

The psychosocial repercussions of cranioencephalic trauma caused by motorcycle accidents

Repercussões psicossociais do traumatismo crânioencefálico causado por acidente motociclístico

Repercusiones psicosociales del traumatismo craneoencefálico causado por accidente motociclistico

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ABSTRACT

Objective: The study's purpose has been to describe the psychosocial repercussions of Cranioencephalic Trauma caused by motorcycle accidents. **Methods:** It is a descriptive and longitudinal research with a qualitative approach, being defined as a case study. Instruments were applied; being used a semi-structured interview, and also observation at the patient's home. The data were analyzed through triangulation, searching for lines of convergence between them, and subsequently interpreted using the thematic content analysis. **Results:** The findings were obtained from the interview transcription, afterwards, the contents were grouped by similarities of meanings and the categories were then presented as follows: "Psychosocial repercussions: duality of yes and no"; "Resignificance of motherhood" and "(Re)valorization of life". **Conclusion:** It was evidenced that the patient had no either impact or functional sequelae. Nevertheless, it has been noticed that the repercussions of a motorcycle accident are not always visible; rather, the invisible 'marks' are existent, which sometimes are difficult to be perceived by the victims and their also relatives.

Descriptors: Traffic accidents, pregnant, motorcycle, cranioencephalic trauma.

RESUMO

Objetivo: Descrever as repercussões psicossociais do Traumatismo Crânioencefálico causado por acidente motociclistico. **Métodos:** Tratou-se de uma pesquisa descritiva, com recorte longitudinal, de abordagem qualitativa, do tipo estudo de caso. Foram aplicados instrumentos, realizada entrevista semiestruturada e observação no domicílio da paciente. Os dados foram analisados por meio da triangulação, buscando-se linhas de convergência entre os mesmos e interpretados através da análise de conteúdo temática. **Resultados:**

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Foram apresentados a partir da transcrição da entrevista, posteriormente, agruparam-se os conteúdos por similaridades de significados e desvelaram-se as categorias: “*Repercussões psicossociais: dualidade do sim e do não*”; “*Ressignificação da maternidade*” e “*(Re)valorização da vida*”. **Conclusão:** Ficou evidenciado que a paciente não teve nenhuma repercussão ou seqüela funcional. Entretanto, percebeu-se que nem sempre as repercussões de um acidente motocilístico são visíveis, pelo contrário, as ‘marcas’ invisíveis se fazem presentes e, por vezes, são difíceis de serem percebidas pelas vítimas e seus familiares.

Descritores: Acidentes de trânsito, Gestantes, Motocicletas, Traumatismos Crânioencefálicos.

RESUMEN

Objetivo: Describir las repercusiones psicosociales del Traumatismo Cráneoencefálico causado por accidente motociclistico. **Métodos:** Se trata de una investigación descriptiva, con recorte longitudinal, de abordaje cualitativo, del tipo estudio de caso. Se aplicaron instrumentos, realizada entrevista semiestructurada y observación en el domicilio de la paciente. Los datos fueron analizados por medio de la triangulación, buscando líneas de convergencia entre los mismos e interpretados a través del análisis de contenido temático. **Resultados:** Se presentaron a partir de la transcripción de la entrevista, posteriormente, se agruparon los contenidos por semejanzas de significados y se desvelaron las categorías: “Repercusiones psicosociales: dualidad del sí y del no”; “Resignificación de la maternidad” y “(Re) valorización de la vida”. **Conclusión:** Se evidenció que la paciente no tuvo ninguna repercusión o secuela funcional. Sin embargo, se percibió que no siempre las repercusiones de un accidente motociclistico son visibles, por el contrario, las ‘marcas’ invisibles se hacen presentes y, a veces, son difíciles de percibir por las víctimas y sus familiares.

Descriptor: Accidentes de tránsito, Gestantes, Motocicletas, Traumatismos Cráneoencefálicos.

INTRODUCTION

Among the external causes, there are traffic accidents due to their magnitude, both in terms of mortality and morbidity. Due to the high frequency of accidents among adolescents and young adults, these accidents represent a serious global public health problem and are responsible for a large number of years of life lost.^{1,2}

The traffic accident is conceptualized as any unintentional and avoidable event that involves a vehicle occurred on a public highway. It is included in the International Classification of Diseases (ICD) 10, subdividing into accidents involving a pedestrian, cyclist, motorcyclist, and occupant of a car, pickup truck and heavy transport vehicle.³

As a result of traffic accidents, the occurrence of Cranioencephalic Trauma (CET) is very common. This affects millions of people worldwide, being one of the main causes of morbidity and mortality, especially in young adults.^{4,5}

Nevertheless, it is known that traffic accidents can have consequences of various natures, not only being limited to the physical field, but can affect the psychological, economic, political, social and cultural fields, all of which have an intense repercussion on the life of the injured. Furthermore, they can cause immense numbers of deaths, permanent and temporary incapacities, high expenditure of financial

resources, psychological and personal issues, also pain and suffering of the victims, their families and others.⁶

Bearing in mind the aforementioned, and assuming that the repercussions of traffic accidents might go beyond the physical sequels, since the subjective of the accident can trigger psychological and social problems in the victims’ lives, this case study finds its relevance and aims to describe the psychosocial repercussions of CET caused by a motorcycle accident.

METHODS

It is a descriptive and longitudinal research with a qualitative approach, being defined as a case study. This type of study was chosen because it allows us to deepen the impressions about reality, since it is considered a category of research whose object is a unit that is deeply analyzed.⁷ Moreover, this type of approach provides the understanding of meanings of a certain phenomenon and its individual and collective importance in the daily lives of the people.⁸

In this perspective, the importance of adopting the case study as a research method allows naturalistic generalizations, since the experiential knowledge of the subjects occurs, when they try to associate the data found in the study with data that are the fruit of their personal experiences.⁹

The determining factor for developing this case study was the observation of a problem that merited further investigation - a pregnant woman who suffered a CET after a motorcycle accident. However, even though it was stated by the patient that there was no scientific proof that the motorcycle accident caused complications for the baby, it was considered relevant to carry out the present case study in order to identify the psychosocial repercussions that it generated in the patient’s life.

The study was carried out in Jequié city, Bahia State, and the data collection took place at the Statistical Medical Archive Service (SMAS) from the *Hospital Geral Prado Valadares (HGPV)* - a referral hospital for the health micro-region, which supports a total of 25 municipalities and also the patient’s home.

In order to respond to the research objective, it is necessary to involve distinct variables that aid in the analysis and allow several positions on the same phenomenon.¹⁰ Such variables can be assessed through the triangulation of data sources, which in this study was given by means of data obtained in the medical record and by the use of the following instruments: [Formulary of Sociodemographic and Clinical Information (FSCI) - structured by the researchers; the Glasgow Outcome Scale - Extended (GOS-E); and the Mini Mental State Exam (MMSE)]; as well as an interview, using a semi-structured script and the observations at the patient’s home recorded in the field diary.

The GOS-E approves most of the established criteria for a good scale of results and along with neuropsychological tests is considered a complete instrument, indicated for the evaluation of results after the CET.¹¹

While the MMSE, this enables the investigation of cognitive functions and a brief survey of the associations and dissociations of different neurocognitive subcomponents of post-CET adults.¹² However, attention should be paid to the fact that the MMSE has reliable screening and not diagnostic.¹³ Thus, it should not be used in isolation, but should be incorporated into other broader instruments in order to allow a better assessment of cognitive function. The MMSE score can range from a minimum of zero to a maximum total of 30 points.

It is important to clarify that this study was performed in three stages: in the first stage data were obtained in the medical record; the second included the application of the instruments: FSCI, GOS-E and MMSE; and the third was the semi-structured interview and then the recording of the observation in the field diary.

It should be noted that this case was identified from the database obtained in the research project titled as follows: "Functional results in individuals with a history of cranioccephalic trauma." It complied with the ethical precepts of the Resolution No. 466/2012 from the National Health Council, and was approved by the Research Ethics Committee of the *Universidade Estadual do Sudoeste da Bahia (UESB)*, under opinion No. 961,356 and *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appreciation] No. 39792014.4.0000.0055.

The analysis of the results was done by triangulation of the data of the medical record, the interpretation of the instruments (FSCI, GOS-E and MMSE) used in the research, reading the contents of the interviews and the records of the observation in the field diary, lines of convergence between them. The data, except that of the interview, were tabulated and arranged in the "Google Sheets" application, transferred to Excel.

The interviews were recorded on an MP3 player and later transcribed in full, being analyzed through the analysis of thematic content, which is systematized in three chronological stages: pre-analysis, in this the transcription of the interview and organization of the empirical material was done; exploration of the material, in which the empirical material was categorized; and treatment of the results obtained and interpretation, which organized the articulation between the empirical content and the theoretical principles that underlie the study.¹⁴ The themes that converged to the objective of this study were those chosen to be approached in this article, then corroborating the central argument that there are psychosocial repercussions for survivors of CET.

RESULTS

Presenting the case study

The patient was female, 25 years old, completed high school, married, pregnant of the second child (approximately 12 weeks of pregnancy), and Protestant.

She was conducted by the *Serviço de Atendimento Móvel de Urgência (SAMU)* [Brazilian Emergency Mobile Service] on 06/26/2014 to the Emergency Room of the *Hospital Geral Prado Valadares*, located in *Jequié* city, *Bahia* State, where she was admitted due to Cranioccephalic Trauma (CET) caused by a motorcycle accident.

The patient reported that the accident was not a collision, but that she collapsed the moment she was riding the motorcycle. Says:

I went through a moment of stress (which I am not going to explain) then I hitchhiked, I did not drive any more [...] [...] I collapsed from the motorcycle, and I had this accident; [...] the medical team said that it was a fainting because of the very great stress level.

The patient was taken care by the health team in the semi-intensive care unit, where conservative treatment for CET was then performed. She presented injuries on the face, breathing without the aid of devices, the result of Glasgow's coma scale at the time of admission was not on the medical record, which indicates an incompleteness of data.

Among other complementary examinations, she underwent chest, hip and skull radiography, which showed no abnormalities; Cranial Tomography (CT) was also performed, this revealed: extra-axial collection on the left; temporal contusion focus to the right, with no mass effect on the parenchyma; diffuse post-Traumatic Subarachnoid Hemorrhage (tSAH); fracture of the linear anterior base, propagating from the lateral wall of the left orbit, transfixing the midline extending to the lateral wall of the right orbit; fracture of temporal, anterior and posterior mastoid.

During the interview, the patient reported that:

The doctor's perspective, was very little in relation to me, he said that in the case... I do not remember that, but he said that the doctor said he would interrupt the pregnancy, that he had no chance of that child being healthy and spoke with my mom that I was never going to be the woman I was before, that I was going to get a sequel; that I could not walk; expectations were terrible; [...] basically, I was going to vegetate.

However, the patient progressed well, after six (6) days she was unconscious, she regained consciousness without any problem, the pregnancy did not have to be interrupted, as if at first thought; thus, the patient was discharged on 07/04/2014.

After discharge the patient wanted to perform exams with the obstetrician, and said:

I worried, due to the accident, by doing a 'morphological', but nothing proved, nothing showed that she (referring to daughter) had some problem.

Hence, the patient continued with gestational period without interurrences. She reported:

I was doing normal prenatal [...] everything was going to be a normal pregnancy, to be a healthy child.

Nonetheless, as the weeks go by, the delivery time was approaching, but the patient realized that she was not showing signs of childbirth, she said:

I was already coming in 43 weeks and I had no signal. Then I had to undergo a cesarean section. She (referring to the daughter) was born with bad deformations, [...] respiratory insufficiency, had a syndromic face; [...] the problem was the respiratory problem itself, she used a tracheostomy, she used a catheter... she had a facial paralysis that she did not smile, did not do any facial mimicry. She did several tests to identify the syndrome she might have [...] but she did not have a screening yet, there was nothing alike that could prove the syndrome.

During the interview, the patient emphasized that there was no proof that the motorcycle accident was the cause of her daughter's health issues, she says:

Your daughter was born with this series of problems due to the accident, was not it? There was no doctor who could sign it.

The patient reported that her daughter survived for approximately 10 months, being 06 months hospitalized in a public hospital in Salvador city, Bahia State; the remaining months continued at home being assisted by the Home Care Hospitalization Program/HGPV. In November of 2015, her daughter passed away, and she says she is moving on with her life in spite of not forgetting her daughter.

ASSESSING THE RESULTS

The analysis of the results was done through the compilation of data obtained in the medical records. They presented the data on the accident and all the care that was given to the patient, including reports of complementary tests, such as X-ray and CT scan of the skull. These, as presented previously, did not contain any either significant abnormalities or important findings. Moreover, data analysis included the following instruments: FSCI, GOS-E, MMSE, semi-structured interview and observation descriptions recorded in the field diary.

The FSCI was used to describe the previously reported case report. The analysis of the GOS-E showed that the patient reached score 08, which means that she is considered to have reached total recovery after the CET, since she returned to normal life without any trauma-related changes or complaints, considering, in this case, functionality parameters.

Through the MMSE the patient demonstrated that her neurocognition was within the normal parameters, as she reached a score of 29, not only punctuated a question

corresponding to memory. Thus, it can be inferred that the patient does not have cognitive sequelae from the motorcycle accident that caused the CET. Furthermore, it should be considered that the findings found in the cranial tomography (presented previously), did not reveal clinical abnormalities capable of causing neurocognitive sequelae in the studied patient.

Based on the interview transcription, the contents were grouped by similarities of meanings and the categories were then presented as follows: "Psychosocial repercussions: duality of yes and no"; "Resignificance of motherhood" and "(Re)valorization of life".

CATEGORY 1: Psychosocial repercussions: duality of yes and no

From the testimony of the patient, it was possible to perceive a duality in her speech, because when she was questioned about the repercussions of the motorcycle accident, and consequently the CET, in her life she reports that there were no repercussions:

No, nothing has changed; I have not had any sequels [...] by considering in my life, I keep doing the same things I did before. Today, I am a normal person, like any other before or after the accident, I did not have any sequel.

On the other hand, still answering the same question, the patient states that:

At the time I was pregnant. So the problem was all in the gestation, in my daughter. [...] this goes towards the psychological. So I think my 'me' today, it's like I'm injured, I have a wound that may have 'healed', but every moment, every moment I'll never be the same before the accident or after the accident due to my daughter's sequel. It's sad; it's like something like that, from my ego, from my inner self, something like that... I cannot get convey what I feel exactly. But it's more like that, sentimental.

Likewise, the patient reported:

I had a period that if I did not wake up to life, it would go bad; I was a step away from depression [...] After the child was born I was in that situation, totally trapped. [...] the responsibility was only in you, then our 'I' is going to hurt, it is hurting, you no longer have the will to fix the hair, to fix the nail, to take a shower... apathetic, depressed... I asked the psychologist at the hospital that my daughter was hospitalized [...] today I cannot move any more; I became a cold person [...] today I am a more determined woman.

Through the report, the duality in the patient's speech was evident, believing that the motorcycle accident that caused her CET did not bring repercussions in her life. However, she explains that there were psychological

repercussions, and it is necessary to seek the psychologist to help her deal with the situations experienced.

Additionally, it was not possible to infer that the health problem that her daughter had at birth was a consequence of the CET due to the motorcycle accident. Nonetheless, this is the patient's understanding, as follows:

I got no doctor who could sign for it, but nevertheless, in 'my self', everything leads one to believe; because, now she is gone.

In this aspect, it can be understood that the greatest psychosocial repercussion evidenced by the patient is related to her gestation, since she believes that her attitude may have triggered the accident and consequently, the CET followed by the daughter's health problem. She reports that:

I was convinced that I could have avoided that embarrassment, I could have avoided that stress, I might not have cared for the rest. [...]

After the experience the patient experienced, she affirmed the change that occurred in her marital relationship. She affirmed that she would never be the same before and after the accident:

[...] I think it will never be the same again, it's because more or less, it was kind of the pivot [...] It's that I do not want to go into details [...] a pain, then I... I try to deal with it in the best way possible, but when I'm alone, when I try to remember... it's like... it hurts inside of me... it's kind of thing that you want to forget, but all the time you get to remember it.

CATEGORY 2: Resignificance of motherhood

According to the patient, after her second pregnancy, when she had a motorcycle accident, followed by CET, she went on to give new meaning to the pregnancy and to have a healthy child, she states that:

I see the importance of seeing, as it is a privilege of you to have a healthy child. [...] in the first pregnancy, I did not even care... if I could get pregnant again today, it would be totally different [...] the care, the zeal for pregnancy.

I learned that a child is not only playful, she is also healthy. It is healthy, the child can play, smile...

From the above testimony, it can be inferred that the patient explains a change in her understanding and implications of having a healthy (or not) child, as well as the fact that a woman needs to prioritize more state of pregnancy. Emphasizes the importance of his responsibility for carrying a new creature in his womb. She adds:

[...] I should have worried more, because I was pregnant; I had a being inside me, who depended on me.

So, after all the confrontations that she experienced in her second pregnancy and for the creation of her daughter, who had been born with health problems, the patient reports that it brings with it a new meaning for motherhood. She says:

[...] I was there at all times fighting for a life, for something much greater than a son; who has a son knows the pleasure and love that is, you give everything, even what you have not ... she brought me a love, a different thing [...] If you say: I do not have the strength, I do not have the capacity. But you get stronger, you get competence, you go on.

At this point, the patient was asked if she received any kind of social support to help her face all the situations related to the birth and confrontation related to her daughter's illness, and she reported that:

God first, my other son and my family [...] My mother-in-law, both spiritually, both physically; she was a supporter so much, she might not be there physically every moment, but she was always present with me, she was calling me and giving more support.

Bearing in mind this testimony, the importance of spirituality and/or religiosity is understood in order to deal with problems in people's lives. Generally, the belief in a higher 'being/force' as a support for the emotional balance of the human being, is pointed out as fundamental in overcoming the problems of the most diverse orders. Furthermore, the support of the family, highlighting the son and the mother-in-law, was also pointed out by the patient as being of great relevance.

CATEGORY 3: (Re)valorization of life

The patient was very emphatic in stating that everything she has spent with her daughter has changed her way of valuing life and even the way she behaves towards others, she understands that one must think of oneself, regardless of the opinion of other people. She describes that:

I have learned to value life itself, to value life in general, to value the smallest detail more, because when you do not go through the situation you do not even realize [...] today, I see everything with different eyes.

In addition to valuing life, the patient reported that it is necessary for people to stop worrying about others, and worrying about themselves. She added that after everything she passed (after the motorcycle accident following the CET and the birth of her second daughter), it was possible to learn that everything in "life has a consequence", drawing attention to the fact that the attitudes of beings human beings must be done in a very conscious and responsible way, because according to it there may be a return of something that may not bring good effects to the life of someone who has done something bad.

[...] it is you do not worry about the other; you are worried about yourself if it will do you good, independent. And I learned a phrase that I take for life: "everything in life has consequences" everything, any doing; if you do a good deed, return will come; then everything in life has consequences. So, I look at this, why was my daughter like that? It... was the consequence of some act back there. So today, I have to plant good seeds so that good returns will come.

Given the above, it can be inferred that in the intimate of this patient, there is an understanding that the fact that her daughter was born with health problems may have been a consequence of her attitude as a giver.

DISCUSSION

It is known that the repercussions of traffic accidents can go beyond injuries, leading to physical, emotional, cognitive and social changes, which generate functional incapacity to carry out activities of daily living and profound changes in the lives of victims, either from a professional and/or personal perspective.^{15,16}

One of the main implications of the traffic accident for survivors of any type of accident is usually the reduction of functional capacity.¹⁷ Nevertheless, as it was presented in the report of this patient, a motorcycle accident victim, she did not present any problem of order functional. What happened to her produced effects that are not visible, in other words, the repercussions of the accident in this woman lies in the psychological field. Therefore, one does not have a physical sequel but a psychosocial repercussion.

Considering the aforesaid, in Brazil, it is imperative to carry out studies related to post-traumatic stress related to traffic accidents, since there is a need to identify adequate prevention and health promotion measures that consider the invisible sequels of traffic accidents. Hence, it is necessary to create protocols for the assessment of sequelae; to quantify the social costs of accidents through qualitative studies and to verify the impact of accidents on both victims and their families, in order to guide public policies that reduce traffic accidents.¹⁸

Many individuals who have experienced some kind of traffic accident will need a psychological intervention, with the aim of helping them to give sense to their lives, seek to see a new meaning in what the traumatic experience has taught them about life, as well as social support and occasions to learn how to deal with the situation.^{18,19}

Given this perspective, the role of family and close friends becomes of great importance in overcoming the "scars" caused by a traffic accident, especially the motorcycle accident. Family and friends help the individual who has gone through the traumatic situation, review the healthy aspects of life, and encourage encouragement, security, acceptance, and reassurance.¹⁹

Besides the family, the patient pointed out the presence of God as the first aid to face all the problems related to the health of her daughter. Therefore, spirituality and/or

religiosity, gain prominence in this discussion since both are imbricated, although they are conceptually distinct. These have historically been a point of satisfaction and comfort for diverse moments in people's lives.²⁰

CONCLUSIONS

The study pursued to understand the psychosocial repercussions of CET caused by a motorcycle accident in a woman who was pregnant by the time that the accident happened.

Through the data triangulation, It was evidenced that the patient had no either impact or functional sequelae. Nevertheless, it has been noticed that the repercussions of a motorcycle accident are not always visible; rather, the invisible 'marks' are existent, which sometimes are difficult to be perceived by the victims and their also relatives.

Bearing in mind this case, the need for more effective measures to address this public health problem, such as educational campaigns that reach people using motorcycles as a means of transport, is reinforced.

Furthermore, the present study ratifies the importance of developing new studies that discuss the invisible repercussions of traffic accidents, both from a psychological and/or social perspective, as well as individually or collectively. Therefore, there may be a greater visibility of the psychosocial impacts resulting from transport accidents.

REFERENCES

1. Françoise LA, Coates V. *Repercussões sociais das sequelas físicas em adolescentes vítimas de acidentes de trânsito*. Adolesc Saúde. [periódico na Internet]. 2008 mar [acesso em 2017 Jul 25]; 5(1) [aproximadamente 8 p.]. Available at: <<http://www.fqm.com.br/Site/br/docs/as012008.pdf>>.
2. Rocha GS, Schor N. *Acidentes de motocicleta no município de Rio Branco: caracterização e tendências*. Ciênc saúde coletiva. [periódico na Internet]. 2013 [acesso em 2017 Jul 28]; 18 (3): 721-31. Available at: <<http://www.scielo.br/pdf/csc/v18n3/18.pdf>>.
3. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Análise de Situação em Saúde. *Mortalidade por acidentes de transporte terrestre no Brasil*. Brasília (DF): Ministério da Saúde; 2007.
4. Klein AM, Howell K, Vogler J, Grill E, Straube A, Bender A. *Rehabilitation Outcome of Unconscious Traumatic Brain Injury Patients*. J neurotrauma. [periódico na Internet] 2013 Sep [acesso em 2017 Jul 28]; 30(17):1476-83. Available at: <<https://www.ncbi.nlm.nih.gov/pubmed/23477301>>.
5. Gaudêncio TG, Leão GM. *A epidemiologia do traumatismo crânio-encefálico: um levantamento bibliográfico no Brasil*. Rev neurociênc. [periódico na Internet]. 2013 [acesso em 2017 Jun 29]; 21(3): 427-34. Available at: <<http://www.revistaneurociencias.com.br/edicoes/2013/RN2103/revisao/814revisao.pdf>>.
6. Mesquita Filho M. *Acidentes de trânsito: as consequências visíveis e invisíveis à saúde da população*. Revista Espaço Acadêmico [periódico na Internet]. 2012 jan [acesso em 2017 Jun 29]; 11(128): 148-57. Available at: <<http://www.periodicos.uem.br/ojs/index.php/EspacoAcademico/article/view/13630>>
7. Triviños ANS. *Introdução à pesquisa em ciências sociais: a pesquisa qualitativa em educação*. 1ª ed. 19ª. reimpr. São Paulo (SP): Atlas; 2010.
8. Turato ER. *Tratado da metodologia da pesquisa clínico-qualitativa: construção teórico-epistemológica, discussão comparada e aplicação nas áreas da saúde e humanas*. 5 ed. Petrópolis (RJ): Vozes; 2011.
9. Lüdke M, Andre MEA. *Pesquisa em educação: abordagens qualitativas*. 2ª ed. São Paulo (SP): E.P.U.; 2014.
10. Yin RK. *Estudo de caso: planejamento e métodos*. 4ª ed. Porto Alegre (RS): Bookman; 2010.

11. Shukla D, Devi ABI, Agrawal A. *Outcome measures for traumatic brain injury. Clin Neurol Neurosurg.* [periódico na Internet] 2011 Jul [acesso em 2017 Mai 08]; 113(6): 435-41. Available at: <<https://www.ncbi.nlm.nih.gov/pubmed/21440363>>.
12. Pereira N, Kochhann R, Zimmermann N, Fonseca RP. *Mini-Exame do Estado Mental na avaliação neuropsicológica pós-TCE: aplicabilidades. Diaphora - Revista da Sociedade de Psicologia do Rio Grande do Sul.* [periódico na Internet] 2013 ago/dez [acesso em 2017 Mai 08]; 12(2):58-3. Available at: <<http://www.sprgs.org.br/diaphora/ojs/index.php/diaphora/article/viewFile/72/72>>.
13. Kochhann R, Varela JS, Lisboa CSM, Chaves MLF. *The Mini Mental State Examination review of cutoff points adjusted for schooling in a large southern Brazilian sample.* *Dement Neuropsychol.* [periódico na Internet] 2010 jan/mar [acesso em 2017 Jul 30]; 4(1):35-1, 2010. Available at: <<http://dx.doi.org/10.1590/S1980-57642010DN40100006>>
14. Minayo MCS. *O desafio do conhecimento: pesquisa qualitativa em saúde.* 12ª ed. São Paulo (SP): Hucitec; 2010.
15. Gawryszewski VP, Coelho HMM, Scarpelini S, Zan R, Mello Jorge MHP, Rodrigues EMS. *Perfil dos atendimentos a acidentes de transporte terrestre por serviços de emergência em São Paulo, 2005.* *Rev. Saúde Pública.* [periódico na Internet]. 2009 [acesso em 2017 Jun 13]; 43(2):275-82. Available at: <<http://www.scielo.br/pdf/rsp/v43n2/6994>>
16. Mello Jorge MHP, Koizumi MS. *Sequelas visíveis de acidentes de trânsito: primeiros dados brasileiros.* *Rev Abramet.* [periódico na Internet]. 2012 [acesso em 2017 Jul 01]; 29(1):36-5. Available at: <http://www.abramet.com.br/conteudos/artigos/sequelas_visiveis_de_acidentes_de_transito/>.
17. Santos DF, Comassetto I, Magalhães APN, Faro ACM, Moreira RTE, Souza EM. *A vivência do familiar cuidador da vítima de acidente de trânsito com incapacidade funcional.* *Rev enferm UFPE on line.* [periódico na Internet]. 2015 jan [acesso em 2017 Jun 01]; 9(9):343-50. Available at: <<https://periodicos.ufpe.br/revistas/revistaenfermagem/article/viewFile/10345/11055>>.
18. Cavalcante FG, Morita PA, Haddad SR. *Sequelas invisíveis dos acidentes de trânsito: o transtorno de estresse pós-traumático como problema de saúde pública.* *Ciênc saúde coletiva.* [periódico na Internet]. 2009 nov/dez [acesso em 2017 Jun 15]; 14(5):1763-72. Available at: <<http://dx.doi.org/10.1590/S1413-81232009000500017>>.
19. Menezes JNR, Mota LA, Sanots ZMSA, Frota MA. *Repercussões psicossociais do Acidente Vascular Cerebral no contexto da família de baixa renda.* *Rev bras promoç saúde.* [periódico na Internet]. 2010 out/dez [acesso em 2017 Jun 14]; 23(4): 343-48. Available at: <<http://periodicos.unifor.br/RBPS/article/view/2036/2330>>.
20. Guimarães HP, Avezum A. *O impacto da espiritualidade na saúde física.* *Rev psiquiatr clín.* [periódico na Internet]. 2007 [acesso em 2017 Jun 14] 34:88-4. Available at: <<http://dx.doi.org/10.1590/S0101-60832007000700012>>.

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