CONSIDERATIONS ON THE QUALITY OF LIFE AT WORK OF DRIVERS OF BUS RAPID TRANSIT (BRT)

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Abstract: - Urban mobility is one of the most significant aspects of modern societies, cities have sought many solutions to make the act of coming and going of fast, safe and pleasant citizens, within this scenario, the model of the Bus Rapid Transit (BRT's) has been a much sought after alternative, this mode of transport requires the driver to new working conditions, so it is necessary to assess in this professional conditions exercises its activities. Starting from the stress of the operator is an important factor in the safety of operations, we seek to understand and benchmark how the conduct of BRT's is stressful in relation to the conduct of traditional vehicles. From the definition of stress factors, this study compared these conditions among BRT'se conventional vehicles, it was concluded that the embedded technologies, working conditions and how the BRT is within the urban mobility, these vehicles generate less stressful working environment for the driver, generating a better quality of working life of these professionals.

Key-Words: - Stress, mobility, BRT, Quality of Life at Work.

1 Introduction

The public transportation system is a key means of connecting people to the city, linking it to cultural services, public services, jobs and education (Ministry of Cities, 2008) [1]. According to a study by IPEA (2011) [2], about 65% of Brazilians of large cities use public transport daily, and 55% of users say they are dissatisfied.

Dissatisfaction user by means of public transport leads to opt for alternative means of transportation, usually the individual, contributing to a more complex traffic, increased noise pollution, community sense of loss, etc. (Ministry of Cities, 2008) [1]. These effects are stress feeders for the average user, and in greater proportion to the bus driver (TAVARES, 2010) [3].

Given these data, one of the alternatives found to improve urban mobility in the cities is the bus system Bus Rapid Transit, BRT, which has its recognized efficacy in cities like Curitiba and Bogota, making them more liveable and better quality life (Ministry of Cities, 2008) [1].

The BRT system due to factors such as exclusive lanes in the cities where it was implemented, could

significantly reduce the stressors rates of urban transport drivers, one of the most stressful professions in the labor market (BIGATTÃO, 2005) [11].

We evaluate the concepts and definitions of stress, quality of working life, occupational stress, the work of the driver, the stress on the driver of public transport, stress factors in driving activity, basic descriptions of BRT, stressors versus BRT activities.

This work aimed to evaluate most of the possible benefits in the implementation of BRT in large cities, the reduction of stress on professional, acting not only on behalf of users, but also as an alternative to reference in the reduction of stress factors in public transport drivers collective.

1.1 Concepts and definitions Stress

The concept of stress has its origin in the exact sciences (Selye, 1956) [8], and later used by other sciences, including medicine, the correlation between the effort submitted a material that over time come to be deformed, He found parallel in the tensions experienced by humans in their day-to-day, where, as in the materials also makes the actions of these people suffer "changes" by modifying their natural behavior, as follows:

"The word estresse comes from English stress. This term was first used in physics to translate the degree of deformity suffered by a material when subjected to a stress or tension and transposed this term for medicine and biology, meaning the body's adaptation efforts to deal with situations it deems threatening his life and to your inner balance. "(Selye, 1956, p.2) [8]

In post-modern society, one of the problems with which most people face, are the consequences that stress produces health (SADIR; Bignotto; LIPP, 2010) [4]. Hans Selye was the one who initiated the study of stress, considered the "father of estressologia" by dedicate to this issue for four decades (1936-1976) [8], Selye defined stress as:

"Stress is the body's reaction caused by psycho-physiological changes that occur when a person is faced with a difficult situation. Stress can be caused by external and internal agents can be positive: eustress and negative: the diestresse, which is the stress itself, disease-causing ... The demands imposed on people by the changes of modern life, and consequently the need to adjust to these changes, eventually expose people to a frequent situation of conflict, anxiety and emotional instability. "(Selye, 1965). [8]

Stress can also be caused by anxiety and felt depression in situations not expected or style of chaotic life, or a sudden change in the individual's lifestyle, which exposed a certain environment, it begins to feel distressed and there are no alternatives to adapt (SADIR; Bignotto; LIPP, 2010) [4].

Faced with this situation, if the individual remains exposed to this scenario for a long period of time, having daily contact with the causal factors (stressors), there may be avoidance of symptoms (psychosomatic symptoms) where the defense system will not respond as due, increasing the possibility of diseases, especially cardiovascular, reducing the levels of quality of personal life and also at work (SADIR; Bignotto; LIPP, 2010) [4].

1.2 Quality of life at work (QLW)

The quality of working life is a very important factor to be considered, given the fact that we spend about 8 hours a day at least 5 times a week in our work, that over at least 35 years of our lives.

"The quality of working life has been a concern of man since the beginning of its existence with other titles in other contexts, but always aimed to facilitate or bring satisfaction and welfare worker in carrying out his task." (RODRIGUES, 1994) [19].

We consider the quality of working life as a meter system to facilitate and meet the needs of the professional to develop their occupational activities, based on the fact that people are more productive and healthier as you are satisfied and involved himself work (RODRIGUES, 1994). [19]
With this, it is worth noting the importance of providing an environment and working conditions that provide a higher quality of life and that will reduce the pressure and the presence of causative factors of occupational stress.

"The result of an effective organizational system behavior is the motivation that when combined with the skills and employee skills, results in human productivity." (DAVIS AND NEWSTRON 1992) [20]

It follows therefore that the professional feel happy and satisfied, produce more, carries out its work more efficiently and have better physical and psychological health, which is also beneficial for businesses.

1.3 Stress in the workplace or occupational stress

"Occupational stress is a term used when the main source of stress is at work. The work occupies a central place in the lives of people and the organizational environment is a potential form of stress "(COOPER; COOPER AND Eaker, 1988). [21]

The work environment is one of the places where more people are diagnosed with stress.

With the routine life of large cities, the fast-paced, short deadlines, excessive activity, competitiveness, lack of time to sleep and eat properly, chaotic traffic, pollution, poor conditions of work tools and environment, among others, time used to work has become a stressor legitimate, with an aggravating factor when the individual can not use the remaining time to rest, relax and practice activities that can serve you exhaust valve.

Stress at work has become a problem that companies need to learn to understand, and most importantly, help prevent and treat if they have not yet reflected on this issue, given the fact that stress has consequences for the health and quality life professional, and so damaging to business.

This can be noticed by attendance, sick leave, difficulty in interpersonal relationships among employees, decreased productivity, frequent errors in the execution of work, problems that bring high personal and professional costs.

It is necessary to identify the stressors that affect the performance of professionals according to their fields and thus create measures to make the most satisfying work environment and less stressful.

2 The public transport driver and stress

2.1 - The work of the driver

With the growth of urban centers, mass transit reaches today great economic and social importance, carrying much of the population in and outside the cities according to the needs of each individual in getting through the public transport (Ministry of Cities, 2008) [1].

Souza (1996) [15] reflects on the importance of public transport and raises two questions that deserve to be shared, the preservation of the social right of access to a good quality transport service that is accessible, and the preservation of the right of workers to your health. A stressed driver implies greater risk of accidents involving users of public transport, as well as increased likelihood of disease occurrence in the professionals.

The behavior and performance of this means of transport operators becomes therefore very important considering that failures at work can endanger not only their own lives but also the lives of passengers and pedestrians.

However, although it is possible to observe that there is a demand regarding the health care of drivers and increasing the quality of working life of the same, little is invested in technology and resources to enable these professionals a decrease in causal stress factors.

2.2 - Stress on urban mobility professional

Very little is found in studies dealing on the work of bus drivers and the conditions in which they work. Occupational stress is an issue that has aroused interest in the last decades due to increased concern about the number of cases of stress at work, taking into account the stress factors are increasing symptom in the turbulent and competitive scenario of large urban centers (SADIR ; Bignotto; LIPP, 2010) [4].

The urban bus driver profession was identified as one of the most stressful and exposes workers to numerous health risks among the studies found you can see that the stressors that these professionals are exposed, may result in certain physical consequences and psychological, subjecting them often to substance use as well as organizational problems, such as absenteeism, turnover and accidents at work (TAVARES, 2010) [3].

Stress is a theme already widely researched in Brazil and abroad, as well as occupational stress, however, with regard to bus drivers, few studies are found in Brazil on this professional category and their working conditions. They are still very few studies on stress in these professionals.

In the international literature, the research on this topic, mostly established relationship between the working conditions of urban bus drivers and some diseases.

Studies also that address the physiological changes triggered by stress during driving. (TAVARES, 20100 [3].

Some studies realize the significant stressors for these professionals, as well as overcoming capacity and suitability of an individual to another and necessary and possible measures for the improvement and resolution of this problem (SADIR; Bignotto; LIPP, 2010). [4].

3 Bus Rapid Transit (BRT)

The Rapid Transport system by bus or BRT (Bus

Rapid Transit) is a public transportation system created by the then architect mayor of Curitiba Jaime Lerner (Ministry of Cities, 2008) [1], based on bus use distributed in exclusive lanes and segregated from the common pathways, with a low cost and highly effective solution for the city (WHITE, 2013) [9].

• The BRT system's main features (WHITE, 2013) [9];
• The use of dedicated lanes for buses;
• The collection of the fee outside the vehicle, in special stations, which increases comfort, loading speed and disembarkation of passengers and less downtime between seasons;
• High-capacity vehicles, modern and cleaner technologies, such as certain models of bi-articulated bus, carrying more people in less time;
The city of Curitiba was the first to adopt the BRT system in the world, through the architect and then mayor Jaime Lerner in 1972, inspiring dozens of other countries such as United States, Mexico, Argentina, Chile and Colombia, which has the effect their runners recognized worldwide (LINDAU et al, 2013) [10].

4 Theoretical assessment of stressors in the driver's activity

According to Tavares (2010, cited in Evans, 1999) [3], the bus driver profession has been considered one of the professions with the highest stress rate in the labor market, and there is great pressure on the professional factors. To Bigattão (2005) [11], the bus driver profession is one of the few that can be considered unhealthy, with the ability to cause disease, and painful, in which efforts beyond the bearable limit.

Figure 1 shows a sample collected in Uberlândia, in which the driver reported the following as stress factors cause:

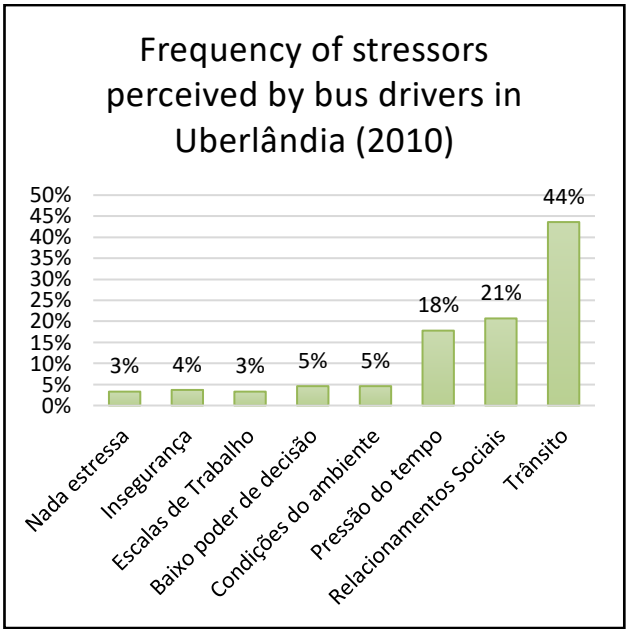

Fig. 1. A study of 135 bus drivers in the city of Uberlândia / MG (TAVARES, 2010) [3]

5 Stress factors x BRT activities

5.1 -Transit

The transit factor is the major cause of stress for the bus driver, reaching about 44% of professionals, whose complaints: slow, heavy and disorganized traffic, parked cars near the corners and stopping points, deregulated traffic lights, etc. (TAVARES, 2010) [3].
BRT Solution: physically segregated bus lanes of common pathways aim to ensure that other vehicles do not interfere with BRT path, resulting in a lighter traffic without the need to wait for gaps in traffic, reduce accidents and compliance schedules and itineraries (SILVA, 2010) [12].
The city of Curitiba, despite being the city with the highest number of cars per hundred inhabitants and is the fastest growing motorization levels because the efficiency of BRT transport model emerges as one of the cities that has less call time long-travel, or for travel home to work lasting more than one hour, with stability since the 1970s (PEREIRA; Schwanen, 2013) [13]. According BRT date data (www.brtdata.org, 2016), the BRT system in Curitiba transports per day, about 561,000 passengers, about 30% of the population of the city (IBGE, 2016) [17].

5.2 - Time pressure

The time pressure factor, which affects 18% of drivers, is directly linked to traffic factor. The

complaints are: difficulty in meeting schedules, especially at peak hours, punctuality, etc. (TAVARES, 2010) [3].
BRT solution: bus lanes them, to ensure an exclusive track for public transport, ensure the drivers higher speed without other vehicles interfere in its path, which contributes to timeliness and compliance schedule and itinerary even in transit times congested (SILVA, 2010) [12].

5.3 - Desktop Conditions

The factor conditions of the working environment affects 5% of drivers and its complaints: noise, heat / cold and vehicle maintenance (TAVARES, 2010) [3].
BRT solution: according Motta (2011) [14] in a study conducted in Rio de Janeiro, on hot days the temperature close to the bus engine can reach 45 ° C. For Souza (2012) [15], it is essential that there are air conditioning systems on buses to comfort the driver and passengers both in the hottest days of summer and in the coldest days of winter, as offered in the most modern bus BRT .
Regarding noise, the Ministry of Cities (2008) [1] states that although the buses used in the BRT system have larger engines than conventional vehicles, it features quieter technologies and employs reducing noise devices, unlike buses older fleets, that by adopting noise reduction of inefficient systems noise can exceed the limits of decibels safe for execution of the work of the driver.

5.4 - Low power of decision

The low power factor decision reaches 5% of drivers and its complaints: difficulty achieving targets due to traffic, over-billing, etc. (TAVARES, 2010) [3].
BRT solution: directly connected to the traffic, low decision-making power factor can reduce the time that the professional ensures greater speed in exclusive lanes, segregated from the common pathways, thus being able to meet schedules and goals of their employers.

5.5 - Insecurity

The insecurity factor reaches 5% of drivers and its complaints: fear of accidents, risk of burglary, etc. (TAVARES, 2010) [3]
BRT solution: the bus lanes, for not sharing the same space with other conventional transport, are considered a safer option and with less potential causes of accidents (Ministry of Cities, 2008) [1]. In addition, the arrangement of cameras in the rear of the vehicle allows the driver greater vision for maneuvering and stops, which makes it the safest BRT system both for pedestrians and for passengers (Department of Transportation SJC, 2013) [16]. According to Ministry data of Cities (2008) [1], after the implementation of the BRT Transmilenio line in Bogotá the weekly number of accidents decreased by 80% and robberies by about 50%, showing a great social impact through the implementation of the transport system.

5 Final Considerations

The primary objective of this research was to make a relationship between the common bus fleet and the BRT in order to result as the urban public transport driver is affected in relation to stress. The class of bus drivers includes a long list of professions considered arduous, as a pilot of fighter aircraft and top executive, and its harm the physical and mental wear worker (Alvarenga, 2010 apud Marques, 2007) [18]. They used Tavares survey data (2010) [3] show that at least about 97% of bus drivers report problems related to stress, which are: insecurity, low power of decision, work schedules, physical conditions desktop, time pressure, social relationships and traffic.
Only 3% of survey bus drivers reported suffering or not to bother with any of the above stressors. From these data then traced a parallel between the working conditions of a common bus driver and the driver of BRT in order to show how this form of transport can be effective and inexpensive for the reduction of stress factors this worker, granting him better living conditions and passengers more speed and less travel time, according research Pereira and Schwanen (2013) [13].
According to White (2013) [9], the BRT system requires: exclusive and segregated bus lanes, special stop points and high capacity buses. The combination of these factors contributes to a higher speed and the elimination of traffic factor, not causing stress situations of chaotic traffic, as is common in large cities, and causing the driver to be able to meet goals of their employer. In addition, the new technologies implemented in BRT style bus guarantee not only modernity, but bring benefits: air-conditioning, and reducing noise devices and cameras located in the vehicle rear provide greater convenience, safety and comfort for the professional collective. If the BRT transport medium is implemented according to the rules of the Ministry of Cities (2008) [1], it is possible to decrease about 70% of the stress factors for the driver (traffic, insecurity, low decision-making

power, time pressure , physical conditions of the workplace).

As exposed to high frequency of stressors, the bus driver usually develops psychological and physical symptoms such that: feeling of constant physical stress, muscle tension, insomnia, excessive irritability, etc. The development of these symptoms can lead to serious problems in the life of this professional, such as missed work, get constantly delayed and greater involvement in traffic accidents, reducing the quality of their work and increasing costs for companies (TAVARES, 2010) [3] .

It is necessary, therefore, to ensure better quality of life for the bus driver, some measures should be taken. The doctor on duty Rúbia Alvarenga work suggests that there is an extension of the special pension scheme for professionals involved in painful profession (2010) [18], however, other measures can be taken to improve the life of the professional, aiming for medium-term, as suggested in the Rapid Transport by bus model, BRT, eliminating much of the stress factors implicit profession of the driver and so can you enjoy a healthier and less stressful life.

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