



Gender-Based Driving Behavior Patterns in the Context of Iran: A Qualitative Study

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Abstract

Background: Road traffic injuries are the eighth leading cause of deaths in all ages. Considering the fact that driving is a social context with different rules and behaviours, the present study was aimed to explore the patterns of gender-based driving behaviours focusing on women driving in the context of Iran.

Methods: Through a conventional content analysis, overall, 30 participants with different social and educational levels were recruited. A purposeful sampling method was used in which 7 males and 23 females were included because of sample triangulation. Data were collected using in-depth semi-structured interviews and analysed through inductive content analysis.

Results: Overall, three main categories and 10 subcategories were extracted from the data including unsafe risky behaviours against female drivers (subcategories of scary behaviours, aggression and violence against female drivers, ignoring women and revenge-based behaviours), protective and friendly behaviours (helping and caring for women drivers, respecting women drivers, being patient for women driving subcategories) and specific driving behaviours of women (preventive and cautious behaviours, driving based on traffic rules and cultural characteristics subcategories).

Conclusion: Different patterns of driving behaviors focused on female drivers were found in the present research. Reducing the aggressive gender-based driving behaviors against female drivers and strengthening the protective behaviors for women can be achieved through establishing appropriate rules and public education. Further research is required to explore the process of gender-based driving behaviours, as well as identifying different consequences of such behaviours on communities.

Keywords: Female, Iran, Violence

Introduction

Driving is a social context with different rules and behaviours associated with road users (1). Understanding the relationship between driving and people's behavior in the social context is of important, because drivers' actions and behaviors can be affected by criteria such as other road users, public social behaviors and traffic laws leading to car crashes (2). Car crashes are the eighth leading cause of deaths in all ages, the first leading cause of deaths in the age group of 5 to 29 years and lead to the deaths of 1.35 million people in the world annually (3). Road traffic injuries in Iran represent one of the most important factors threatening the health and well-being of people (4,5).

Humans are the key component in the occurrence of Road Traffic Injuries (RTI). According to the literature, the role of gender in the formation of unsafe and high-risk behaviours leading to death or injury was reported (6). Increase in welfare in low- and middle-income countries often attaches to technological advances in vehicles and road infrastructure (7). However, technological improvement does not necessarily mean that appropriate safety behaviours will be adopted. Such behaviours are also related to cultural context and socio-demographic as well as gender norms in countries (7).

According to the literature, women are more afraid of crime and any action that lead to physical and psychological harms than men. Furthermore, level of fear, coping and responding can be different according to the consequences of events such as injuries, theft or car crashes. Women are always more cautious than men and they focus more on their behaviour (8). In many countries, changing drivers' behaviours is considered to reduce road traffic injuries as the first step (9). To perform such interventions, driving behaviours need to be identified based on individual characteristics such as gender, age, social status and educational level (10). On the other hand, the individual's personality which is formed in the social and cultural context, can affect the occurrence of high-risk and unsafe behaviours among drivers (6). The road traffic injuries pattern in the last 10 years in Iran showed increasing injuries rates and the decreasing deaths rates among women due to car crashes (11).

The most high-risk behaviours for men were reported as the violations of traffic rules, especially speed limits and diagnostic errors for women during their driving (9). A clinical trial in Malaysia also found that male drivers were more likely to drive at high speeds and violate the law (10). According to a study, it was revealed that most driving behaviours such as overloading, reckless driving, overtaking, ignorance of traffic rules and regulations are more common among men and driving rules violation is very low among women (12). In Turkey, dangerous overtaking and high speed leading to road traffic injuries are more common among men, and accidents due to sudden braking are more common among women due to obsession in decision making and lane change without alarming (13). In addition, the rate of male aggression against female drivers has increased in this country (14). In the USA, aggressive behaviours such as overtaking, speeding, and short distances conducted by male drivers were reported due to gender-based hostile behaviours (15).

Many studies have been focused on the social differences with focus on the men and women in road traffic injuries occurrence; however, little is known about drivers' gender experiences in RTIs occurrence, particularly in low- and middle-income countries. Although various studies on gender and road traffic injuries have been conducted in other countries, gender-based driving behaviours in Iranian context, have not been comprehensively identified. For instance, different reactions of male drivers at the time of facing female drivers need more investigations in the cultural and social context of Iran (10) (16) (17). Filling this gap, the present study is aimed to explore the gender-based driving behaviours focusing on female drivers' experiences in the context of Iran.

Materials and Methods

Aims

The aim of the present study was to explore the gender-based driving behaviours focusing on female drivers' experiences in the context of Iran.

Setting

Traffic accident is the second leading cause of deaths and the first cause of injury and Disability Adjusted Life Years (DALY) in Iran. In addition, 41 million

people have got driving license, of which about 17% belong to women and 83% of driving licenses have been issued for men in Iran (3). The participants were from different settings such as Tehran, Shiraz, Karaj and *etc.* to improve the data trustworthiness.

Study design

A qualitative approach using conventional content analysis was applied for this study. Gender-based driving behaviours focusing on female drivers were explored in the field of road traffic in the Iranian context. The obtained knowledge was based on the perceptions and experiences of the participants in the study.

Participants

23 female drivers and 7 male drivers with different educational levels were approached for interviews. Purposeful sampling was used to select the participants. Having at least one year of driving experience was the inclusion criteria and the exclusion criteria was unwillingness to take part in the study. The number of participants was determined based on saturation principal which means until no new concepts emerge from the data. Accordingly, a total number of 30 participants were interviewed.

Data collection

Data were collected using in-depth semi-structured interviews. Initially, three in-depth unstructured interviews were conducted and analysed to extract the primary concepts for the next semi-structured interviews. Data saturation was reached after 27 interviews and 3 interviews were also conducted to ensure no new concepts emerged. Each participant was asked about their gender-based driving experiences. The main questions were as follows:

What is your driving experience in this society as a woman?

What are the challenges that make the driving difficult for you?

According to your experiences, what factors contribute to create such disturbances?

Probing was conducted to encourage the respondents to explain their experiences in details.

All the interviews were conducted, recorded, and transcribed verbatim in Persian and analysed

immediately. Filed notes as well as tape recordings were used for data collection. Although this study was performed during the COVID-19 pandemic, all the interviews were in-person. Each interview lasted 25-45 *min* and the average time of the interviews was 36 *min*. At the beginning of the interview, they were assured that all the information would remain confidential. Informed consent was also obtained to record their voice during the interviews.

Data analysis

Data collection and data analysis were performed simultaneously. The Graneheim approach was utilized for data analysis (18). Accordingly, several steps were conducted for data analysis. At the first step, the interviews were read several times to obtain a sense of the whole description. Second, the participants' experiences were elicited and brought together into a single text forming the analysis unit. At the third step, the text was divided into meaningful units. Fourth, the condensed meaningful units were abstracted and labelled with a code. Finally, the codes were compared based on their similarities and differences and classified into sub-categories and categories. The temporary categories were discussed by two researchers and revised for finalizing the concepts. Office Word 2016 was used to type the transcribed interviews.

Trustworthiness

Lincoln and Goba criteria including credibility, dependability, confirmability and transferability were used for data trustworthiness (19). Credibility was achieved by the triangulation strategy, including data and research field triangulations. Furthermore, member and peer checking were applied for providing credibility and dependency criteria. In member checking, the participants were asked about possible misunderstandings during the interviews and for peer checking, the research team discussed the emerging concepts. Confirmability and transferability of the data were achieved by the comprehensive description of all processes of the research. The dependability of the findings was confirmed by the expertise and experience of the researchers, continuous observation and multifaceted data and research conditions. To ensure confirmability, the research team contacted

three participants and provided them with transcripts of the interviews, ensuring that the items were consistent with their experiences. Also, some of the interviews, codes and categories were reviewed qualitatively by the research team members. Furthermore, to enhance the transferability, the research method was described in detail so that other researchers have a clear understanding of the general stages of the research.

Results

The participants were in the age range of 18-58 years. Of these, 77% were female and the remaining 23% were male. The majority had over 10 years of driving experience (46.67%) and bachelor’s degree (46.66%) (Tables 1 and 2).

Table 1. Demographic characteristics of the participants

Variable		Frequency	%
Gender	Female	23	77
	Male	7	23
Age (year)	18-28	6	20
	29-38	12	40
	39-48	9	30
	49-58	3	10
Education	High school	8	26.66
	Bachelor	14	46.66
	MSc	4	13.34
	Doctorate	4	13.34
Driving experience (Year)	<5	5	16.67
	5-10	11	36.66
	>10	14	46.67
Occupation	Graphist	2	6.67
	Architect	1	3.33
	Businessman	1	3.33
	Driver	2	6.67
	Designer	1	3.33
	Doctor	1	3.33
	Employee	8	26.67
	Housekeeper	6	20.00
	Seller	2	6.67
	Student	3	10.00
	Teacher	3	10.00

712 initial codes were extracted and after removing the duplicate codes and purification, the number of final codes reached 394 codes. Three main categories of unsafe risky behaviours against female drivers, protective and friendly behaviours and specific driving behaviours of women as well as 10 subcategories were extracted from the data. Unsafe risky behaviours against female drivers consists of scary behaviours, aggression and violence against female drivers, ignoring women and revenge-based behaviours subcategories. Protective and friendly behaviours included the subcategories of helping and caring for women drivers, respecting women drivers, being patient for women driving. The category of specific driving behaviours of women is comprised of preventive and cautious behaviours, driving based on traffic rules and cultural characteristics subcategories (Table 3).

Unsafe risky behaviors against female drivers

Unsafe risky behaviors against female drivers included considerable parts of the participants’ experiences. Such aggressive and scary behaviors negatively affected women at the time of driving.

Scary behaviors

Based on the participants’ experiences, one of the most common behaviors towards female drivers is scary behaviors. Most participants reported behaviors such as wrapping around the front of female driver, unexpected overtaking and dramatic actions for frightening female drivers. Such behaviors led to an accident due to losing women’s control while driving.

A participant stated

“Men do not give way, they turn in front of the car and overtake inappropriately, and they show frightening actions and sudden and inappropriate horns, especially young people” (P1).

Aggression and violence against female drivers

Violence against female drivers have different forms. Verbal violence was frequently reported by the participants. A number of women had the experiences of physical violence while driving as well. Aggressive behaviors against female drivers and quick reactions

Table 2. Personal information of the participants

Participant number	Gender	Age	Occupation	Education	Driving experience (Year)
P1	Female	20	Student	B.S	1
P2	Female	34	Animator	B.S	8
P3	Female	35	Designer	B.S	15
P4	Female	24	Graphist	B.S	4
P5	Female	30	Teacher	PhD	1
P6	Male	47	Bussiness man	PhD	28
P7	Male	41	Doctor	M.D	20
P8	Female	36	Employee	M.A	12
P9	Female	27	Seller	B.S	5
P10	Female	35	Housekeeper	Diploma	15
P11	Male	24	Driver	B.S	6
P12	Male	45	Carpenter	B.S	18
P13	Female	22	Student	B.S	2
P14	Female	36	Employee	M.A	12
P15	Male	40	Employee	B.S	19
P16	male	21	Student	B.S	2
P17	Female	39	Housekeeper	B.S	5
P18	Male	43	Teacher	M.A	22
P19	Female	29	Employee	B.S	5
P20	Female	27	Teacher	B.S	8
P21	Female	35	Housekeeper	Diploma	35
P22	Female	47	Housekeeper	Under diploma	27
P23	Female	46	Employee	B.S	6
P24	Female	40	Seller	B.S	20
P25	Female	27	Articect	M.A	7
P26	Female	27	Housekeeper	B.S	6
P27	Female	56	Housekeeper	Diploma	7
P28	Female	35	Employee	P.h.D	2
P29	Female	30	Employee	B.S	2
P30	Female	59	Employee	Diploma	15

at the time of women's mistakes during driving were stated by the participants. A participant expressed: "Men become nervous and act aggressively when see

female drivers. They have conflict-driven reactions to women driving" (P20).

Ignoring women

According to the participants’ experiences, male drivers usually ignore female drivers. They showed various reactions to reflect women driving unimportant and unnecessary. For example, male drivers ignored women’s rights as well as their traffic signs during driving. However, such behaviours have been rooted in the cultural and religious context of

Iran.

“In Iran, due to the patriarchal culture and considering the role of cooking and housework for women, male drivers’ attitudes are rooted in cultural and family upbringing” (P3).

Revenge-based behaviors

Based on the participants’ experiences, some male

Table 3. Subcategories and categories of the study with focus on the female driving behavior in the context of Iran

Categories	Subcategories	Selected codes
Unsafe risky behaviours against female drivers	Scary behaviours	- Wrapping in front of a female driver - Unexpected overtaking - Demonstrative movements while driving
	Aggression and violence against female drivers	- Physical violence against women - Verbal violence - Aggressive behavior while driving - Early struggling with female drivers
	Ignoring women	- Do not give way to female drivers - Ignoring female drivers’ rights - Ignoring the traffic signs of female drivers
	Revenge-based behaviours	- Mocking women driving - Jealous behavior towards women - Disrespectful reactions to female drivers
Protective and friendly behaviours	Helping and caring for women drivers	- Kind behavior - Supportive behavior - Guiding women to drive - Repairing broken cars of female drivers
	Respecting women drivers	- Respect for women’s rights - Giving precedence to female drivers - Polite behaviors
	Being patient for women driving	- Logical reactions to female drivers’ errors - Appropriate use of beeping and lighting - Proper distance from the female drivers’ cars
Specific driving behaviours of women	Preventive and cautious behaviours	- Excessive self-care - Driving with obsession - Low confidence to drive
	Driving based on traffic rules (regulations)	- Fear of risky driving - Driving at a safe speed - Law-abiding driving
	Cultural characteristics	- Paying no attention to harassment - Being raised in a male-dominance context - Being raised with low self-confidence

drivers could not tolerate any faults of female drivers and reacted by revengeful behaviors. Some men see themselves as professional drivers with high specialties in driving skills. These revengeful behaviors included disrespectful actions, mocking women's driving and chasing female drivers.

"Women can see that their driving has been ridiculed. The female driver accident leads to conflict and even physical behaviors. Concerns about these issues affect women's driving behavior" (P6).

Protective and friendly behaviors

Based on the data, some men show protective and respectful behaviors for female drivers. Such supportive behaviors may happen due to socio-cultural development, as well as the public awareness improvement.

Helping and caring for female drivers

In some cases, male drivers tried to support and care for female drivers. Several women experienced kind and helpful behaviors of male drivers. These behaviors included guiding female drivers in order to correcting their ways, helping women with repairing their broken car as well as trying to keep female drivers safe and comfort. A participant stated:

"I feel that men behave better than before, they even guided me or tried to help me at the time of driving" (P2).

Respecting female drivers

Based on the participants' experiences, some male drivers showed respectful behaviors for female drivers. These men are polite and respect women driving rights and give precedence to female drivers. They believed that women should be respected in all aspects of their social lives including driving and traffic area.

"I did not react at all because women would be more stressed. I always try to treat female drivers with respect and calmness" (P19).

Being patient for women driving

Based on the findings, some male drivers understood the nature of women driving, which is more obsessive, precise and slower and tried to be patient and react logically. These male drivers had appropriate use of

beeping and lighting as well as proper distance from the female drivers' cars.

"Women drive slower and more observant due to their mental characteristics, so I try to be patient and maintain a safe distance" (P4).

Specific driving behaviors of women

Some socio-cultural norms can form driving behaviors of women and have the strong effects on their driving. The social context of each society as well as traffic rules can play important roles in developing gender-based driving behaviors.

Preventive and cautious behaviors

According to the participants' experiences, humiliating some women for insufficient ability of driving as well as their less self-confidence for driving resulted in driving in preventive and cautious ways. Female drivers learned to protect themselves and improve their own self-care during driving. A participant stated:

"I do not have such a bad driving experience. It was good, but I have a problem with self-confidence due to driving as a woman. I got especially stressed while driving and always felt that everyone was looking at me and might laugh at my slightest mistake" (P16).

Driving based on traffic rules

The participants implied that women follow the driving rules more than male drivers due to their personality and gender-based characteristics. In addition, women usually drive at safe speed and try to avoid high-risk driving behaviors. Respecting the traffic rules in Iran's community is typical and obvious.

"Women may drive slower, but they are more cautious and law-abiding, and this is not a reason for their incompetence or inexperience" (P22).

Cultural characteristics

Based on the participants' perceptions, cultural factors have been important elements for developing gender-based driving behaviors in Iran. Being raised in the male-dominant context was mentioned as the important context-based factor which considerably affects the gender-based driving behaviors. A participant maintained:

“We are living in a male-dominant country. Male drivers want all driving rights for themselves. Men are raised with this perception and we can see the reflection in their driving behaviors” (P24).

Discussion

The present study, likely the first of its kind, showed gender-based behaviors in driving, concentrating on female drivers in the context of Iran. According to the research findings, unsafe risky behaviors against female drivers, protective and friendly behaviors and specific driving behaviors of women were extracted from the data.

Unsafe risky behaviors against female drivers were common types of gender-based behaviors in the context of Iran. Scary and revenge-based behaviors, ignoring women and aggressive behaviors against women reflected the risky behaviors against female drivers in Iran. Similarly, a number of studies reported risky behaviours against female drivers in different contexts. For instance, studying women driving in Iran implied that women’s driving has not been acceptable in the community due to gender-based beliefs and norms which affect all dimensions of women’s lives including driving (20). Accordingly, literature demonstrated that sexual factors, income, driving style, and working conditions are important factors that have a direct impact on abnormal driving behaviors (21). The findings implied that anti-social driving behaviors against women need important interventions be conducted at the community level. The economic conditions and mental disorders as well as the decrease in patience and lawlessness among men could affect such behaviours negatively. The findings of the present study explained that behaviors against women such as not giving way to them, ignoring female drivers’ rights and their traffic signs were reported by the participants. A similar study confirmed the findings and reported a considerable difference between perceived and actual risk of driving among male drivers compared to women (22). In addition, it was reported that the male drivers’ behaviors were riskier compared to female drivers (*e.g.*, disobedience, seat belts, cell phone use, smoking and eating while driving). Dangerous behaviors such as overtaking, not allowing and turning in front of drivers, especially

female drivers were reported by the authors as well (22). Another study reported similar findings and represented the link between gender and aggressive/obsessive driving behaviors. For example, obsessive behaviors were more common among women (23). It seems that such risky behaviors can be controlled by public education and awareness as well as reforming traffic regulations in Iran. Based on the findings of the current study, some women drivers were not respected in the community. Furthermore, many abnormal attitudes and physical and verbal violence against female drivers are rooted in socio-cultural beliefs such as patriarchal context. Similarly, Jewkes suggested that two main causes of violence against female drivers are the gender hierarchy in a society and the normative level of violence in interpersonal relationships (24). In patriarchal environments, men’s dominance and control over women is the norm, and on the other hand, since driving is considered as a male profession, violence against female drivers is common (25). The study of social traffic behavior and traffic violations, reported more negative social traffic behavior among men. The most anti-social behaviors were observed against female drivers, as well as the homosexuals (26). Some male drivers use violence to prove their dominance and control over women to maintain the gender hierarchy (27). It seems that in addition to establishing laws, it is necessary to invest in social education and culture building at the community and policy-making levels.

Based on the experience of female drivers, the pattern of violent behavior of male drivers has been slowly changed into the protective and friendly behaviors such as helping and caring for women drivers as well as respecting being patient for them. The literature has highlighted that male drivers showed more verbally, and physically aggressive behaviors than female drivers. Accordingly, the authors stated that in some cases, women drivers are treated with respect and assistance by male drivers, but this behavior is much less than violent behavior. In addition, compared to experienced drivers, young male drivers are impaired in visual scanning, hazard perception, and in-vehicle distraction management, and demonstrated more antisocial behaviour against women, especially arrogant and intimidating drivers (28,29).

Women benefit from the higher degree of risk

aversion than men and follow the rules and regulations of traffic to avoid the risk of accidents (12). Furthermore, inefficient laws or rules as well as lack of supervision can be the important factors of social anomalies in society, especially driving, (30, 31). Accordingly, some authors implied that serious measures in relation to high-risk behaviors should be considered in law due to intensity and type of gender-based reactions of drivers (32). One of the strengths of our study can be mentioned as identifying the gender-based patterns of driving, especially female drivers, in order to be applied for establishing traffic laws in our socio-cultural context.

The specific behaviors of women drivers were explained according to their experiences. Such behaviors are rooted in the gender-based properties such as preventive and cautious behaviors and driving based on traffic rules (regulations). A similar study reported that male drivers with impulsivity-hyperactivity characteristics significantly showed more legal and behavioral violations and errors in driving (33). However, it seems that female drivers are less aggressive due to their obvious gender-based characteristics (34).

Strengths and limitations of the study

To our best knowledge, exploring the gender-based driving patterns in Iran was the initial step of further research in this field. Some important patterns were identified using a qualitative research method to deeply extract the related factors. The researchers faced several limitations during the study. First, the experiences of the participants may not be the representative of all gender-based driving behaviors in Iran. There was a limitation during the data collection process due to the culturally sensitive research topic. In addition, conducting face-to-face interviews with participants at the time of COVID-19 pandemic was the other limitation of the study.

Conclusion

Different patterns of driving behaviors focused on female drivers were unsafe risky behaviors against female drivers, protective and friendly behaviors, and specific driving behaviors of women. Establishing appropriate rules to protect the aggressive driving behaviors against women in Iran is highly suggested.

Following these rules should be assessed and monitored by the police and other responsible organizations in order to punish those who violated the rules. In addition, providing training and educational workshops to explain the importance of the respectful and friendly driving behaviors should be considered at the time of taking driving license. Furthermore, the protective and friendly driving behaviors can be identified and encouraged by the police and various forms of media. Gender-based driving behaviors can be considered as the complicated issue affected by various factors which need to be investigated and identified in the future. Further research is required to explore the process of gender-based driving behaviors as well as identifying different effects of such behaviors on communities.

Ethics approval

This study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (ethical code: IR.SBMU.RETECH.REC.1398.852).

Consent to participate

Not applicable because in this research, no study was conducted on human tissues. Only their social experiences have been analysed. Individuals who wanted to participate in the research were interviewed and the research team based on ethic approval obtained the consent.

Consent for publication

The research team declares its consent for publication, but not as a preprint.

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Conflict of Interest

The authors state that there is no conflict of interest in the present study.

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