quantitative studies explaining incidence and causes of RTI in local levels. These researches rarely have a comprehensive view. Thus, it is useful to doing a research considering managerial and national aspects of the issue. This study was conducted to answer for the following basic questions: “why is road traffic accident so high in Iran?” and “what are the main reasons that hinder the successful control of road traffic accident in the country?” Thus, this study is aimed at exploring the challenges for the control of road traffic injuries (RTI) in Islamic Republic of Iran.

Methods

A qualitative study design was used to collect data from key informants to explore the main reasons for the high rate of road traffic injuries in Iran. Data was collected using an interview guide. Main units of dealing with RTIs are traffic police, ministry of road, and municipal and emergency services office of ministry of health. Through purposive and snowball sampling technique, we selected key informants from the police, road authority, municipal transport authority, emergency services office, public health authority, drivers, researchers and university professors for in-depth interviews. Individuals considered key informants by the purposively selected experts were also included in the interview. Interviewees were among top managers, operational managers, technical officers and road safety researchers. Twenty-seven of them were men and three of them were women. The average age for them was forty-six. Saturation was reached by interviewing thirty key informants. The findings from different sources were used to analysis the road transportation sector in Iran. In order to analysis the data, we performed a process including transcription of interviewees, reading them frequently and extracting codes and finally categorizing themes. Two authors separately did code extraction. Content analysis was done after transcribing the collected data and identifying thematic areas using MAXQDA 10 software. Besides, the researchers enhanced the validity and reliability of results using member checks, external audit, data checks, prolonged engagement of participants and detailed documentation.

Ethical considerations:

This study was registered in the TUMS Ethical Committee (Ref: 9021460005). The participants’ permission to perform and audio tape the interviews were obtained. The confidentiality of information was guaranteed.

Results
Thirty key informants from different main offices of the public sectors in Tehran were participated in the study. The analysis identified two major issues related to the road transportation sector in Iran. The first was about related to road traffic policy and the other was related to technics in controlling RTI. The main road traffic policy related thematic areas were the lack of governance, evidence-based policymaking, proactive approach to control RTI and information system about road traffic accident in the sector. Further analysis also helped identify the sub-themes within each main theme [Table 1].

<table>
<thead>
<tr>
<th>Themes and sub-themes of policy-making related to challenges in the control of RTI</th>
<th>Themes and sub-themes of technical challenges in the control of RTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lack of governance in ministry of road transportation</td>
<td>1. Challenges related to Road</td>
</tr>
<tr>
<td>• Absence of leading agency</td>
<td>• Lack of funding for rail transportation</td>
</tr>
<tr>
<td>• Lack of work integration of road transportation with other sectors</td>
<td>• Old roads with poor design</td>
</tr>
<tr>
<td>• Lack of clearly defined duties</td>
<td>2. Challenge related to vehicles</td>
</tr>
<tr>
<td>• Absence of road map (strategic plan)</td>
<td>• Poor quality or old standards</td>
</tr>
<tr>
<td></td>
<td>• Poor coverage of vehicles inspection (technical examination)</td>
</tr>
<tr>
<td>2 The lack of evidence-based policymaking in RTI field</td>
<td>3. The low use of helmets</td>
</tr>
<tr>
<td>• Legislations related to RTI</td>
<td>• The lack of a helmet standard</td>
</tr>
<tr>
<td>3 Lack of proactive approach in RTI</td>
<td>• Low enforcement for helmet</td>
</tr>
<tr>
<td>• Reactive activities for RTI control</td>
<td>4 Lack of information in RTI field</td>
</tr>
<tr>
<td>• Lack of attention to traffic culture</td>
<td>• No valid data to decision making about RTI control</td>
</tr>
<tr>
<td>• Only Focusing on RTI outcomes</td>
<td>• Inaccurate data registration for RTI control</td>
</tr>
</tbody>
</table>

Lack of governance in the road transportation sector

Absence of a leading agency:

The majority of key informants believed that there was not clear leadership concerning road transportation sector that could work against the risk of RTI. In support of this idea, a respondent from
the Health Emergency Services in the Ministry of Health and Medical Education stated, “the Road Safety Commission of Iran was considered a leading body of the road transportation sector”. However, it roles are not clearly defined; although the commission with other stakeholders have come up with measures to address the challenge, yet none of them have been implemented. Besides, there is no legal support to implement such decisions. Moreover, “…the commission lacks the financial support to perform it duties.”

Lack of sectorial integration:

In the absence of a real leading agency, it is obvious that the integration within the sector’s divisions and other sectors to be weak. The interviewees pointed out that many organizations are involved in the control of road traffic Injuries and safety in the country. However, they are not working under a single management structure. The interactions among these organizations are not well defined. The key informants typically expressed the situation as follows: “…we have a section manufacturing vehicle, a section which is dealing with Injuries (police), the Ministry of Health and other organizations…. Look, there are no integrated efforts across these departments. In fact, the transport sector is fragmented – made of various department yet department even seem to full understanding to the existing problems.”

According to study participants, effective coordination and communication is important for achieving the objectives of the sectors responsible for RTIs. As an illustration, interviewees stated that “consider an elephant in a dark room; anyone who enters the room and touches the body of the elephant will describe it differently, and no one can imagine the whole body of that elephant. In order to address RTIs all stakeholders and organizations should work in a coordinated manner and not in isolation. “According to the stakeholders, road traffic institutions can perform better if the work in synergies.

No clearly defined duties:

In the absence of a real leadership and integration for the control of RTI, it will be inevitable to for the sector to face lack of clearly defined duties. Some important tasks that can occur in relation to road traffic Injuries are not clearly mentioned in any of the organizations’ job descriptions. Some of the tasks are suggestive or voluntary. For example, for the question “which organization is responsible for fires occurring related to road traffic Injuries outside the cities in Iran?” one of the police officials stated that “…the organization responsible for firefighting due to road traffic Injuries that can occur outside of the cities is not clear. The firefighting organization working for the cities cannot be responsible for fires occurring outside the cities. Also, that organization may not be present on time for fires that may occur outside the cities.” This indicates that there is no clear responsibility for road traffic fires that can occur in long distance roads.

In addition, for the question “which organization is responsible for firefighting due to Injuries occurring outside the cities in Iran?” a technical officer from the Ministry of Health and Medical Education (MOHME) replied: “our duty is to transfer victims (wounded) of Injuries to hospitals, not transferring the corpses. Transferring the corpses to morgue is not defined as role to the Ministry of Health. Also, it does not have any budget for that task at all. For road traffic Injuries the law says that: the police can request about the transfer of corpses from the emergency services, Red Cross and other relevant organizations.”
Absence of Road map:

The control of RTI requires a clear road map and well-enforced duties for the different organizations related to the prevention and control of RTI. This requires a macro level comprehensive plan addressing all stakeholders (sectors) for the prevention and control of RTI. However, the one of the interviewees from the top police authorities witnessed the absence of a defined road map in the country by stating “...unfortunately we do not have a large-scale and comprehensive policy in this area for the whole country. I especially focus on the importance of the comprehensiveness of the policy.” The usefulness a roadmap to determine what issues must be considered for road traffic injuries control was prominent.

The lack of evidence-based policymaking

Legislation:

The majority of legislations for controlling RTI in Iran are made by parliament. Interviewees stated that in the law-making meetings, decision-making are based on personal and non-professional views rather than scientific evidence.

“Parliament has good cooperation, but the problem is that when senators started to study this issue in commissions, they make decisions based on personal experiences rather than evidence”. (One of the top authorities of Police)

Lack of proactive approach:

Reactive actions:

Almost all interviewees hold that the current approach for controlling road traffic injuries in the country is reactive in seeking solution only when problems occur, not preventive at all. A road safety expert stated this fact as follows. “Most of the policies being implemented in the country are in response to the problems which will not help people prevent from the injuries. We did not have strong preventive policies. In the last three decades, we have high growth rates of motor vehicles, high travel volume, changing socioeconomic status and a rapidly growing middle-class socioeconomic status population. But the management of road traffic has not been coordinated in line with the above-mentioned changes. Lack of coordination among the sectors led to only reactive solution policies.” This idea implies that preventative policies have not been a priority.

Lack of attention to traffic culture:

A police officer noted that: “...the main problem related to the prevention of road traffic injuries is ignoring role of education. Continuously providing education to drivers targeting changing their driving behavior has not been given emphasis” Also it was mentioned that “... there have been some educational programs, but those programs were not long-term. That is, most of the actions have been temporary.”
This indicates that improving the driving behavior of drivers to be one of the most important proactive activities in road traffic prevention in the area.

**Focusing on outcomes:**

Emphasis has been given mainly to outcome of road traffic accident that is, declining the number deaths. But according to expert participated in the study, the inputs and processes related to road traffic accident should also be considered. This was reflected by one of the road safety experts as “... in fact we only deal with the consequences and pay less attention to the process and inputs of the issue. Reduction of mortality is only one of the road safety measures.”

**Lack of information:**

**Absence of valid information (to decision making)**

One of the most fundamental problems mentioned by the interviewees was the lack of valid information. Even the reports concerning road traffic Injuries are not reliable. However, sound decisions require for the prevention of RTI and this intern is based on “reliable information about traffic Injuries but this is not yet achieved in the country. We have several organizations that collect information such as the Red Crescent, the Ministry of Health, forensic medicine, police, insurance, etc. They do not even agree on the number of persons died from road traffic Injuries. They report different numbers because there is no standard database for road traffic Injuries.” One of the interviewees the technical officers in the MOHME said that “… our estimates of RTI are based on our guess. I wish to first understand what the problem is.” The reasons could for the lack of database concerning RTI be different. However, having registry for Injuries is a valid and feasible method for generating credible information.

**Inaccurate data registration:**

The interview uncovered that information related to road traffic Injuries can be obtained from the police and the forensic medicine section of the national court. The police is responsible for the registrar of accident data and forensic medicine is responsible for mortality record. The forensic medicine reports the number of death due to Injuries. Reports on mortality are likely to be more accurate than reports on Injuries. Generally, a technical officer in the Ministry of Road stated: “...for two reasons data recording by police officers is not accurate. Firstly, the police officers might have some incentive for under-reporting. Secondly, the police officers usually don’t use GPS for reporting the accurate location of Injuries. Knowing the accurate accident location is very important for further investigation about the accident.”

**Challenges related to Transportation**

**Challenges related to road and rail transportation:**

The interviewees noted that during the past 30 years, the growth of rail transportation has not been enough. The service has been far behind to help achieve the full coverage of rail transport in the country. The main reasons that have contributed for the problem have been the lack of funding. A key informant
from the road safety said that “… the Ministry of transportation has not been getting funds to both the rail or road transportation. In the last 30 years enough, funds have not been allocated to the rail transportation. The share of rail transportation was expected to be 30 percent, while currently it is only 10 percent”.

At present there are great efforts to improve the roads and the construction of roads and highways. However, there is more need to build freeways and highways in the country. This is witnessed by one of the key informants’ statement as follows. “…some of the roads were built in during the reign of Reza Khan to meet the then needs. That road cannot provide full service at this time. The situation is changed. The vehicle speed of the road at the time of Reza Khan was about 30 km/h. The road was steep and winding. Thus, those roads are not appropriate for the 80 km per hour speed now” These findings imply that the attention given to the sector is very low.

Challenge related to vehicles

Poor quality or old standards:

Currently the vehicles in use in the country have several problems related to safety standards and quality. One of the top managers at the national car manufacturing company in Iran called Iran Khodro as follows: “Car safety standards are available at the national organization of standards. But these safety standards have not been updated in accordance with the new global developments. There is a need to update the safety standards.” The out datedness of the safety standards can lead accidents that can cause harm to humans and properties. A significant proportion of the accidents occur related to old technology cars. Although some measures are being taken to improve the vehicles safety in recent years, many cars are still old.

Poor coverage of vehicles inspection (technical examination):

Technical examination has been done for a lesser proportion of the vehicles in the country. According to the ideas of one of the top managers of Iran Khodro mentioned that “...the statistical report of this year shows that only 280,000 vehicles received inspection approval out of the several million vehicles in the country.”

The low use of helmets:

The lack of standard for helmet use: All the key informants acknowledged that helmets use in the country is very low. Many believed that the low use of helmets is due to the lack of standards for helmet use and lack of quality helmets. The key informants identified several factors for the nonuse of helmets by motorcycle riders and were presented as follows “the motorcycle helmet has some problems: it is expensive for motorcycle rider, it has a low quality, it prevents the motorcycle rider’s ability to see, it reduces or prevents hearing and causes increased temperature/heat in the head. For these reasons the
riders don’t prefer to use helmet. Even if they do, it is only when they saw police.” Generally, the identified reasons were related to cost and quality of the helmets, perceived problems related to wearing helmet and violation of law.

**Low enforcement for helmet:**

The key informants believed that one of reasons for the unsuccessful enforcement of safety helmet law emanates from the nature of the motorcycles. A police authority expressed this idea by stating: “...we could be able to successfully implement mandatory use of seat belts for the car. But we couldn’t enforce the safety helmet for motorcycle riders because we have not enough control over the motorcycles. The lack of legal motorcycles ownership and the affordable price of the motorcycles that allow many owners of these vehicles added problems to the control of motorcycle riding in the country.” Therefore, possibility of completely enforcement does not provide.

**Discussion**

This study aimed to explore the challenges Iran face in controlling RTIs. Five main themes were identified here. They are governance, availability of data/information, approaches to tackling RTIs, transportation, and usage (wearing) of helmet.

Good governance is important at all stages of development and policy implementation. Our study identified lack of good governance as the root cause of many of the grievous factors affecting the effective control of RTI in Iran. The reason being that, there is no independent body with the sole ability to formulate and implements policies. According to interviewees, although the Road Safety Commission in Iran is assumed to play such a role, they lack the utmost authority in controlling RTIs in the country. Previous studies have emphasized on the consequences of the poor governance on RTIs in Iran, adding that, the establishment of a leading agency for RTIs can play a crucial role in creating conditions that could engender the fight against RTIs and its associated burden (10).

A wide variety of policies turn out to yield significant results due stakeholders’ inability to integrate cross-cutting issues which transcend the boundaries of a single sector. This Lack of partnership and coordination among the different organizations have led to inefficiency and ineffectiveness(11) in controlling RTIs within and outside the cities of Iran. Municipals are responsible for the management of traffic accidents in the cities while the ministry of road seeks to ensure traffic safety outside the cities.

Plans serves as a guide, and provide understanding to future actions. Studies have revealed that targets and duties when clearly defined enhance accountability, and are more likely to reduce mortalities related to RTI (12–14). Participants within our study also stressed on absence of strategic plans and defined roles, and its negative consequences on road safety in Iran.

Information is crucial for effective decisions making, however require mechanism and infrastructures that ensures provision of accurate data. According to our findings, lack of access to reliable information remains a major challenge to the management and control RTIs. That is, data collection (information) is
not done by a single institution. As a result, there is a widespread discrepancy between data/information that organizations provide, due to lack of data integration across various sources. Besides, there is no database to facilitate the process of data integration. Previous studies have also reported mismatch of national data on RTIs (across several sectors) as a challenge to effective prevention of RTI in Iran (15). For these and many other factors, most road traffic policies in Iran are not made based on scientific-evidence. In order to curb the situation, it is imperative that policy makers are engaged in road safety research for enhance evidence-based decision making(16).

Also, study participants did mention factors influencing the prevention of RTIs in Iran. These barriers are associated with insufficiency of resource, and behavior. They included lack of rail transportation, poor roads, poor quality cars, and low usage of helmet by motorcyclists. The national safety measures for locally manufactured cars are not up to international standards. Although, Iran has the capacity to produce high-quality vehicles, there is no political willingness to enforce producers to meet such safety standards. This is due to the fact that, almost all the car manufacturing companies are either public (national), or quasi-public bodies. As such, there are no competitions among companies to promote the production of high quality products. Therefore, there is no real competition among the companies for improving quality of the cars being produced. Besides, much attention has been given to how to respond to crashes instead of measures to control risky behavior especially among drives in Iran (17–19) .

Conclusion

Lack of a leading agency for road safety is one of the main challenges identified. There is no leading institution (independent body) or synergies having the sole power to oversee the prevention of RTI in Iran. As a result, wide variety of road traffic policies do not yield significant results due to stakeholders’ inability to integrate cross-cutting issues which transcend the boundaries of a single sector or discipline. We anticipate that, an active leading agency with the absolute authority to define and integrate activities of organizations responsible for RTIs, could play a significant roles and conditions that could engender the fight against RTIs its devastating consequences in Iran.

Declarations

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Authors' contributions:
Hedayat Salari: Design, Data gathering, transcription of interviews, Data analysis, preparing manuscript draft, writing final manuscript. Seyyed Abbas Motevalian: Data analysis, writing final manuscript. Mohammad Arab: Data analysis, writing final manuscript. Atefeh Esfandiari: Design, transcription of interviews, Data analysis, preparing manuscript draft. Ali Akbari Sari: Design, Data analysis, preparing manuscript draft, writing final manuscript.

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**Availability of data and materials**

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

**Declarations**

**Ethics approval and consent to participate**

This study has been approved by the Ethics Committee of Tehran University of Medical Sciences with the ethical code (Ref: 9021460005). Informed consent was obtained from all subjects. The participants’ permission to perform and audio tape the interviews were obtained. The confidentiality of information was guaranteed. All methods were carried out in accordance with relevant guidelines and regulations.

**Consent for publication**

Not applicable.

**Competing interests**

No conflicts of interest are declared by the authors.

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