

Federal University of Rio de Janeiro State



Journal of Research Fundamental Care Online


 ISSN 2175-5361
 DOI: 10.9789/2175-5361

RESEARCH

Riscos ocupacionais em um serviço de atendimento móvel de urgência

Occupational hazards in a mobile emergency care

Riesgos laborales en un servicio móvil de urgencia

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ABSTRACT

Objectives: to identify occupational risks peculiar to the activities developed in a Service Mobile Emergency. **Method:** descriptive research with quantitative approach conducted with 162 professionals by an instrument consisting of: personal characterization, characterization professional and professionals' perception of the occupational risk factors. The research project was appreciated by the Ethics Committee of the Federal University of Rio Grande do Norte (CAAE: 0165.0.051.000-10). **Results:** it was found that among the physical risks, 34.6% consider the noise as the most important; appreciated 78.4% gas / fumes main chemical risk, 48.8% reported to be contact with blood the major biological risk, 80.9% said that the main risk is the mechanic of motor vehicle accidents, 40.1% said that the main ergonomic risk is the tension/stress. **Conclusion:** understanding the workplace favors preventive and corrective actions for occupational hazards. **Descriptors:** health professional, occupational risks, pre-hospital care.

RESUMO

Objetivo: identificar os riscos ocupacionais peculiares às atividades desenvolvidas em um Serviço de Atendimento Móvel de Urgência. **Método:** pesquisa descritiva, com abordagem quantitativa realizada com 162 profissionais mediante instrumento constituído por: caracterização pessoal, caracterização profissional e percepção dos profissionais sobre os fatores de risco ocupacionais. O projeto de pesquisa foi apreciado pelo Comitê de Ética da Universidade Federal do Rio Grande do Norte (CAAE: 0165.0.051.000-10). **Resultados:** foi constatado que, dentre os riscos físicos, 34,6% consideram os ruídos como os mais importantes; 78,4% valorizaram os gases/fumaças como principal risco químico; 48,8% informaram ser o contato com o sangue o principal risco biológico; 80,9% afirmaram que o principal risco mecânico é o de acidentes de transporte; 40,1% afirmaram que o principal risco ergonômico é a tensão/estresse. **Conclusão:** compreender os ambientes de trabalho favorece ações preventivas e corretivas para os riscos ocupacionais. **Descritores:** profissional de saúde, riscos ocupacionais, assistência pré-hospitalar.

RESUMEN

Objetivos: identificar los riesgos laborales de las actividades desarrolladas en el Servicio de Atención Móvil de Urgencia. **Método:** investigación descriptiva con enfoque cuantitativo realizado con 162 profesionales utilizando un instrumento que consiste en: caracterización personal, caracterización profesional y percepción de factores de riesgo ocupacional de los profesionales. El proyecto fue apreciado por el Comité de Ética de la Universidad Federal de Rio Grande do Norte (CAAE: 0165.0.051.000-10). **Resultados:** se encontró que entre los riesgos físicos, 34,6% considera el ruido como el más importante; 78,4% considerado gas/vapores principal riesgo químico, 48,8% informó que el contacto con la sangre importante riesgo biológico, 80,9% dijo que el principal riesgo mecánico es el accidentes de vehículos de motor, 40,1% dijo que el principal riesgo ergonómico es la tensión/estrés. **Conclusión:** entender el lugar de trabajo favorece las acciones preventivas y correctivas para los riesgos profesionales. **Descriptor:** profesional de salud, riesgos profesionales, atención prehospitalaria.

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INTRODUCTION

In the Brazilian context, the external causes represent the third most frequent cause of death, causing a strong impact on public health and configuring as unquestionable challenge to public managers. While the external causes accounted for 3% of deaths that occurred in 1930, in 2009 they become responsible for 12.5% of these deaths among Brazilians.¹

This fact caused the emergency services to acquire great relevance and positively influence the rates of morbidity and mortality from trauma. Studies show, that the implementation of this mode of attendance, there was significant reduction in the number of deaths, the time of hospitalization and the sequelae arising from lack of early relief.²

The pre-hospital care (APH) is that provided outside the hospital environment and aimed at meeting the victim in the first few minutes after have been an injury to their health. This service offers the best response to the request for help, and may vary from a simple advice or medical advice until sending a Basic support unit (USB) or enhanced support Unit (USA) to the place of occurrence, aiming at maintaining life and/or the minimization of the after-effects.³⁻⁴

This is a service that demand different professionals who have been properly trained, presenting clinical reasoning for the decision promptly and have ability to act against unexpected considering that the APH encompasses procedures and handling of patients full of quirks and snags.⁵⁻⁶

In the experience of the APH professionals face many obstacles such as: lack of scientific or technical qualification of working professionals, inadequate training and insufficient, difficult access to victims, lack of security at the scene of the accident, the absence of specific protocols for the prevention and control of infection, reduced space for procedures and procedures with both the static and vehicle movement.⁷

One should consider that the APH services professionals work in the most varied places of care and, in large part, under unfavorable conditions of luminosity, rain, heat, cold, flow of vehicles, ladders, poor hygiene, presence of animals, people, social unrest, aggressive and such factors are conditions that differentiate this work that the hospital environment.⁵

Such facts make plain that the professional of the APH has a higher risk to occupational hazards, because they assist victims of trauma, which may present and carry into ambulances large amount of dirt and products, which can increase the risk of the victims and the team of APH.⁷

In this context, it becomes apparent that the team of APH is constantly vulnerable to all sorts of occupational hazard, including biological, physical, chemical, accident and not ergonomic.⁷

Given the above, it decided to carry out this study aiming to identify the occupational hazards peculiar to the activities developed in the Mobile service of Urgency (SAMU) in the metropolitan region of Natal/RN, in the perception of the multidisciplinary team.

METHOD

It is a study of descriptive character of temporality and cross with a quantitative approach.

The question guiding this research was what are the occupational hazards peculiar to the activities developed in the Mobile service of urgency of the metropolitan region of Natal/RN, in the perception of the multiprofessional team?

The study is carried out in the SAMU in the metropolitan region of Natal, located in the municipality of Macaíba do Estado do Rio Grande do Norte (RN). The SAMU Metropolitan offers a service of urgency 24hrs to the population of eight municipalities that make up the region of the great Christmas, benefiting approximately 500 thousand inhabitants.⁸

The target population studied composed by all the nursing staff, medical and rescue personnel of the service conductor's mobile urgency of the metropolitan region of Natal/RN. The multi-professional team that service was composed of 12 nurses, nursing technicians, 55 21 doctors and drivers 75 rescuers, excluded from searches for a nurse for being this study researcher, making 162 professionals.

The data collected from November to December 2010. The professionals addressed in three shifts, including weekends, as ranges of services.

For this purpose we used an instrument consisting of three parts: the first addressed the personal characterization, satisfaction issues related to age, gender and educational level; the second part focuses on the aspects related to the characterization as professional workday weekly, if you have other employment and workweek on another service and the third part involved questions relating to perceptions of professionals about occupational risk factors. In the third part of the instrument, the risks separated into specific groups (physical, chemical, and biological, mechanical, ergonomic) so that the searched chose, within each group, the main risk factor responsible for the occurrence of accidents at work in the prehospital setting.

The collected data transferred to spreadsheets, corrected, analyzed through descriptive statistics with the aid of Statistical Software and presented in the form of tables and table.

The Ethics Committee of the UFRN approved with the opinion n° appreciated the research project. 319/2010, 0165.0.051.000-10: CAAE, respecting the norms of the National Health Council resolution n. 196/96. All participants agreed and formalized participation in the study through the signature of informed consent (TFCC).⁹

RESULTS AND DISCUSSION

The study population was composed of 162 professionals, being 21 (13.0%) doctors, 11 (6.8%) nurses, 55 (33.9%) nursing technicians and 75 (46.3%) responder's conductors.

It observed that of the 162 professionals, 121 (74.7%) were male and 41 (25.3%) female. Considering the professional categories separately, it was realized that the males stood out in the medical team, with 14 (66.66%) and between drivers first responders, with 75 (100.0%) of the investigated. However, in relation to nursing staff (nurses and nursing technicians), 34 (51.5%) were female and 32 (48.5%) male.

As regards the age variable, it has been found that the professionals studied fell mainly in the age group between 31 and 40 years, with 70 (43.2%), followed by 21 to 30 years, with 46 (28.4%).

Regarding schooling variable, the study revealed that 81 (50%) of professionals, has the full high school, followed by 40 (24.7%) with complete higher education, 38 (23.5%) with higher education incomplete and three (1.8%) with incomplete secondary education.

The table 1, below, brings the results concerning the journey work weekly SAMU Metropolitan, as well as information about the existence of other employment and the workday in that other link.

Table 1-distribution of health professionals according to the workweek in SAMU, presence of other bond and weekly journey in another link. SAMU Metropolitan, Macaíba/Rio Grande do Norte, 2010.

| VARIABLES | Doctors | | Nurse | | Student Nursing | | Driver | | Total | |
|--------------------------------------|-----------|------------|----------|------------|-----------------|------------|-----------|------------|-----------|------------|
| | n | % | n | % | n | % | n | % | n | % |
| Weekly journey in SAMU | | | | | | | | | | |
| ≤ 30 hours | 1 | 4.8 | 0 | 0 | 4 | 7.3 | 7 | 9.3 | 12 | 7.4 |
| 31 to 40 hours | 20 | 95.2 | 10 | 90.9 | 48 | 87.3 | 58 | 77.3 | 136 | 84.0 |
| ≥ 40 hours | 0 | 0.0 | 1 | 9.1 | 3 | 5.5 | 10 | 13.3 | 14 | 8.6 |
| Other employment | | | | | | | | | | |
| Yes | 16 | 76.2 | 9 | 81.8 | 26 | 47.3 | 34 | 45.3 | 85 | 52.5 |
| No | 5 | 23.8 | 2 | 18.2 | 29 | 52.7 | 41 | 54.7 | 77 | 47.5 |
| Weekly journey in another job | | | | | | | | | | |
| ≤ 30 hours | 8 | 50 | 3 | 33.3 | 17 | 65.4 | 21 | 61.8 | 49 | 57.7 |
| 31 to 40 hours | 2 | 12.5 | 5 | 55.6 | 8 | 30.8 | 13 | 38.2 | 28 | 32.9 |
| ≥ 40 hours | 6 | 37.5 | 1 | 11.1 | 1 | 3.9 | 0 | 0 | 8 | 9.4 |
| Total | 16 | 100 | 9 | 100 | 26 | 100 | 34 | 100 | 85 | 100 |

Source: own research.

In table 2, below, can be viewed the results relating to occupational hazards in the perception of the multidisciplinary team.

Table 2-distribution of occupational hazards as multidisciplinary team of SAMU Metropolitan/RN. Macaíba/RN, 2010

| OCCUPATIONAL HAZARDS | DOCTOR | | ENF. | | TEC.ENF | | CONDUITS. | | TOTAL | |
|---|--------|------|------|------|---------|------|-----------|------|-------|------|
| | n | % | n | % | n | % | n | % | N | % |
| Rain | 2 | 9.5 | 2 | 18.2 | 7 | 12.7 | 21 | 28.0 | 32 | 19.8 |
| Cold/Wetness | 0 | 0.0 | 0 | 0.0 | 2 | 3.6 | 1 | 1.3 | 3 | 1.9 |
| Noises | 10 | 47.6 | 4 | 36.4 | 19 | 34.6 | 23 | 30.7 | 56 | 34.6 |
| Physical Risk | | | | | | | | | | |
| Heat | 4 | 19.1 | 2 | 18.2 | 8 | 14.6 | 9 | 12.0 | 23 | 14.2 |
| Electric shock | 3 | 14.3 | 1 | 9.1 | 8 | 14.6 | 9 | 12.0 | 21 | 13.0 |
| Inadequate lighting | 2 | 9.5 | 2 | 18.2 | 8 | 14.6 | 10 | 13.3 | 22 | 13.6 |
| Inadequate Ventilation | 0 | 0.0 | 0 | 0.0 | 3 | 5.5 | 2 | 2.7 | 5 | 3.1 |
| Gas/Smoke | 14 | 66.7 | 9 | 81.8 | 49 | 89.1 | 55 | 73.3 | 127 | 78.4 |
| Chemical Risk | | | | | | | | | | |
| Chemicals | 4 | 19.1 | 1 | 9.1 | 4 | 7.3 | 18 | 24.0 | 27 | 16.7 |
| Dust | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.3 | 1 | 0.6 |
| Medicines | 3 | 14.3 | 1 | 9.1 | 2 | 3.6 | 1 | 1.3 | 7 | 4.3 |
| Contact with patients with infectious diseases | 0 | 0.0 | 0 | 0.0 | 8 | 14.6 | 21 | 28.0 | 29 | 17.9 |
| Biohazard | | | | | | | | | | |
| Contact with blood | 12 | 57.1 | 8 | 72.7 | 22 | 40.0 | 37 | 49.3 | 79 | 48.8 |
| Contact with other body fluids | 9 | 42.9 | 3 | 27.3 | 25 | 45.5 | 17 | 22.7 | 54 | 33.3 |
| Transport accidents | 16 | 76.2 | 8 | 72.7 | 44 | 80.0 | 63 | 84.0 | 131 | 80.9 |
| Mechanical Hazard | | | | | | | | | | |
| A bladed cutting accidents | 3 | 14.3 | 2 | 18.2 | 9 | 16.4 | 10 | 13.3 | 24 | 14.8 |
| Accidents because inadequate physical structure | 2 | 9.5 | 1 | 9.1 | 2 | 3.6 | 2 | 2.7 | 7 | 4.3 |
| Repeatability of movement | 4 | 19.1 | 2 | 18.2 | 4 | 7.3 | 9 | 12.0 | 19 | 11.7 |
| Ergonomic Risk | | | | | | | | | | |
| Tension/stress with patients | 8 | 38.1 | 6 | 54.6 | 28 | 50.9 | 23 | 30.7 | 65 | 40.1 |
| Punitive supervision | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 4.0 | 3 | 1.9 |
| Poor conditions of work | 8 | 38.1 | 3 | 27.3 | 19 | 34.6 | 35 | 46.7 | 65 | 40.1 |
| Occupational Violence | 1 | 4.8 | 0 | 0.0 | 4 | 7.3 | 5 | 6.7 | 10 | 6.2 |

Source: own research.

As for categorization according to gender, there was a predominance of males corresponds to 74.70% of surveyed. Within the national context, several studies in the prehospital environment mobile showed similar numbers, ranging from 84.00% and 61.10%.^{7,10-11}

When analyzed the occupational categories in isolation, it observed that the conductors are exclusively male, 75 (100%). It is worth noting that, in accordance with the Ordinance 2,048/2002, there is no legal impediment to women to assume this position. The said Ordinance specifies that the driver must have more than 21 years, have provided personnel for the activity, emotional balance and self-control, enabling as a driver of vehicles of transport of patients and the ability to work in teams.¹²

According to the distribution according to age group identified that studied professionals were young. These results are in accordance with some international studies.

Research undertaken with 38 nursing professionals and drivers who worked in ambulances of the biggest hospital of Hong Kong (China) noted that the average age of the professionals was 40.47 years. Another study, evaluating the occupational stress, *burnout*, workload and satisfaction in the emergency medical Service paramedics from Israel, found that 265 (45.42%) were professionals aged between 20 and 39 years.¹³⁻¹⁴

A study conducted in 2009, elucidates that the service held at SAMU requires the presence of people young and agile, because age is a factor that acts positively on the quality of care you expect to be in this industry.¹⁵

As for the level of education, the number of participants with full senior level. The number presented surpasses the population of doctors, nurses (top-level professionals), and is justified by the presence of nursing technicians and drivers who completed higher education. It should note the significant number of nursing technicians and drivers who were attending the top-level education.

Faced with this reality, we agree with the report from the Ministry of health, on human resources in health, when he says that, in the present day, the increase in the supply of undergraduate courses in nursing by private institutions has facilitated the entry of mid-level professionals in upper-level courses, once they aspire for better working conditions and income.¹⁶

As regards professional characterization was identified that predominated the professionals who had journey in SAMU Metropolitan de 31 the 40 hours per week and who responded positively when asked about owning another job and they had another job, most owned weekly journey less than or equal to 30 hours in another link.

These data illustrate the global trend of increasing workday observed in recent decades.¹⁷⁻¹⁸

Independent of the Professional category, a double workday is a preponderant factor for increase of overworking, fatigue, exhaustion, stress, thus interfering negatively in many aspects of life inside and outside of work. Thus, the requirement in excess, leads to distraction in the execution of tasks and the occurrence of an increased number of accidents at work, in addition to the decline in yields and the quality of assistance provided.¹⁷

The first group of occupational hazards investigated refers to physical risks, and among these, the noise of traffic and of the siren considered as those who have greater power to cause accidents in the pre-hospital environment, followed by rain. Reality similar observed in research developed in the city of Campinas, State of São Paulo, where 36.9% of the professionals of a SAMU stated that every time there is noise and noise.⁶

Due to constant exposure to noise generated by car horns and sirens, conducting periodic inspections of audiometry is a significant measure for the health of urgent and emergency professionals as well as the use of EPI equivalent.⁷

With regard to chemical risks, professionals valued the gases and smoke as the main risks of this group (78.40%), being the same trend evidenced when the professionals analyzed by category. The gases can produce irritation in the tissue with which it comes into contact, can have depressive action on the central nervous system or act as asphyxiating, decreasing concentration of oxygen in the tissues.¹⁹

Analyzing the biohazard group, the blood was the main risk factor of that group in the APH. In the analysis by category only nursing technicians reported, that the main risk factor is the contact with other biological fluids.

The concern with blood contact can be illustrated by a survey conducted with public service professional's mobile urgency of four municipalities in the State of Minas Gerais, which found the blood as greater contaminant between accidents with biological material, representing 90.3% of exhibitions. Staying in this study, one of the assistance activities carried out at the time of exposure, cited by the professionals, the immobilization of the patient (41.0%), completion of the cleaning of the material used (18.2%), orotracheal intubation (13.6%) were the most predominantly cited.²⁰

According to the population investigated, the most frequently encountered mechanical risk is the risk of shipping accidents due to improper maintenance of the ambulance and at high speeds with drivers drove in critical patients. The same predominance observed when mechanical risks have assessed by professional category.

In research conducted in a service of pre-hospital care in the region of Ribeirão Preto (SP), in a period of 5 years, out of a total of 4992 drives ambulances, involving 163 professionals, 54 were detected exposure to occupational hazards, of which 64.8% of accidents.²¹

As illustrated by these data, the risk of shipping accidents are relevant and cannot be overlooked by those who manage a service of pre-hospital care. An important recommendation that should be followed is the provision of training in defensive driving for drivers who make up this kind of service. In a survey, only 02 (9.09%) of the drivers interviewed said they possess such qualification.²²

The fifth group sought the possible ergonomic risks and among these, a portion of the professionals mentioned the tension/stress in patient care, psychiatric and aggressive behavior as ergonomic risk factor most often experienced by them while the same proportion of professionals claimed the precarious conditions of work.

According to the study, the emotional tension is associated mainly to working environment, since the activities required high degree of responsibility and qualification, with intense emotional wear and tear, in addition to the problems involving this type of service, such as social and transit problems.²

From statistical tests, an investigation revealed that not being pleased with the work and being more stressed increased the chances of a low capacity for work, and that Burnout presented by medical category reveals this category as the most stressed.⁶

In relation to working conditions, a research on pre-hospital care mobile in Fortaleza/CE, 89 surveyed pointed to difficulties the work process impairment of physical structure (60.7%); scarcity of materials (82.0%); the effects of human resources (37.1%), poor state of conservation and insufficient number of ambulances (67.4%). These issues refer directly to the management of system resources and regulation of prehospital mobile component for National Policy Attention to the emergency room.²³

CONCLUSION

From the realization of this study it was found that most respondents valued the noise of traffic and the siren main physical risks; revealed the gases and fumes as the main chemical risk factor; reported to be the contact with the blood the main biological risk factor; stated that the risk more mechanic found is to transport accidents; stated that the ergonomic risk factor most often experienced by them was the tension/stress in patient care, psychiatric and aggressive bass.

Considering these results, the activities developed in a SAMU expose professionals to a series of factors of occupational hazards that intensified by the dynamic and unpredictable nature of the service. In this way, understand these complex and dynamic work environments may favor preventive and corrective actions of the situations contributing to occupational risks, aiming at the creation of a healthy work environment and preventing work-related accidents occur.

One must consider that changes the State of health of such professionals can arise from exposure to such risks. Therefore, it is expected that the presentation of these data in the pros as well as awaken managers involved in this scenario the interest in establishing the best way to overcome the problems revealed by the study.

Thus, the permanent education activity configured as artifice is fundamental to supplant the challenge of changing behaviors and adoption of safe practices that should permeate every activity performed in the SAMU and must cover aspects such as knowledge of risks, assessment of the safety, proper use of PPE and adoption of standard precautions.

It is hoped that this study can subsidize the planning and implementation of programs for the prevention of accidents as well as alerting healthcare professionals and especially managers for occupational risk factors faced in the experience of the APH that are often unknown or overlooked.

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Received on: 30/09/2013
Required for review: No
Approved on: 06/01/2014
Published on: 01/07/2014

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