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# Health problems, hypertension and predisposition to stress in truck drivers\*

AGRAVOS À SAÚDE, HIPERTENSÃO ARTERIAL E PREDISPOSIÇÃO AO ESTRESSE EM MOTORISTAS DE CAMINHÃO

AGRAVIOS DE LA SALUD, HIPERTENSIÓN ARTERIAL Y PREDISPOSICIÓN AL ESTRÉS EN CONDUCTORES DE CAMIÓN

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## ABSTRACT

This study approached the health problems which were involved with stress using Self reporting Questionnaires (SRQ-20) in order to evaluate mental disorders. The sample was constituted of 258 trucker drivers in Brazilian roadway (37,5±10,0 years old, 55% drink alcohol, 37% with arterial hypertension e 57% used drugs to get alert). The drivers informed they were nervous, tense and worried (56%), disturbed sleep (47%), headaches (37%), difficulties in making decisions (38%) and difficulties in thinking clearly (20%). The results of SRQ-20 showed that 33% were probably with common mental disorders and an association ( $p<0.05$ ) with fatigue, diminished concentration, being nervous and worried, personal problems at work, and trucker transportation. As conclusion, the presence of common mental disorders was considered probably as consequence of stressful conditions at work.

## KEY WORDS

Cardiovascular diseases.  
Risk factors.  
Occupational risks.  
Occupational health.

## RESUMO

O estudo investigou agravos à saúde que dispõem ao estresse com o uso do Self Reporting Questionnaire (SRQ-20) que avalia possíveis transtornos mentais comuns não psicóticos e identificar a associação com a hipertensão arterial. A amostra foi de 258 motoristas profissionais de transporte de cargas em uma rodovia brasileira (37,5±10,0 anos), 55% ingeriam bebidas alcoólicas, 37% com hipertensão arterial e 57% referiram já ter usado remédios para manter estado de alerta. Os motoristas referiram sentirem-se nervosos, tensos ou preocupados (56%), dormirem mal (47%), dores de cabeça (37%), terem dificuldade de tomar decisões (38%) e dificuldade de pensar com clareza (20%). Obteve-se como resultados que 33% eram portadores de possíveis transtornos mentais comuns e houve associação ( $p<0,05$ ) com referência de cansaço, diminuição da concentração, considerar-se nervoso ou estressado, ter problemas pessoais ou no trabalho e transportar carga de horário. Não houve associação com hipertensão arterial. Conclui-se que foi expressiva a presença de prováveis transtornos mentais comuns provavelmente decorrentes das condições estressantes de trabalho.

## DESCRIPTORES

Doenças cardiovasculares.  
Fatores de risco.  
Riscos ocupacionais.  
Saúde do trabalhador.

## RESUMEN

El estudio investigó agravios de salud que predisponen al estrés mediante el uso del Self Reporting Questionnaire (SRQ-20), que evalúa posibles trastornos mentales comunes no psicóticos. La muestra abarcó a 258 conductores profesionales de transporte de cargas en una carretera nacional brasileña (37,5±10,0 años, el 55% ingería bebidas alcohólicas, El 37% con hipertensión arterial y el 57% refirió uso anterior de medicamentos para mantener el estado de alerta). Los conductores indicaron sentirse nervioso, tenso o preocupado (56%), dormir mal (47%), dolores de cabeza (37%), tener dificultad de tomar decisión (38%) y dificultad de pensar con claridad (20%). El SRQ-20 mostró que el 33% era portador de posibles trastornos mentales comunes y fue encontrada asociación ( $p<0,05$ ) con referencia de cansancio, disminución de la concentración, considerarse nervioso o estresado, tener problemas personales o en el trabajo y transportar carga de horario. Se concluye que fue expresiva la presencia de probables trastornos mentales comunes que probablemente transcurren de las condiciones laborales estresantes.

## DESCRIPTORES

Enfermedades cardiovasculares.  
Factores de riesgo.  
Riesgos laborales.  
Salud laboral.

\* Extracted from the thesis, "Perfil dos riscos cardiovasculares em motoristas profissionais de transporte de cargas da Rodovia BR-16 no trecho Paulista Régis Bittencourt", School of Nursing at University of São Paulo, 2006. <sup>1</sup> M.Sc. in Nursing, School of Nursing at University of São Paulo. São Paulo, SP, Brazil. cagioni@itelefonica.com.br <sup>2</sup> Full Professor at Medical-Surgical Nursing Department, School of Nursing at University of São Paulo. São Paulo, SP, Brazil. pierin@usp.br <sup>3</sup> M.Sc. in Nursing, School of Nursing at University of São Paulo. São Paulo, SP, Brazil. kmbat@hotmail.com <sup>4</sup> Free Lecturer, Professor at Medical-Surgical Nursing Department, School of Nursing at University of São Paulo. São Paulo, SP, Brazil. erfbianc@usp.br <sup>5</sup> Ph.D., Professor at Medical-Surgical Nursing Department, School of Nursing at University of São Paulo. São Paulo, SP, Brazil. anascosta@usp.br

## INTRODUCTION

Long haul truck drivers (who drive more than 50 Km/day) may be exposed to severe physical and mental health problems due to their peculiar work routine. In general, they eat in highway restaurants that offer high-calorie foods with low nutritional value and consume alcoholic beverages; they drive for many hours in a row, sleep little and use medication to stay alert.

Long haul driving demands alertness, attention and constant concentration, due to fatigue and tiredness. Studies analyzing automobile accidents have shown a significant association between road accidents and reports of tiredness and concentration loss<sup>(1-2)</sup>. Exhausting work activities can also cause health problems, such as cardiovascular alterations with increased blood pressure for example. In this sense, a research involving urban transportation drivers and collectors found a positive association between systolic blood pressure increase and accumulated work time<sup>(3)</sup>. In a study of long haul truck drivers, 24% suffered from Metabolic Syndrome and 9% obtained a medium/high Framingham cardiac risk score, which assesses the absolute risk of coronary events within ten years<sup>(4)</sup>.

Lack of adaptation among truck drivers, mainly those in long haul trucking, permits the occurrence of factors associated with mental disorders and stress. This association can exacerbate the verification of factors predisposing to arterial hypertension, due to increased adrenalin, noradrenalin and cortisol, hormones that provide physiological answers to stress<sup>(5)</sup>.

In this context, it should be highlighted that people seek some strategies to cope with a personal or professional situation. These strategies focus on the problem and emotion and can mitigate or accelerate a person's adaptation.

Stress depends on demand and support and, for long haul truck drivers, demand is considered high, as they are subject to different risks inherent to their work, but can even be decreased by the subject's support and type of coping. Hence, it should not be generalized that all drivers are stressed in their work. On the other hand, depending on the work conditions, the subject's insertion and adaptation, instead of *permitting growth, transformation and personal independence* can trigger a disease process<sup>(5)</sup>. In that context, arterial hypertension stands out. High blood pressure is one of the main factors for cardiovascular disease, which ranks first in Brazil in terms of morbidity-mortality rate<sup>(6)</sup>.

## OBJECTIVE

To investigate health problems correlated with stress in long haul truck drivers and to check for an association with the presence of arterial hypertension.

## METHOD

This descriptive and cross-sectional research involved 258 professional long haul truck drivers on the BR-116 highway between Paulista and Régis Bittencourt. This highway is very important for the outflow of Brazil's industrial and agricultural production to South Cone countries. On the average, 75,000 vehicles/day use this highway, approximately 25,000 of which are trucks. Inclusion criteria for the research were: being an active professional driver and signing the Free and Informed Consent Term. Approval for the study was obtained from the Research Ethics Committee at the University of Paulo, process No 458/2005.

The data collection instrument was composed of questions that assessed sociodemographic characteristics and life habits, such as smoking, alcohol consumption, and medication use for sleep inhibition. Work-related variables were also assessed, such as daily work journey, freight transportation with marked delivery time, assault, presence of nervousness and tiredness.

After an interview, participants' blood pressure was measured thrice with a validated automatic device, on the upper left arm at the height of the heart, in the sitting position and with uncrossed legs. People with pressure levels = 140/90 mmHg or who mentioned taking antihypertensive medication were considered hypertensive<sup>(7)</sup>.

For psychological assessment, the Self Reporting Questionnaire (SRQ-20) was used, which consists of 20 dichotomous (yes/no) questions, four of which address physical symptoms and 16 psychoemotional disorders. The World Health Organization recommends the SRQ-20 for community and primary health care research and was validated for use in Brazil<sup>(8)</sup>. Six or more positive answers were considered the cut-off point for possible common mental disorders. Each positive answer is equivalent to one point.

For statistical analysis, *Statistical Package for Social Sciences* (SPSS) version 7.5 was used. Significance was previously set at 5%.

## RESULTS

All drivers were men, young adults (37.5±10.0 years), 91% white, 75% with unfinished basic education (=8 years), 83% had a partner, they drove an average of 10.0±4.0 hours per day, 55% indicated alcohol consumption, 19% were smokers and 25% were victims of assault. Almost half mentioned transporting loads with marked delivery (46%), 35% had already been victims of automobile accidents, 23% involving fatal victims and 57% appointed previous use of sleep inhibitors. The prevalence of arterial hypertension was 37%.

Lack of adaptation among truck drivers, mainly those in long haul trucking, permits the occurrence of factors associated with mental disorders and stress. This association can exacerbate the verification of factors predisposing to arterial hypertension.

The assessment of common mental disorders and problems through the SRQ-20 showed that 33% of drivers in this research had possible mental disorders. The highest frequencies of positive answers were found for: feeling nervous, tense or worried (56%), sleeping badly (47%), feeling unhappy (38%), having headaches (37%), difficulties to make decisions (30%), poor digestions (30%), uncomfortable feelings in the stomach (26%), feeling tired frequently (23%), shaking hands (23%) and trouble to think clearly (20%) (Table 1).

**Table 1** - Distribution of drivers on Régis Bittencourt Highway according to questions of the Self Reporting Questionnaire-SRQ-20 - Juquitiba, SP - 2006

Self Report Questionnaire-SRQ-20	Positive Answers	
	N	%
1. Do you often have headaches?	94	37.0
2. Is your appetite poor?	39	15.0
3. Do you sleep badly?	118	46.6
4. Are you easily frightened?	47	18.0
5. Do your hands shake?	59	23.3
6. Do you feel nervous, tense or worried?	144	56.0
7. Is your digestion poor?	73	28.0
8. Do you have trouble thinking clearly?	52	20.0
9. Do you feel unhappy?	98	38.0
10. Do you cry more than usual?	34	14.0
11. Do you find it difficult to enjoy your daily activities?	35	14.0
12. Do you find it difficult to make decisions?	77	30.0
13. Is your daily work suffering?	34	13.7
14. Are you unable to play a useful part in life?	20	8.0
15. Have you lost interest in things?	34	14.0
16. Do you feel that you are a worthless person?	04	2.0
17. Has the thought of ending your life been on your mind?	09	4.0
18. Do you feel tired all the time?	58	23.0
19. Do you have uncomfortable feelings in your stomach?	66	26.0
20. Are you easily tired?	49	19.0

The presence of possible mental disorders and problems among drivers in this research was positively associated ( $p < 0.05$ ) with the following variables: feeling tired, decreased concentration, feeling nervous or stressed, having personal problems or at work and frequently transporting loads with marked delivery (Table 2). No association was found between the presence of possible common mental disorders and problems and arterial hypertension.

**Table 2** - Distribution of professional drivers on Régis Bittencourt Highway, according to the Self Reporting Questionnaire-SRQ-20 classification and psychological and work variables - Juquitiba, SP - 2006

Variable	Self Report Questionnaire - SRQ-20			
	< 6 positive answers		≥ 6 positive answers	
	No	%	No	%
<b>How frequently do you drive tired</b>				
Often	23	39.0	36	61.0*
Sometimes	81	70.0	34	30.0
Rarely	41	82.0	09	18.0
Never	28	84.0	05	16.0
<b>How frequently does your concentration decrease</b>				
Often	16	48.0	17	52.0*
Sometimes	66	63.0	39	37.0
Rarely	49	77.0	15	23.0
Never	42	78.0	13	22.0
<b>Consider yourself nervous or stressed</b>				
Yes	60	50.0	59	50.0*
No	113	82.0	25	18.0
<b>Personal problem or at work that make you feel stressed</b>				
Yes	51	50.0	51	50.0*
No	122	79.0	33	21.0
<b>Transportation of marked delivery loads</b>				
Yes	37	57.0	28	43.0
No	98	73.0	36	27.0
Sometimes/Rarely	05	42.0	07	58.0
Rarely	29	76.0	09	24.0
Often	02	40.0	03	60.0*

\* $p < 0.05$

## DISCUSSION

Despite possible limitations of the SRQ-20, as it does not permit classifying specific psychiatric disorders or their intensity levels, this instrument can detect the existence or not of common mental disorders and, thus, identify people who would benefit from treatment. Common mental disorders include several signs and symptoms that are also related to stress and tiredness. To face stress, drivers can use coping strategies addressed by the SRQ-20, such as alcohol consumption and smoking, results that were found in this research.

In the present study, about one third of the drivers presented common mental disorders. This finding is similar to frequencies found in Brazilian population studies in the Northeast, using the SRQ-20, with prevalence levels of 36%<sup>(9)</sup> and 35%<sup>(10)</sup>, although a research in the South found a lower prevalence level of 23%<sup>(11)</sup>. Variables related to psychological demands can reflect increased work require-

ments, characterized as high demand and low control, which these professionals are exposed to.

Another aspect that demonstrates the high work requirement truck drivers in this research are exposed to is the demand for marked delivery times, large distances driven every day and exhaustive work journeys. These aspects can contribute to the use of sleep inhibitors, whose association with alcoholic beverages is even more damaging. Moreover, the presence of physical tiredness, nervousness and decreased concentration can result in emotional and psychological responses like increased anxiety and more aggressive and careless driving, contributing to the occurrence of automobile accidents.

To assess the situation, people use strategies to cope with stress situations. These strategies are problem or emotion-focused and can be used jointly. Among drivers in this research, mechanisms focused on emotion can be highlighted, such as alcohol consumption, which can offer a solution at first, but may entail unwanted physiological and behavioral complications across the lifetime. In the context of hypertension, another study showed that alcohol intake contributed to emergency care delivery to hypertensive patients<sup>(12)</sup>. Another emotion-focused coping strategy is smoking, which can be considered non-effective and may be momentarily viable, but does not solve the stressing agent that is present.

Another noteworthy finding is that a large majority of drivers were married, and that the presence of a partner can provide social and emotional support. However, the peculiarities of the profession, such as long periods from home and long daily work journeys can expose these professionals to solitude; that is a psychological experience related to social isolation and a perceived lack of company, and may represent a relevant health risk with potential adverse effects in biological stress processes<sup>(13)</sup>.

The prevalence of arterial hypertension found in this research can be considered high, mainly considering that the drivers were predominantly young adults. Studies with civil construction and teaching hospital workers showed prevalence levels of 16%<sup>(14)</sup> and 26%<sup>(15)</sup>, respectively. In the genesis of arterial hypertension, stressing factors play an important role, although no relation was evidenced between hypertension and the assessed presence of common mental disorders. Another important point was that 20% of drivers whose blood pressure levels were compatible with arterial hypertension did not know they were hypertensive and, among those who mentioned taking antihypertensive drugs (8%), blood pressure was not under control (<140/90 mmHg) for a large majority (81%). Unfortunately, however, low control levels of blood pressure are very frequent in Brazil<sup>(16)</sup>. Besides factors intervening in adherence to hypertension treatment, access difficul-

ties to medical services during travels may also contribute to low levels of arterial hypertension control among these professionals.

Psychological stress is considered the main environmental factor contributing to arterial hypertension<sup>(17)</sup>. Among possible psychological stressors, research has looked more closely at the influence of work on the genesis of arterial hypertension, characterized by high psychological demand and low control.

At first, physiological stress responses are related to the neural axis, mediated by the autonomic nervous system and by the peripheral nervous system, resulting in increased heart frequencies and blood pressure levels. The activation of the neuroendocrine axis is slower and responds to the presence of more long-lasting stress, whose mechanism activates the suprarenal glands that provoke catecholamine secretion, elevating blood levels of fatty acids, triglycerides and cholesterol, besides provoking a decreased blood flow in the kidneys and gastrointestinal tract. Finally, the endocrine axis is responsible for long lasting stress effects. Its main effects are increased glycogenesis, increased production of ketone bodies, increased release of free fatty acids into blood circulation and exacerbation of gastric injuries. Most physiological alterations perceived in this model are closely related with cardiovascular risk factors.

Thus, the work conditions these professionals are subject to and their forms of coping with stress could contribute to the activation of the stress mechanism, with a consequent disequilibrium in bodily homeostasis, which can favor the appearance of diseases.

## CONCLUSION

This research identified the occurrence of common mental disorders in the truck drivers under study, which may be related to stress manifestations at work. Moreover, an expressive prevalence of arterial hypertension was observed, although not statistically associated with the presence of common mental disorders. Moreover, inadequate habits and lifestyles also stand out, such as alcohol consumption and the use of sleep inhibitors. This condition can affect physiological functions, increasing cardiac and behavioral risk factors. This, in turn, can increase the risk of accidents on the roads truck drivers use.

Public and individual actions are needed, as these can contribute to improve these professionals' physical and emotional health condition. After concluding this research, its results were presented to the services that supervise truck traffic on the highway where data were collected, leading to the elaboration of a folder on cardiovascular risk factors for distribution to the study population.

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