Impacts of organizational restructuring on the health of ambulance drivers from a university hospital

Abstract The transport of patients by ambulance is part of the services offered by a Hospital and its importance lies in facilitating the connection between the institutes involved in patient care. However, a significant amount of complaints about irritability and aggressiveness of drivers was registered after a strategic change in the organizational structure that directly affected these professionals. This study aimed to survey the health issues of ambulance drivers at this hospital, from the reorganization of work, through an ergonomic analysis of work. The data were obtained through observation and interviews with managers, leaders, and drivers of the transport sector of the hospital. The main results found were: 1) the key performance measurement is time, which is a measure that does not consider all variabilities that occur during transport, 2) prescribed work of drivers only considers the task of driving an ambulance, while their real work includes taking care and paying attention to the needs of the patient and other professionals, 3) after the restructuring and centralization of the transport sector, drivers stopped feeling as part of the team of health professionals and started to feel like a “shared service”.

Key words  Ergonomics, Hospital restructuring, Occupational health, Health services
Introduction

Organizational changes involve a time-bound transformation and occur from the broadest and most conceptual level (organizational culture) to the most restricted and concrete level (changes in equipment and reallocation of personnel). However, regardless of the level, such changes require a deep restructuring of the organization’s environment, since they result in a reorganization of the power relations and the roles of different social actors.

Although there are positive aspects in terms of improvements in the operational results, changes provoke an impact in the content of the work and, consequently, possible effects in the health of the workers. Studies related to workers’ health in a context of operational change have shown negative health impacts, such as an increase in absenteeism, a worsening of the general perception regarding health, repercussions on mental health, or voluntary resignation. The impact on worker health is more significant in the first years after the institution of the organizational change; however, the workers who undergo prolonged restructuring processes or consecutive and repeated changes tend to show more lasting effects on their mental health.

The hospitals, as companies, operate in an environment of constant change, including organizational, due to the progressive increase in costs with health, which nowadays represent a significant portion of public spending. Organizational innovations in the field of health represent changes related to patient care and structural changes in the organization of the hospital, like fusions, incorporations, and organizational restructuring. Restructuring in public health services also seeks to reduce costs, mainly imposed by the dissemination of the New Public Management, which incorporates practices from the private sectors, like outsourcing, privatization, focus on results and not on processes, and standardized models to measure performance. In Brazil, the adoption of this strategy led to fragmented and localized reforms, with the diffusion of “best practices” and high levels of experimentation, with a lack of well-defined strategies on what the best solutions should be.

In health service operations, there are workers directly involved with health care (medical and nursing teams) and others responsible for general patient care, such as hospitality, transport, food production, maintenance, and administrative workers. Regardless of the level of involvement in patient care, every worker is susceptible to the negative effects of organizational restructuring; however, different workers experience this process in different ways because of the particular characteristics and content of the work. In other words, actions of reorganization of the content of work aimed at reducing anxiety-causing or inadequate conditions may produce negative effects in the health of the support workers who provide patient care.

A large part of the studies that analyzed the pathogenic suffering related to working in an atmosphere of organizational change prioritize the identification of individual strategies for coping with the problem. However, few studies have analyzed the impact on the collective context of workers, or sought to identify questions related to the impact of work organization on the workers’ mental health. The majority of the studies suggest that the negative impacts could be related to the intensification of work, or to the increase of work schedule pressures, the reduction in social support, or uncertainties related to future employment, producing a work environment laden with ambiguities and uncertainties.

There is a lack of studies in the literature showing the impact of the comprehension of real work before the establishment of an organizational restructuring, in other words, the changes are implemented without the understanding regarding the real work and its meaning for those who perform it. Therefore, organizational changes that reformulate the content of the work without considering its value lead to a rupture in the collective regulations and the bonds of trust, producing a negative impact on the health of the workers due to job insecurity and the loss of professional identity.

One of the strategies to approach the analysis of work issues, aiming to understand the concept of work from the perspective of its different determining factors, is ergonomics focused on activities. An ergonomic action based on the comprehension of the activity (Ergonomic Work Analysis - EWA) seeks to understand the concept of work and the strategies developed by the workers to deal with the discrepancy between prescribed work and real work. Moreover, from the EWA, one can understand how the different aspects of production may be interconnected to constitute the systems and situations of work. Such an understanding allows for the construction of diagnoses, which are deeper and more overarching, respecting human properties and limitations.
Concerning the psychological suffering related to work, it involves a confluence of individual aspects related to the personal coping strategies, to the existence of collective contexts, to professional values modulated by the organizational context, and to the different modalities of performance assessment. This suffering may manifest itself clinically as different kinds of complaints, and the professionals involved in taking care of worker health must develop an active understanding in order to identify the signals. This situation becomes more serious when the symptoms of psychological suffering originate from workers who support the healthcare services, since a large part of the studies on health services include only individuals directly related to health care, not including workers such as the cleaning crews, workers from the hospital pharmacy, maintenance crews, and ambulance drivers.

Therefore, the main contribution of this work, regarding literature related to worker health, is the discussion on the importance of understanding real work, using the approach based on activity ergonomics as a methodological reference, and concepts of Work Psychodynamics (WPD) as a theoretical basis for the investigation of the aspects which impact the mental health of ambulance drivers at a public hospital.

Methodology

This is a qualitative study based on the ergonomic analysis of the work (tool for understanding the real work) of the ambulance drivers from a University Hospital in the city of São Paulo. The study was conducted by a multidisciplinary team of researchers, as part of the conclusion paper for the post-graduate course (lato sensu in Ergonomics), with the supervision of one of the researchers. At the time, one of the authors of the article was the medical coordinator of the hospital, and he suggested the need for this research. He also acted as the facilitator, bringing together the team of researchers and the hospital transport team. The demand for this study was presented to the researchers, with the aim of understanding the context of the work of those professionals and the aspects related to the demand, in an attempt to adopt a more systemic action. In that sense, the aim of the study was to conduct a survey on the health issues of the ambulance drivers from a University Hospital in São Paulo, Brazil, in face of the reorganization of their work, by means of an ergonomic analysis of that kind of work.

Characteristics of the hospital

The hospital offers public health services and is an institute of education with the objective of training and qualifying health professionals. It is an autarchy, administered by the government, and it is an autonomous institution, decentralized and with its own budget, under state supervision. The hospital has different institutes, which offer specialized medical attention to the public, and each institute has its own management, all of which are subordinate to the central administration of the hospital. The hospital complex occupies an area of nearly 400,000 square meters and the transport of patients between institutes is one of the services offered by the hospital, making it possible to connect the patient with the specialized institutes that provide the relevant medical care.

Transport sector

The hiring of ambulance drivers is done exclusively by public tender. The Public announcement defines the requirements for the job, and there is no need for previous experience. The workers approved in the tender are not trained for the job, and the knowledge is passed on from older workers.

The demands for the transport sector are related to the time spent at each service, especially the maximum of five minutes time required between receiving the call and the arrival of the ambulance to pick up the patient. Another quality demand is related to cordiality when dealing with the team and coworkers.

Characteristics of the population

The transport sector has 48 drivers, all male; 69% are older than 50 and are close to retirement age. In addition, 68% had completed high school, and 79% had been in the job for less than 10 years.
Organizational restructuring

The transport service went through two structural reformulation processes in the last few years. The first one happened in 2008, when there was a decentralization of the sector, dividing the sector among the various institutes, and each institute received financial autonomy. This strategic option resulted in differentiated salary and benefit policies for the drivers, varying according to the institute they worked for.

In 2012, there was an analysis of the results of the 2008 reformulation, and it was verified that the institutes with higher demand were requesting the drivers from other institutes, generating problems related to the management of personnel as well as related to the salary policy and budget issues concerning fuel costs and maintenance of the ambulances. Therefore, a re-centralizing strategy was implemented in 2012, with the creation of a single garage from which all drivers would be allocated according to the demand of the institutes.

To make this change effective, reformulations in the hierarchy were required, and the job of 'leader' was created, the person responsible for centralizing the demands of the shift and directing the allocation of drivers. The leader is indicated by the management, without clearly defined criteria for the choice. Usually, the chosen leaders are drivers who have restrictions to perform the job of driver, or have physical restrictions concerning carrying weight. The job of leader is not an actual position within the organizational structure of the institution, since it is not included in the hierarchical organogram. Hence, these workers receive no differential pay for the position.

Design of the study

The methodology of this study is based on the EWA, whose core objective is the work activity performed by professionals in different work scenarios. The EWA is structured in several phases, interconnected in an interactive rather than a linear process, since the confrontation with the actual work leads to returning to previous phases for a deeper understanding of the work activity. Therefore, it is a participative approach, appropriate for a broader understanding of the work and the creation of solutions.

According to Guérin et al. and Wisner, the EWA must begin with the analysis of the demands, and from that, build the problem, which must be expressed explicitly. The demand of the present study were the complaints of other health professionals, especially the nursing team, about the irritability and aggressiveness of the ambulance drivers. These professionals are those who interact with the drivers on a daily basis, without the existence of a hierarchy or subordination. According to the nursing professionals, the complaints originated after the organizational restructuring of 2012, and were only acknowledged by SESMT in 2014.

This study was developed in the period between April and June of 2014. In the two first months of the study, semi-structured interviews were conducted, with managers and leaders, and the institutional documentation was analyzed, as was the productivity indicators, in order to reach an overall understanding of the processes of the job, and its relationship with other departments of the hospital, with the objective of understanding the way in which the institution functions and the work determinants of the ambulance drivers. Understanding the organizational context, the facts which define the company’s history, the productivity indicators, as well as the volume and content of the work may reveal elements that have an impact on the work activity.

The work situation chosen and studied in this research was the transport of patients from one institute to another. Such a choice was defined by the original demand from the SESMT of the hospital, since this kind of transport requires the interaction of the drivers with the patients and other health professionals. Moreover, it is the main kind of transport performed by the drivers. After the overall analysis of the company, the initial interviews and the start of free observations, the initial demand was reformulated with the objective of improving the understanding of the work determinants of the drivers and their impact on the original demand.

At the end of this first phase, the field activities were initiated, with free observations in order to understand the work dynamics and its determining factors. The month of June 2014 was dedicated to directed observations of the specific work process, guided by demand. Forty hours of observations were conducted, and all the subjects participating in the study were verbally informed and accepted voluntarily to participate in both the free observation and the individual interview. The objective of the research was explained before the beginning of the observation, and agreed upon by the drivers who participated in the observation process, which required one
of the researchers to be present in the ambulance as it went from one institute to another. During the free observation, unstructured interviews were conducted with the drivers to understand the determining factors of the job and sought to understand the content of the work.

Two interviews were conducted, in group, with the drivers, at the end of the two different periods of free observation. These group interviews had not been scheduled nor had they been previously structured. The interviews, therefore, were conducted in an organic fashion, performed spontaneously at the garage and in the waiting room where the calls are received, with voluntary participation of the drivers. The group interviews included the drivers who had participated in the free observations, as well as those who were at the garage at the time the researchers returned from observation. The results demonstrated common elements extracted from the observations, from the remarks of the workers and from the document evaluation. The research was supervised bi-weekly by senior supervisors with training in work ergonomics and work psychodynamics.

The ergonomic activity was used as the methodological approach for the work analysis and for the broad understanding of the activity and its determining factors for the content of the work. As theoretical reference to understand the daily reality of the work and its repercussions on the workers’ mental health, the concepts of Work Psychodynamics were used, with their main contribution being the understanding of how a person experiences the work that he/she does.

This study was developed as part of a broad project involving the identification of the population profile and the risk factors related to the work of the ambulance drivers from the hospital, and was approved by the Ethics Committee for Research Project Analyses from the Clinical Hospital of the School Medicine at the University of São Paulo.

Results

With the documentary analysis, observations, individual, and group interviews, the researchers were able to identify and understand the changes that happened in the work of the ambulance drivers after the structural reorganization that took place in 2012. Until that year, each institute had its own team of drivers, and the requests were made directly through contact between the nursing team and the drivers. Therefore, the drivers had the autonomy to organize their work according to the demands of the institute to which they belonged and could easily obtain information related to the specificities of the patients to be transported.

Content of the real work of ambulance drivers

The restructuring of the transport sector created an intermediate instance between the nursing team and the ambulance drivers, called the shift regulator. That sector became responsible for receiving the calls from the nursing team, defining the priority of the service, the time for the transport, and how to obtain information regarding the clinical conditions of the patient. The shift regulator transfers the information to the shift leader, who defines which kind of ambulance is required and which driver will respond to the call. The sequence of the main tasks of the ambulance drivers can be seen on Figure 1.

As shown in the fluxogram in Figure 1, after the organization restructuring, the nursing team does not have direct contact with the drivers at the moment of the call for the transport of a patient. The leader receives the demands from the Shift Regulator, and he/she assigns the driver for each demand, according to staff availability. Only in cases of urgency do the institutes have the liberty of requesting the transport directly from the transport sector, which later passes on the information to the Shift Regulator.

The drivers have autonomy to choose the best route to arrive at the destination, depending on the time of day, something they learn from experience. When they receive a call, they have 5 minutes to get to the institute where the patient is. On the way there, they might run into problems, such as traffic, road construction, accidents, or weather-related issues which may affect the time needed for the trip. When they arrive at one of the institutes to pick up the patient, they need to park the ambulance. Some institutes have specific parking places for ambulances, others do not. If that is the case, they must find an adequate place to park or stop the ambulance in a prohibited place, taking the risk of receiving a parking ticket. After parking the ambulance, they wait for the patient.

Once the patient arrives, the driver takes the stretcher out to accommodate the patient. At that moment, different situations may occur: 1) patient manages to get up on the stretcher with little or no help; 2) patient is on a bed, and the driver and the nursing team need to move the patient
to the stretcher; 3) the patient is on a specific bed and cannot be accommodated on an ambulance stretcher.

In the third case, theoretically, the drivers must have knowledge of the situation in advance so that they can leave their base without the stretcher in the ambulance. When they do not have prior knowledge, they must leave the stretcher at the institute where they executed the pick-up, and then must return afterwards to retrieve it (or else the ambulance will not be functional).

The drivers, then, must request the paperwork related to the call to fill in the time they leave, destination, place where they leave from, distance, and time waited. They then place the stretcher with the patient inside the ambulance. This task is the driver’s responsibility, as well as the closing of the ambulance door. Only in adverse situations (obese patients, severe health conditions, special adjustments to the stretcher), other professionals, such as the nurses, are requested to accommodate the patient and the stretcher inside the ambulance. Finally, the driver is ready to take the patient to the final destination.

Upon arriving at the final destination, there is a nursing team waiting for the patient with another stretcher to remove him/her. The next step is to move the patient to the institute stretcher and return to the garage. Again, other unexpected circumstances may occur: 1) There is no stretcher available upon arrival, and the nurse has to take the patient into the institute using the ambulance stretcher, making the driver wait for the return of the stretcher; 2) There are delays in the permission of the entrance of patients in the institute of destination; 3) Drivers have to wait by themselves with the patient while the nurses are fetching a stretcher, wheelchair, or documents in the institute; 4) Other professionals, besides the driver and the nurses, are needed to remove the patient, due to adverse scenarios.

When transporting the patient to the destination and when returning to the garage, the drivers must deal with the same unpredictable traffic scenarios as mentioned above. Finally, once back to the garage, the drivers must fill in a form with the details of the call, including the unpredictable situations that might have occurred and wait for the next call in the waiting room, inside the ambulance, or in the recreation room.

Therefore, the length of the activities does not consider the real content of the work. The prescribed work of the ambulance driver defines only the driving of the vehicle, whether the real work also includes patient care and dealing with other professionals, especially the nurses. Among the

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**Figure 1.** Description of the work content of drivers and leaders after the centralization of the transport sector.

*Source: Authors elaboration.*
tasks, drivers are responsible for accommodating the patients on the stretchers, paying attention to adverse or delicate situations, as well as keeping the patient company when the nurses deal with bureaucratic matters inside the institutes.

**Indicators of assessment of the drivers' work**

The prescribed work of the drivers is divided into three parts: (i) drive the ambulance from the garage to the institute where the patient is; (ii) transport the patient from one institute to another; and (iii) return with the ambulance to the garage. This work is evaluated by the time indicator of those three steps, which has a five-minute goal for each part of the process. This indicator was defined during the process of organizational restructuring, without direct involvement of the drivers. It is an average which does not encompass any occurrences or variability of the demands due to the patient's condition, nor considers the demands of each institute or any other difficulties out of the drivers' control.

According to the drivers, the conflicts with the nurses happen because of a lack of alignment between the necessities of the transport and the information passed on to the drivers. Moreover, another source of conflict is when the stretchers are kept in the institute, since the ambulance becomes dysfunctional, and there is a direct impact on the time indicator.

Although the main indicator of the work of the drivers is the time taken, they do not have control over that variable, since there are too many unexpected events during transport. Moreover, the ambulance drivers did not participate in the definition of the indicator, so the real time to complete each part of the transport process was not considered in the definition of the objective.

**Meaning of the work**

The work of the drivers includes an emotional component related to the patients. They establish a connection with the patients, and do whatever they can to meet the needs and preferences of each patient, providing as much comfort as possible. They often have to stay with the patient while the nurses deal with the paperwork. Thus, even though the prescribed work of the driver is to provide transport between institutes, they have direct contact with the patient. The drivers report feeling responsible for the patients and are concerned about guaranteeing their safety.

The workers also report their concern with the care for the patients, which increases when they transport children or elderly patients, and that concern extends to the family. Some drivers say they feel belittled by the medical professionals when they do not recognize their participation in the caring process, and despise them. The drivers conveyed a sense of exclusion that they feel, a lack of recognition that they should also be considered as health professionals; those feelings show the conflicts that the drivers attribute to their work.

**Discussion**

The present study revealed the impacts on the mental health of the ambulance drivers of a large public hospital, caused by an organizational restructuring, which was based on taylorist-fordian concepts and ignored the real work aspects and the meaning of the work. The results of this study are in consonance with the results of Fløvik et al.⁹, Falkenberg et al.⁷, and Bamberger et al.¹⁰, who revealed the negative impact of organizational changes on the mental health of workers from the health sector. Other factors besides the demand and control over the work could be causing the deterioration of these workers’ mental health. In this context, job insecurity caused by the loss of work value, insecurity in the work relationships, and a lack of professional identity could be possible explanations.³⁻⁵ Ingelsrud⁴ and Fløvik et al.⁹ sought to identify the factors in the work environment associated with negative repercussions on the health of the workers. However, all of the studies demonstrated that the model used was not quite satisfactory to understand the relationships between the frustrations at work and the advent of psychological symptoms.

The organizational restructuring of the ambulance drivers’ work was based on a teleological rationality, which prioritizes the concentration of production to obtain productivity and quality gains¹⁹. Following that logic, the resources known as ambulances should be better used by all of the institutes, reducing the idle time of the equipment. Therefore, to centralize the resources (the ambulances) under a single management could bring gains in terms of cost and efficiency for the hospital, as well as provide the best sharing of the equipment and its rational use by the patients and institutes.

Following that same rationale, the drivers are responsible only for driving in the least amount
of time possible. Therefore, the only indicator that measures, accompanies, and assesses the activity of driving an ambulance is time lapse. That would be the only part of the drivers’ work recognized by the organization, and consequently visible by it, and it is linked to a time indicator inherited from the industrial logic which does not consider the real work of those professionals, the work in which caring for others, for the patients, is essential. Therefore, two conflicts are generated from this context: the issue of drivers not having control over the only indicator by which they are evaluated, and the simplification of the work that goes far beyond the simple operation of a vehicle within a five-minute time interval.

The first conflict results from two issues: First, there are variabilities in traffic, in weather conditions, and in the availability of parking places for ambulances. Moreover, there are unpredictable events related to other people involved in the process, such as patients who require more time for accommodation, nursing teams that may delay the transport, or bureaucratic matters that need to be addressed. Hence, the total time of transport from one place to another does not represent the real work of the drivers and is far from being manageable, since there are other factors that may impact that indicator negatively.

There is considerable controversy concerning the evaluation of the work. The considerations of Work Psychodynamics are crucial for this debate. According to Dejours, it is not possible to measure work, since work is a subjective dimension of the individual. For the author, when the need to measure work is considered, it is common to measure - erroneously - by the time spent on the activity. It is important to highlight that time measurement reveals how long the activity lasts, but not its intensity, effort, quality, and the real content of the work. Moreover, it does not consider the non-material values of the service, such as trust, cooperation, and necessity. In other words, the choice of a time as a variable brings to light the lack of recognition of the real work of the ambulance driver, especially concerning the care for the patient, which leads to the second conflict: the simplification of the driver’s work as a mere transport provider.

The organizational change destined to optimized the use of ambulances did not consider the subject (the ambulance driver) and the real work (transport of the patients), and considered that the drivers are simply people who execute the activity of operating the ambulance, as if drivers were nothing but a part of that material resource called “ambulance”, underestimating the individual and the real work. Drivers are treated as resources to be optimized. The analysis of the results demonstrates that the real work of the ambulance drivers is invisible for the organization, since several activities are not recognized by the other actors of the process and were ignored in the decisions made in the process of restructuring. Caring for the patients, for instance, was not considered in the prescribed work.

Sznelwar argues that all the professionals somehow involved with the patient are also involved in providing care. Every worker in the hospital is, in some manner, involved in the purpose-activity of the organization, which is to provide care for the patient. Molinier states that an important part of the work of the ambulance drivers is the participation in the care provided to the patients, which includes the mobilization of a feeling of compassion, in response to the suffering of the other individual. Still according to Sznelwar, the care work happens, effectively, when there is room for compassion and for the creation of a connection, which the drivers consider as elements that give meaning to their work. However, when time management is the only indicator to evaluate the work of the drivers, there is no recognition of their participation in the care process, thus resulting in job insecurity.

In work psychodynamics, there is a focus on the centrality of work for the construction of the subject, which is the basis for the health, development and personal realization of the worker. Work involves intelligence and allows for subjective growth, mobilizing one’s personality in its entirety, in turn allowing the individual to find his/her place in society. The individual realizes, therefore, that the work environment is an extension of his/her own existence, and that environment is the place where subjectivity is created. In this process of building one’s identity, two pillars are crucial: belonging, which places the subject in a social group, and singularity, which distinguishes the subject from his/her peers by unique characteristics.

However, after the organization restructuring, such pillars of identity construction were destroyed, as were the bonds of trust and cooperation that previously existed with the other professionals from each institute. On one hand, they lost some of their previous characteristics, such as the feeling of belonging to the institute, to a team of health professionals, people they knew by name and with whom they had direct contact to organize the demands. On the other
hand, they also lost their singularity, since they began to be treated as a part of the resource “ambulance”, and being so, they could be divided, optimized, and distributed on a time and availability basis. Molinier defines that the human being must not become a machine; the human being should rather humanize the machine. With the centralization of the transport service, in search of productivity, the subjects were treated with the same criteria as the vehicles. The drivers were no longer seen as subjects; they were treated as objects, literally characterizing a reification of those workers’ jobs and harming the meaning of the work and the construction of identity.

As we demonstrated, the organizational restructuring caused a change in the context of the work of the ambulance drivers, which resulted in the loss of professional identity and the lack of recognition, by the organization, of what the drivers consider as the meaning of their work. When analyzing the implications of organizational changes on the safety and health of the workers, Guida et al. realized that the lack of recognition causes consequences for the physical and mental health of the workers. Such alterations in the context of the work, combined with the erroneous use of the time indicator (which ignores the real work of those professionals), was seen during the field observations as one of the primary elements in the production of conflicts between the drivers and the nursing teams.

Organizational changes that adopt practices based on the instrumental logic of standardization in a pragmatic manner, reveal the conflict between the real work and the demands of the subjects for meaning and recognition at work. According to Azevedo et al., public hospitals in Brazil sought the instrumentalization of the process and the institution of quality and safety standards of health care. However, conflicts arise when this instrumental rationality is confronted with the real work of the subjects and the collectivity of the workers, who construct their practice on subjective relationships, which involve the recognition of the meaning and value of the profession.

Therefore, the organizational restructuring done by the management of the hospital did not consider the real work and the meaning of the work of the ambulance drivers, reducing it to the simple driving action, taking away the value of the work done by these professionals. Such a context of job insecurity manifested itself in the form of conflicts with the nursing team, which arose in the form of irritability and aggressiveness on the part of the drivers. It is important that the professionals involved in worker health care search for strategies to comprehend the real work in face of the demands that involve the workers’ mental health. The negative impact on the mental health of the workers is caused by elements from the organization of work, which may be solved by implementing more considerate strategies of work evaluation. The ergonomics of the activity, which dialogues with the concepts of worker subjectivity, revealed by the work’s psychodynamics, may be capable of fulfilling that need.

Collaborations

LI Sznelwar: supervision and follow-up during field research, participated in the elaboration of the methodology and the conclusions. Participated in the general revision of the article. EC Sá: intermediated the research in the institution, enabled the supervision of data collection and analysis. Participated in the review and revision of the final version of the article. DP Maciel: field researcher, acted in the data collection, analysis, and interpretation of results. Participated in the writing of the article’s manuscript and its revisions. R Giannini: elaboration of the article, writing and written revisions.
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