ABSTRACT

Objective: to describe the perceptions of trauma victims about resulting physical and psychological changes. Methods: descriptive exploratory study using a qualitative approach with patients hospitalized in the traumatology and orthopedics sector of a public hospital in Recife-PE, over 18 years old and who had been victims of motorcycle accidents. The sample was intentional and for convenience, consisting of six individuals who met the study's eligibility criteria. For data collection, the resource of recorded interviews was used, guided by a semi-structured interview script. The testimonies were analyzed using Bardin's technique. Results: three thematic categories emerged from the analysis: I- Feelings unveiled at the time of trauma; II- Changes in the post-accident vital context; III- Traffic Safety Conditions. Conclusion: the degree of instruction and education in traffic, as well as recklessness when driving and violations of current legislation are predictors of accidents. The change in the post-accident vital context serves as a reflection agent for the participants to rethink their practices on the roads; health professionals in humanized care; and public managers to prioritize actions on education and traffic laws, improvement of highway conditions, among others.

Descriptors: Injuries; Motorcycles; Traffic Accidents.

RESUMO

Objetivo: buscou-se descrever as percepções de vítimas de traumas sobre alterações físicas e psicológicas decorrentes. Métodos: trata-se de estudo descritivo, exploratório, de abordagem qualitativa, com pacientes internados no setor de traumatologia e ortopedia de um hospital público em Recife-PE, maiores de 18 anos e que tivessem sido vítimas de acidentes motociclisticos. A amostra foi intencional e por conveniência, composta por seis indivíduos que se enquadraram nos critérios de elegibilidade do estudo. Para coleta de dados, utilizou-se o recurso da entrevista gravada e norteada por um roteiro de entrevista semiestruturado. Os depoimentos foram analisados pela técnica de Bardin. Resultados: obtiveram-se da análise três categorias temáticas: I- Sentimentos desvelados no...
momento del trauma; II- Alteraciones en el contexto vital pós-accidente; III- Condiciones de seguridad en el tránsito. **Conclusión:** identificó que el grado de instrucción e educación en el tránsito, la imprudencia al pilotar e infracciones a las legislaciones vigentes son factores predictores de accidentes. La alteración del contexto vital pós-accidente sirve como agente de reflexión para que los participantes replanten sus prácticas en las carreteras; los profesionales de salud en la asistencia humanizada; y gestores públicos para priorizar acciones de educación e leyes de tránsito, mejorando las condiciones de las carreteras, entre otras.

**Descripciones:** Trauma; Motocicletas; Accidentes de Tránsito.

**RESUMEN**

**Objetivo:** describir las percepciones de las víctimas de trauma sobre los cambios físicos y psicológicos resultantes. **Métodos:** estudio descriptivo exploratorio con abordaje cualitativo con pacientes hospitalizados en el sector de traumatología y ortopedia de un hospital público de Recife-PE, mayores de 18 años y que habían sido víctimas de accidentes de motocicleta. La muestra fue intencional y por conveniencia, compuesta por seis personas que cumplieron con los criterios de elegibilidad del estudio. Para la recolección de datos se utilizó el recurso de entrevistas grabadas, guiadas por un guion de entrevista semiestructurado. Los testimonios se analizaron con la técnica de Bardin. **Resultados:** del análisis surgieron tres categorías temáticas: I- Sentimientos revelados en el momento del trauma; II- Cambios en el contexto vital post-accidente; III- Condiciones de seguridad vial. **Conclusión:** el nivel de instrucción y educación en el tráfico, así como la imprudencia al conducir y las infracciones a la legislación vigente son predictores de accidentes. El cambio en el contexto vital post-accidente sirve como agente de reflexión para que los participantes replanteen sus prácticas en las carreteras; profesionales de la salud en la atención humanizada; y gestores públicos para priorizar acciones en materia de educación y leyes de tránsito, mejorando las condiciones de las carreteras, entre otros.

**Descripciones:** Motocicletas; Heridas y Lesiones; Accidentes de Tránsito.

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INTRODUCTION

Trauma is considered the leading cause of death in recent decades and, due to its disabling nature, it compromises the economically active population. Car accidents are one of the most serious and challenging problems in traumatology.\(^1\) The population and vehicle fleet growth, associated with recklessness and negligence of the traffic laws in force in the country, are some factors that increase the prevalence indicators of accidents which, in turn, have greater relevance in the context of public health in Brazil.\(^3\)

Traffic accidents are a serious problem all over the world. According to an estimate pointed out by the Pan American Health Organization (PAHO), around 1.35 million people die each year as a result of traffic accidents on the highways. Traffic accidents are the second leading cause of death among young people aged 5 to 29 years and the third leading cause of death among people between 30 and 44 years old. In addition to these deaths, it is estimated that, per year, around 20 to 50 million people suffer non-fatal injuries, many of them resulting in disabilities.\(^3\)

In recent years, there was a high increase in accident rates involving motorcycles, a vehicle that is gaining more and more acceptance and approval from the population, as it is easy to move and has a reduced cost of acquisition and maintenance compared to cars and with increasing use in daily occupational activities, which causes a significant increase in mortality rates in all regions and states, especially in the North, Northeast, and Midwest of the country.\(^4,5\)

According to the World Health Organization (WHO), traffic accidents were responsible for more than 1.2 million deaths and caused injuries to 20 to 50 million people in 2010, with an increasing emphasis on motorcycle accidents.\(^6\)

In Brazil, motorcyclists stand out among the victims of traffic accidents related to the use of this transport as a quick means of transportation and as a work tool, corresponding to an increase of almost 51% between 2006 and 2010, while in other types of accident victims, such as pedestrians and drivers, for example, there was a reduction or maintenance of the rates.\(^4\)

The highest prevalence of motorcycle accidents occurs among young people and adults between 15 and 32 years old, which directly affects the country's economy by affecting people of full
working age. This population suffers the most serious injuries, with emphasis on motor sequelae, psychological and mutilations that are responsible for the high cost of hospital care, absence from work and social activities, and, consequently, compulsory pensions paid by the National Social Security Institute (INSS) for disability when the injury incapacitates the worker completely and permanently or for health benefits while they are not able to return to their work function.

In 2010 the Unified Health System (SUS Sistema Único de Saúde) recorded the number of 69,609 hospitalizations in the motorcyclist element traumatized by a traffic accident, totaling the expense of these hospitals around R$ 85,602,906.68 million. Research has shown that the costs of hospital admissions for external causes accounted for about 1% of total public health expenditures in Brazil between 1998 and 2004. In this survey, an important portion of the expenses refers to outpatient care, including urgent and emergency care.

The external surface injuries are the most frequent injuries such as lacerations, bruises, abrasions, located mainly on the lower limbs. There is a predominance of pelvic fractures, followed by trauma, laceration or rupture of abdominal organs, organ trauma, chest trauma, bone injuries, amputation of limbs or part of limbs, and cranioencephalic trauma. The nature of the injuries influences the length of stay of the patient, the type of treatment, and the conditions of hospital discharge.

The difficulty of inspection regarding the qualification, the use of protective equipment such as helmets, the consumption of alcoholic beverages and illegal drugs by drivers, the inexperience about the locomotion of this vehicle, the lack of maintenance of the highways, and the deficiency of hospital care in these regions can contribute to the high mortality rates that need to be faced by the public sector through the application of financial resources in strategies that reduce these losses.

Public health has an important role in this process, whether in the implementation of prevention measures related to the user, safety equipment, conducting surveillance of accidents and violence with strict inspections and punishments for infractions, also prioritizing the education of new drivers and a continuous policy of inspection and guidance to the motorcyclist.

Thus, motorcycle accidents are a major problem with strong impacts on the morbidity and mortality of the population and are increasingly reported in the media and present in the hospital routine. Motorcyclists are the most vulnerable segment due to direct exposure to collision with vehicles or fixed objects and, therefore, subject to multiple traumas.

Nursing has a fundamental role in caring for victims of car accidents. The identification and nursing diagnosis of accident victims enable nurses to work in this scenario, detecting and controlling risks early, individually planning the care provided to these patients through specific interventions, scientifically based, capable of providing effective and immediate actions.
Given the complications caused by motorcycle accidents and because it is a public health problem that is growing the most in several regions of the country, it is appropriate to study the perception of victims of motorcycle accidents in a hospital unit from the perspective of their pain, suffering, impairment psychological and temporary or permanent sequelae. Knowledge of the characteristics of motorcycle accident victims provides an important set of data for understanding the dynamics of these events and contributes to improving health care, supporting and guiding public prevention and control measures aimed at this type of injury.

**OBJECTIVE**

To describe the perceptions of trauma victims about resulting physical and psychological changes.

**METHOD**

This is a descriptive, exploratory study with a qualitative approach, carried out in a public hospital in the city of Recife - PE, a reference in the State in the area of Traumatology and orthopedics, with patients over 18 years old, victims of motorcycle accidents (drivers or who were involved in the accident), hospitalized in the traumatology and orthopedics sector from May to November 2019. We excluded individuals involved in car accidents or with cognitive limitations. The sample was intentional and for convenience, whose sample size was due to data saturation, that is, when there is no new fact in the statements. Thus, it was configured by six patients in the study's eligibility criteria.

For data collection, a semi-structured interview was used and each participant was identified by the letter I (interviewee), followed by an enumeration of the order in which the interview was conducted (1,2,3 ...) to maintain their anonymity. The interviews were scheduled according to the availability of each participant, in the morning, afternoon, or evening shifts to guarantee the reliability and confidentiality of the information. The interview was conducted with Resident Nurse Laís Bezerra, who graduated in Nursing from the Federal University of Pernambuco, in which she acted as R2 of Nursing in Orthopedics and Traumatology of the Uniprofessional Residency Program.

The instrument developed by the researchers consisted of two parts. In the first, we collected identification information and their socioeconomic and demographic conditions for sample characterization, and then we used the following questions: 1) Do you remember what exactly happened to you during the traffic accident? What were your first thoughts and feelings? 2) What changed in your
life after the accident? 3) If you could, what would you do to avoid the experience in traffic? 4) Do you have a suggestion to improve traffic safety conditions?

The statements were transcribed in full and evaluated by thematic modality content analysis. The comparative evaluation was carried out through the juxtaposition of the different categories existing in each analysis, highlighting the aspects considered similar and those that were conceived as different.¹⁴

The research followed the principles established by Resolution 466/12 of the National Health Council (CNS) (BRASIL, 2012b). The study was approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Pernambuco under CAAE:11501619.7.0000.5197 and opinion nº 3.295.693 and received a letter of consent from the hospital institution. Participation in the study was voluntary and subject to the signing of the Informed Consent Form (ICF) by each participant.

RESULTS

To characterize the sample, we verified that 3 respondents were between 18 and 28 years old, 1 respondent between 29 and 39 years old, and 2 respondents between 40 and 50 years old (Table 1). As for education, there was a high prevalence of individuals with incomplete elementary school; 1 with high school and 2 with higher education. Of these 84% reported driving daily, mainly to travel home-to-work or home-to-educational institutions. Only 1 participant referred to use the vehicle only once a week. The popularization of this type of vehicle and its low cost compared to the car, added to the ease of payments and financing, justifies the growth of motorcycles on the streets of cities and in the countryside.³

Table 1. Descriptive analysis of gender, age group, education, and time using the vehicle. Recife-PE, 2019.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>%</th>
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<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Female</td>
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</tr>
<tr>
<td>Male</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 to 28</td>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
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<tr>
<td>--------------------------------------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Incomplete elementary school</td>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td>Complete high school</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>Higher education in progress</td>
<td>2</td>
<td>33%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vehicle use</th>
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<tbody>
<tr>
<td>Daily</td>
<td>5</td>
<td>84%</td>
</tr>
<tr>
<td>Weekly</td>
<td>1</td>
<td>17%</td>
</tr>
</tbody>
</table>

Regarding prudence in driving, when asked whether they were driving at high speed at the time of the accident, only two people said yes (33%), the others reported being at a controlled speed and all respondents had a license.

When evaluating the statements of the participants, three categories emerged: I- Feelings unveiled at the time of trauma; II- Changes in the post-accident vital context; III- Traffic Safety Conditions.

I- Feelings unveiled at the moment of trauma

Initially, we asked the respondents if they remembered what exactly happened during the traffic accident. The answers showed fear and nervousness during the accident, as shown in the speeches:

_I really didn't hit or they hit me, I fell, right! The bike skidded the front tire, then I fell. When I fell, when I realized that my foot was stiff, then I was very nervous and desperate_ [13]

_I remember when I stopped at a traffic light and an ambulance was behind me asking for a ticket. I let them passed right away... I moved the bike to the corner of the curb and when I went further... a detour... but I looked in the rearview mirror and immediately when I looked straight ahead, a car was coming out of a street and I hit him in front of him [...]. I was in my right hand now; only he was coming off the wrong street. When I crashed, I jumped, I went forward and the bike was further back._ [15]
I woke up a little late for my work. So, I decided to speed up the bike a little so that I wouldn't be so late... and I ended up crashing, dodging a hole and the bike's tire skidded... and so I was projected from the bike forward. [16]

The following statements showed that the lack of vehicle maintenance is also a conditioning factor in traffic accidents:

The bike's tire ran out of air and I lost control of it. [12]

The bike skidded with the front tire, then I fell... I didn't hit or they even hit me, I fell. [13]

In many cases, the victims are pedestrians or bicycle users, who suffer the consequences of the recklessness of the riders, as explained in the following statement:

I remember when I was on the bike, the guy came on the bike and ran me over. There I fell and waited for help. [11]

After the impact, the feelings of death, fear, and despair were the most described by the participants at the time of trauma.

I was never run over by a motorcycle. I was afraid. People surrounded me and I was waiting for help. The guy on the bike stayed with me and I waited for SAMU's help. [11]

The thing that crossed my mind was that my daughter and I were going to die... I was scared. [12]

When I fell, I realized that my foot was stiff, so I was very nervous and desperate. [13]

The first thought was of death. [14]

Feeling scared... I started thinking about my family. I started to think that I should have gone at low speed and started to get nervous, especially when I looked at my leg and it was in that state. I thought I was going to lose my leg. [16]

Only one participant listed in her speech that he sought to remain calm and analyze the risks inherent in the situation:

Always keeping calm. Always, even with the pain, because the wound was in the leg. Even with the pain I was always calm and asking God that an ambulance would arrive soon...and it arrived fast. [15]
II- Limitations on activities of daily living after the accident

The study found the reality of those who lived this experience. Through the speeches, we observed that there was a sudden change in the vital context after the accident:

*I had an open fracture in my foot. I don't think there will be any more finger movement.* [11]

*It changed my freedom; I'm stuck and I'm not used to staying in a bed. My life has always been busy: college, work, and today I'm alone in a bed.* [12]

*After I fell on my motorcycle, I hit the hospital, my life outside is all to be solved... my debts, my job... I'm here without any assistance... and everything is messed up in my life.* [13]

*Mainly the family... We are a little distant from the family...because we are recovering at the hospital...and it's been 11 days since I've been here...the feeling is of sadness.* [14]

*My routine changed, my work changed... everything changed... it's that thing of staying here, waiting every day for a response from the doctor... when I'm going to have the surgery again... this is a very big affliction ... I can't sleep properly... it generates a lot of anxiety, do you understand?* [16]

III- Traffic Safety Conditions

When asked about a suggestion for improving traffic safety conditions, most participants listed increased inspection, paving, and maintenance of public roads and signposts:

*I ask you to always continue with the inspection and fix the roads in our state, which is horrible.* [11]

*If there were more signs, there were more signs for less speed... A lot of people are talking on the phone, this is very harmful and causes accidents.* [12]

*It would be very interesting to open a few more avenues, more viaducts and give us more space to drive.* [14]

*To have more signage; people were more aware of the traffic and had more respect for bikers because they don't.* [15]
DISCUSSION

Data from the National Health Survey (PNS) indicated that motorcycle accidents and deaths resulting from trauma occurred mainly among young people and adults. 

A survey conducted in Teresina-PI showed the incidence of 70% of male victims in motorcycle accidents. These data showed that the predominance of males is a strong characteristic feature in this type of event, signaling greater exposure of men, in addition to the more aggressive behavior of this group in traffic.

In Brazil, motorcyclists stand out among the main victims of traffic accidents, perhaps because they use it as a faster means of transportation to work, associated or not with tele-delivery services, because of the ease of acquisition or the precariousness of public transport.

An ecological study that used the SUS Hospital Information System (SIH/SUS) described the profile of victims who were hospitalized for injuries resulting from land transport accidents (LTA) and with a diagnosis suggestive of physical sequelae. Through this study, we could see that hospitalizations diagnosed with physical sequelae represented ¼ of hospitalizations for LTA that were recorded during the period 2000-2013 in Brazil.

Land transport systems are highly relevant to the social and economic relations of a country, they are also generators of accidents and consequently of premature mortality and physical and psychological sequelae in the injured. The rapid and unplanned urbanization, plus the lack of adequate infrastructure contribute to the increase in the number of traffic accidents.

A study carried out in Paraná to identify the factors that contribute to certain motorcycle accidents, pointed out the lack of regular mechanical maintenance as one of the probable causes, which corroborated this sample.

The consequence of traffic accidents goes beyond injuries, leading to physical, psychological, cognitive, social changes and which leads to functional incapacity to carry out activities of daily living and profound changes in the lives of victims, whether from a professional and/or personal point of view. One of the main complications resulting from trauma victims is the decrease in functional capacity in which they will need psychological intervention focused on helping them to make sense of their lives, seeking to reframe what the traumatic experience taught them about life, as well as social support.

The type and severity of injuries still stand out, with a predominance of lower limb fractures, followed by upper limbs and brain injuries. Most accidents with motorcyclists involve hospitalization, causing health expenses that tripled, reaching more than R$ 40 million a year, in addition to causing
physical sequelae and psychosocial repercussions such as functional incapacity in daily activities, anxiety, symptoms of depression, pain, and difficulty returning to work. The investigation of the most commonly compromised injuries associated with patient care may lead to the formulation of educational policies that point to the use of more adequate safety equipment, for the prevention of sequelae in these bodily areas, in case of accidents.¹⁰

Injuries resulting from motorcycle accidents constantly result in temporary or permanent disabilities, which impair the ability to survive victims to perform tasks that are expected of them, as well as their quality of life. Trauma reduces the quality of life-related to health in the medium and long term, in addition to causing symptoms of anxiety and depression and reduced social and family life, with difficulty in returning to work.⁸

Thus, it is necessary to establish sequelae assessment protocols, dimension the social costs of accidents through qualitative studies and investigate the impact of accidents on victims as well as on family members to guide public policies that reduce traffic accidents.

People who have suffered some type of traffic accident may also need some type of psychological treatment to help them give meaning to their lives; trying to reframe what the traumatic experience taught them; as well as providing social support and occasions for them to learn to deal with the situation experienced. For this, it is necessary that health professionals, including nurses, contribute to rehabilitation, the promotion of self-care, and guidance for safe practices in traffic through continuing education.²⁰

The investigation of the most commonly compromised injuries associated with patient care may lead to the formulation of educational policies that point to the use of more adequate safety equipment, to prevent sequelae in these bodily areas, in case of accidents and improve the quality of life of victims after trauma.¹⁰

Traffic education is a social practice that promotes the development of people’s critical awareness of traffic experiences. This practice is not limited only to debating traffic rules but also aims to contribute to forming autonomous, responsible, and involved citizens with the valuing of life.¹⁹ Traffic health education is the main way to sensitize people to healthy behavior in the traffic, contributing to the reduction of accidents involving pedestrians, cyclists and drivers, that is, human beings.²¹

The involvement of health professionals and the nursing team is essential to act more effectively in this scenario, They are participating actors in health decisions, educators, and the whole society as protagonists of actions that aim to encourage responsibility in traffic to show teaching tools such as educational campaigns, sensitizing the population to safe behavior in traffic, continuing
education for a multidisciplinary team, knowing the risk factors and accident prevention measures, encouraging actions aimed at expansion traffic education based on awareness and citizenship of motorcyclists.19

The use of alcohol and illegal drugs while riding a motorcycle has been recorded as one of the most frequent causes of injuries and fatal accidents. The number of dead motorcyclists is higher compared to dead cars and vans. The implementation of Law 11.705/2008, popularly known as the 'Lei Seca', brought about a change in the number of traffic accidents in the country, in addition to reducing the number of hospitalizations. This fact confirms the importance of this Law as a measure for the prevention of traffic accidents and how much it is necessary to increase inspection measures, communication, and participation of managers in the execution and inspection of this law, offering educational campaigns that reach the people who use the motorcycle as a means of transportation.22

Therefore, we reinforce the need for more effective and preventive measures that can contribute to confronting this public health problem such as the carrying out of educational campaigns that reach people who use motorcycles as a means of transportation and greater visibility managing bodies to monitor and implement prevention measures to improve traffic conditions.22

As a limitation of the study, there were some operational problems, such as the refusal of 20 participants because the interview was recorded, even though the reason for this was explained and that there would be no identification, shame, and shyness in letting their voice be recorded.

CONCLUSION

The results in this research showed that the level of education, traffic education, recklessness when driving and violations of current legislation are predictors of accidents. The change in the post-accident vital context is an agent of reflection for participants to rethink their practices on public roads.

The population's quality of life is linked to several factors, such as health, education, and safety. In traffic safety, we observed that, in addition to the collaboration of drivers concerning legislation and conscientious driving, the same is expected from cyclists and pedestrians.

As for the public authorities, they must keep the roads intact to avoid accidents and, consequently, reduce deaths. Due to population growth and the expansion of the number of vehicles, daily problems accompany the level of growth and become increasingly recurrent in the population's routine: congestion, traffic accidents, lack of an effective urban mobility policy.

In this sense, given the growth in the number of traffic accidents, mainly involving motorcyclists, the population's concern for safety has increased. For this reason, this issue must be faced responsibly by the relevant public authorities to offer the population greater safety in traffic.
CONFLICT OF INTERESTS

Nothing to declare.

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