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Sátiro Xavier de França, Inacia; Cruz Enders, Bertha; Silva Coura, Alexsandro; Pereira Cruz, Giovanna Karinny; da Silva Aragão, Jamilly; Carvalho de Oliveira, Déborah Raquel

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# Lifestyle and health conditions of adults with spinal cord injury

Inacia Sátiro Xavier de França<sup>1</sup>

Bertha Cruz Enders<sup>2</sup>

Alexsandro Silva Coura<sup>3</sup>

Giovanna Karinny Pereira Cruz<sup>4</sup>

Jamilly da Silva Aragão<sup>5</sup>

Déborah Raquel Carvalho de Oliveira<sup>6</sup>

## Lifestyle and health conditions of adults with spinal cord injury

**Objective.** To describe the lifestyle of adults with spinal cord injury and explore its relation with some health conditions.

**Methodology.** Cross sectional study, in which a questionnaire containing sociodemographic, habits and health conditions variables was used. Forty-seven people with spinal cord injury participated and answered the self-report questionnaire. **Results.** The group under study was predominantly male (92%), under 40 years of age (47%), and had low educational level (76%). The most frequent risk factors related to the lifestyle were: smoking (28%), alcohol consumption (36%), coffee consumption (92%) and being physically inactive (64%). Association was found between having four or more risk factors related to lifestyle and the loss of appetite, as well as constipation. **Conclusion.** The actual inadequate lifestyle is associated with the health conditions of patients, and the nursing team should pay special attention to the education and promotion of health related to people with spinal cord injury.

**Key words:** spinal cord injuries; health conditions; lifestyle; nursing.

- 1 Nurse, Ph.D. Professor at Universidade Estadual da Paraíba (UEPB), Campina Grande/PB, Brazil.  
email: inacia.satiro@gmail.com
- 2 Nurse, Ph.D. Professor at Universidade Federal do Rio Grande do Norte (UFRN). Natal/RN, Brazil.  
email: berthac@ufrnet.br
- 3 Nurse, Ph.D. Professor at UEPB, Campina Grande/PB, Brazil.  
email: alex@uepb.edu.br
- 4 Nurse, Master's student at UFRN. Natal/RN, Brazil.  
email: giovannakarinnny@gmail.com
- 5 Nurse, Master's student at UEPB. Campina Grande/PB, Brazil.  
email: jamilly\_aragao@hotmail.com
- 6 Nurse, Master's student at UFRN. Natal/RN, Brazil.  
email: deborahrco@hotmail.com

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## Estilos de vida y condiciones de salud de adultos con lesión medular

**Objetivo.** Describir los estilos de vida de los adultos con lesión medular y explorar su relación con algunas condiciones de salud. **Metodología.** Estudio transversal en el cual se aplicó un cuestionario que contenía variables sociodemográficas, de conductas y condiciones de salud. Participaron 47 personas con lesión medular que respondieron el cuestionario por autorreporte. **Resultados.** El grupo estudiado fue predominantemente de sexo masculino (92%), menor de 40 años (47%) y de baja escolarización (76%). Los factores de riesgo de estilo de vida más frecuentes fueron: tabaquismo (28%), consumo de alcohol (36%), consumo de café (92%) y no practicar actividades físicas (64%). Las condiciones de salud que con mayor frecuencia complicaron la salud de los pacientes fueron: estrés (72%),

insomnio y sentimientos negativos (70% cada uno), ansiedad (68%) y el dolor muscular (64%). Se encontró asociación entre tener  $\geq 4$  factores de riesgo de estilos de vida y la falta de apetito, así como para constipación. **Conclusión.** Los estilos de vida inadecuados está asociado a las condiciones de salud del paciente, por consiguiente, el equipo de enfermería debe brindar atención especial en la educación y promoción de la salud en relación con la persona con lesión medular.

**Palabras clave:** traumatismos de la médula espinal; estado de salud; estilo de vida; enfermería.

### Estilos de vida e condições de saúde de adultos com lesão medular

**Objetivo.** Descrever os estilos de vida dos adultos com lesão medular e explorar sua relação com algumas condições de saúde. **Metodologia.** Estudo transversal no qual se aplicou um questionário que continha variáveis sócio-demográficas, e de condutas e condições de saúde. Participaram 47 pessoas com lesão medular que responderam o questionário por auto-relatório. **Resultados.** O grupo estudado foi predominantemente de sexo masculino (92%), menor de 40 anos (47%) e de baixa escolarização (76%). Os fatores de risco de estilo de vida mais frequentes foram: tabagismo (28%), consumo de álcool (36%), consumo de café (92%) e não praticar atividades físicas (64%). As condições de saúde que com maior frequência complicaram a saúde dos pacientes foram: estresse (72%), insônia e sentimentos negativos (70% cada um), ansiedade (68%) e a dor muscular (64%). Encontrou-se associação entre ter  $\geq 4$  fatores de risco de estilos de vida e a falta de apetite, bem como para constipação. **Conclusão.** O apresentar estilos de vida inadequados está associado às condições de saúde do paciente, devendo a equipe de enfermagem brindar atendimento especial na educação e promoção da saúde relacionada à pessoa com lesão medular.

**Palavras chave:** traumatismos da medula espinhal; condições de saúde; estilo de vida; enfermagem.

## Introduction

Spinal cord injury (SCI) is currently a serious public health problem around the world due to the increase of urban violence cases, such as accidents involving motor vehicles and assaults with firearms.<sup>1</sup> However, the SCI can also be caused by other conditions, such as tumors, bacterial and viral diseases, that affect the afferent and efferent nerve pathways that connect the brain and the peripheral areas.<sup>2</sup> The occurrence of the SCI worldwide ranges from 12.1 to 57.8 cases per million people.<sup>3</sup> In Brazil, data regarding this problem are not updated or consolidated, but around 7000 cases of people with SCI are reported per year.<sup>4</sup>

People with SCI generally have limitations that can result in major changes in their daily lives. This occurs because of the partial or complete loss of motor function and sensitivity, and also

vasomotor, respiratory, bowel, bladder and sexual impairment caused by the injury.<sup>5</sup> The SCI is also associated with other complications, such as the increased risk of developing pressure ulcers.<sup>6</sup> These alterations considerably change the lifestyle of the people affected, because the consequences make it difficult for them to maintain their previous lifestyle. For example, it is typical for these people to develop an intolerance to physical activity. Therefore, susceptibility to health problems increases after the SCI, because of the risk behaviors that the injured people acquire, in detriment of the health protection habits.<sup>7</sup>

People with SCI have greater risk of developing cardiovascular and endocrine diseases, since most of them become inactive and tend to put on weight, because considering that after the acute and the rehabilitation stage these people usually

experience musculoskeletal deficit, decreased endurance and strength and neuromuscular weakness, among others.<sup>8</sup>

The literature also presents evidence of the association between lifestyle and some health issues in people with SCI. Physical inactivity is associated with cardiovascular<sup>9</sup> and urinary tract diseases.<sup>10</sup> Smoking,<sup>6</sup> alcohol abuse<sup>11</sup> and poor diet<sup>12</sup> are also positively associated with poor health conditions. Therefore, based on the assumption that the SCI may lead to life habits that are considered risk factors for various diseases and/or health issues, the objective of this study is to investigate the lifestyle of adults with spinal cord injury and establish its association with some health issues.

The relevance of this investigation is based on the possibility to generate knowledge to allow nurses and other healthcare professionals to design educational and health promotion interventions based on the most predominant habits that are correlated with health issues. Also, to provide important information for the redevelopment of the public policies aimed at impaired people, as well as to study a population with research gaps, mainly in the North East region of Brazil.

## Methodology

Cross-sectional study with quantitative and analytical approach, carried out in 2010 in all of the 61 Family Primary Healthcare Units (UBSF) located in the town of Campina Grande-PB, Brazil. The target population was everyone with SCI who were enrolled in the 61 UBSF in the town. So, and taking into account the temporal, financial and logistical relevance, the sampling technique was not used but, instead, the population census was held, resulting in 47 people participating in the study. To recruit the subjects, the following were considered as inclusion criteria: to have complete or partial SCI for any etiology diagnosed by a specialist; to be 18 years old or more; to live in Campina Grande; to be registered in the

Family Health Strategy (ESF); to have satisfactory cognitive function and to adhere to the study.

For data collection, the homes of the participants were visited with the Community Health Agent responsible for the respective micro-area of enrollment. At the time, a collection tool was used, and that was a form composed of 50 questions, which covered demographic variables, such as: gender, age and race; socioeconomic variables: educational level and income per person; lifestyle variables: diet, physical activities, smoking, alcohol consumption, coffee consumption; and health conditions variables: weight, height, self-reported diseases and conditions. This instrument was completed by the researcher according to the answers of each participant. Descriptive analysis with absolute and relative frequencies and inferential analysis in the intersections of the variables were performed, with the data being presented in tables. In order to verify the association between the lifestyle and the health conditions, the chi-square test was used, except when the statistical requirement of inexistence of sigma inferior to 5 was not met. In these cases, the Fisher test was performed, based on a significance level of 5% ( $p < 0.05$ ).

In order to check the size of the association among the variables, the Contingency Coefficient and the following parameters were performed:  $r \geq 0.750$  = strong association; 0.500 to 0.749 = moderate association;  $\leq 0.499$  = weak association. It can be highlighted that when the association tests were performed, the lifestyle and the health conditions variables were dichotomized. In relation to the health conditions, the occurrence or absence of injury was considered (yes/no), but concerning the lifestyle, the dichotomization was based on the following criteria: (0)=more than four negative habits; (1)=less than four negative habits.

The collection in the project was only started after the approval by the Research Ethics Commission of the Universidade Estadual da Paraíba (CEP-UEPB), under number 0490.0.133.000-08. In all the process, especially during data collection, the

guidelines of Resolution 196/96 of the National Health Council were complied with, especially with regard to section IV, which deals with the participants' autonomy and assures, among other rights, their free and informed consent, their privacy and confidentiality.

## Results

**Socioeconomic profile and etiology of the spinal cord injury.** As shown in Table 1, there were 10.8

men for each woman, and most of the participants were young or adults (46.8%), had low income (97.9%) and less than 10 years of education (87.2%). These causes combined had a greater percentage than all the others combined.

**Lifestyle.** Concerning the lifestyle of the participants with spinal cord injury, it can be noted in Table 2 that the consumption of legal substances was 91.5% for coffee, 36.2% for alcohol and 27.7% for cigarette. Two of three participants did not perform physical activity.

**Table 1.** Socioeconomic profile and etiology of the spinal cord injury of the adult participants. Campina Grande-PB. Brazil, 2010

Variables	n	%
Male	43	91.5
Age		
19 - 39 years old	22	46.8
40 - 60 years old	20	42.6
61 - 81 years old	5	10.6
Race		
Brown	18	38.3
Caucasian	15	31.9
Black	14	29.8
Educational level		
Primary school	19	40.4
Literate	17	36.2
High School	6	12.8
Illiterate	5	10.6
Income per person		
Less than the minimum wage	46	97.9
One minimum wage	1	2.1
Etiology		
Firearm	15	31.9
Fall	13	27.7
Body impact	5	10.6
Post-surgery	5	10.6
Neoplasms	3	6.4
Car accident	3	6.4
Schistosomiasis	2	4.3
Diving	1	2.1

**Table 2.** Lifestyle of 47 people with spinal cord injury. Campina Grande-PB. Brasil, 2010

Variables	n	%
Smoking	13	27.7
1 - 10 cigarettes/day	8	17.0
11 - 20 cigarettes/day	5	10.7
Alcohol consumption	17	36.2
Everyday	1	2.1
Weekends	5	10.6
Socially	11	23.4
Coffee consumption	43	91.5
1 time/day	14	29.8
2 - 4 times/day	19	40.4
> 4 times/day	10	21.3
Physical activity	17	36.2
Everyday	7	14.9
2 - 3 times/week	7	14.9
Occasionally	3	6.4

**Health conditions.** According to the data presented in Table 3, the most common diseases, injuries and/or health complications of the participants

were stress (72.3%), insomnia (70.2%), negative feelings (70.2%), anxiety (68.1%) and muscular pain (63.8%).

**Table 3.** Self-reported diseases, injury and/or health complications of people with spinal cord injury. Campina Grande-PB. Brasil, 2010

Variables	n	%
Stress	34	72.3
Insomnia	33	70.2
Negative feelings	33	70.2
Anxiety	32	68.1
Muscular pain	30	63.8
Headache	23	48.9
Loss of appetite	20	42.6
Disease	18	38.3
Heartburn	17	36.2
Fatigue	16	34.0
Pressure ulcer	16	34.0
Urinary incontinence	14	29.8
Constipation	13	27.7
Hypertension	12	25.5
Cough	11	23.4
Urinary tract infection	8	17.0
Wheezing	7	14.9
Expectoration	7	14.9
Dyspnea	2	4.3

When the association among the diseases, injuries and/or health complications with the presence of negative life habits was verified, statistically significant differences were found only in relation to the variables loss of appetite and constipation: 53.1% of the people with four or more negative habits and 20% of those who had three or less experienced loss of appetite ( $\chi^2=3.3$ ;  $p=0.034$ ) and 53.3% of those who had four or more negative habits versus 15.6% of those who had three or less experienced constipation ( $\chi^2=3.3$ ;  $p=0.009$ ).

## Discussion

The sociodemographic profile and etiologies of SCI in the present study are consistent with other researches. In this sense, the victims of spinal cord injury are generally men,<sup>2,6,13,14</sup> young,<sup>2,3,6,13</sup> non-Caucasian, with low level of education<sup>2,13</sup> and low income,<sup>2,13</sup> and whose injury was caused by firearm.<sup>2,13</sup> However, in a review study carried out by researchers of the Escola de Medicina do Trabalho in Madrid, Spain, it was found that the main causes of SCI in the world are motor vehicle accidents and falls, as well as that the predominance of non-traumatic etiologies increases as the age of the victims also increases.<sup>3</sup>

The finding about the physical inactivity among the participants of the study is a concerning factor and it can be related to the secondary complications verified. Therefore, there is great interest in the impact of the practice of sports in the lives of people with SCI. A study<sup>14</sup> conducted in Ontario, Canada, involving two groups of people with SCI, found that the group that was not inactive was associated with well-being and improvement in community integration. The higher frequency of emotional and/or subjective complications, such as stress, insomnia, negative feelings and anxiety may also be related to physical inactivity. A study<sup>15</sup> undertaken in Italy involving 52 quadriplegics and 85 paraplegics identified statistically significant differences between a group that did not perform physical activity and another group that did,

concerning anxiety, extroversion and depression, which occurred more frequently in the physically inactive group.

The Ministry of Health and the Brazilian Hypertension IV Guidelines show that physical inactivity, stress, inadequate diet, alcohol consumption and smoking were among the several risks for systemic arterial hypertension (SAH). These are manifestations of the urbanized lifestyle and established post technology.<sup>16</sup> Therefore, the percentage of 25% of self-reported SAH cases could be expected, given that 36.2% of the participants did not perform physical activity, 27.7% are smokers, 36.2% consume alcohol and 72.3% are stressed.

The occurrence of pain in the subjects of this study corroborates the literature.<sup>17</sup> A study<sup>13</sup> developed in the city of Fortaleza, Brazil, involving 32 people with SCI, found low score in the pain factor in relation to the quality of life of the participants and a 56.3% frequency of neuropathic pain, and pain was also a low score factor in another study about the quality of life of people with SCI conducted in a medium-sized town located in the Northeast region of Brazil.<sup>18</sup> Yet, a research<sup>19</sup> conducted by north-American researchers showed the average pain intensity was moderate and that the painful discomfort in the lower limbs was greater. Regarding the nutritional aspect of the participants, three factors may possibly be related: coffee consumption, constipation and loss of appetite. Coffee is contraindicated for people who are at risk of constipation or have constipation, since this substance has constipating properties that can increase flatulence.<sup>8</sup> Constipation, in turn, may cause a lack of desire to ingest the daily diet. As a result of an insufficient diet and poor liquid intake, the volume of stools decreases, thus contributing to constipation.<sup>20</sup>

Although it is possible to find associations between isolated factors, this study sought to find associations between some diseases, injuries and/or self-reported complications and sets of life habits, because it is believed that an outcome is influenced by various causes, which means

that its occurrence is affected by several existing contextual factors. From this perspective, the loss of appetite and constipation were associated with the occurrence of four or more negative life habits. This finding follows the national and international beliefs about the existence of problems with the diet and defecation among people with SCI.<sup>17,20</sup> A study<sup>17</sup> conducted in a hospital of the Escola Sao Paulo, Brazil, identified the nursing diagnosis according to the North American Nursing Diagnosis Association (NANDA), in relation to people with SCI admitted to a Orthopedics and Traumatology Unit, and constipation was diagnosed in 30% of the cases. But a research<sup>20</sup> conducted by scientists in Vancouver, Canada, points out the neurogenic intestine as a serious complication after a SCI and indicates, through a broad integrative review, the need to establish an effective bowel routine for this demand, as well as that the studies with stronger evidence are substantially linked to pharmacological therapies, rather than alternative therapies.

As for the implications of this study to the practice of nurses who provide care to people with SCI, it is believed that it is necessary to develop interventions based on education and health promotion, considering that most participants are physically inactive and drink coffee at least twice a day. The prevention actions should be focused on these people and their families, since the set of life habits can result in poor health conditions. In this context, it should be noted that, under the Family Health Strategy, the active participation of the family and the community in general support new ways of thinking and doing things in healthcare.<sup>21</sup> Thus, nurses should also include the caregivers of people with SCI in their care planning, seeking to offer support to family members, who are generally uninformed caregivers. It is necessary to identify their potential and provide health education to overcome possible knowledge gaps.<sup>22</sup>

It can also be highlighted that the nursing team should pay special attention to their guidance about the habits that may prevent diet and defecation issues. Therefore, the following actions are important: to encourage the consumption of

liquids, to advise about the perfect diet, to indicate going to the toilette always at the same time, to teach abdominal massage, to recommend change of positions and avoidance of lying down position, to stimulate coughing, to support and educate the caregivers within the family, and to encourage the practice of physical activity.<sup>8,20</sup> Concerning the limitations of the study, the first one identified was the inability to identify some anthropometric data (weight and height) of the participants, since not all of them were in conditions to stand up for the measurements to be taken. In order to avoid bias, the BMI calculation was not performed, which would be an important indicator of the objectives of this research. Another limitation was the small sample size, which decreased the changes of generalizing the results to other populations. It can also be pointed out as a limiting factor of the study the collection of information through self-report, since the respondents could have made mistakes that would lead to occasional discrepancies between the answers and the actual situation. At last, the cross sections make it difficult to determine the directionality of associations due to the risk of bias of the reverse causality, since factors of protection, risk and outcomes are simultaneously verified.

A significant part of the participants showed to have life habits considered negative, and it was also found that most of them have four or more negative life habits at the same time. Although with low statistical intensity, association between four or more negative life habits simultaneously and the health conditions related to loss of appetite and constipation was identified, which are factors related to diet and defecation, respectively, and the nursing team should pay special attention to such conditions in the education and health promotion. It is suggested the development of effective technologies to verify measures such as weight, height and the BMI of paraplegic and quadriplegic people; the replication of this research in other cities; and the development of studies with greater power of evidence in relation to the verification of the use of non-pharmacological interventions for the prevention or treatment of complications in people with SCI.



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