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Postural physical burden of street vendors in Boyacá, Colombia

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Abstract

It was performed an observational study of transversal cut with a descriptive approach with the objective of evaluating the postural physical burden of fruits and vegetables street vendors in Boyacá, Colombia through the ergonomic assessment method REBA. The chosen population of the study was fifteen workers from a street vendors association in Sogamoso city. The results show that the vendors have a high and very high risk of generating musculoskeletal disorders due to the postural burden they are exposed to. Some recommendations were made to decrease the physical burden based on four strategic angles: education, social responsibility, self-learning and engineering control at workplaces. This brings to the conclusion that the problematic perceived in this population of workers from the informal sector is similar to the one seen in other regions and countries; it is recommended the active participation for developing policies that allow to improve their work conditions and life quality.

Keywords: postural physical burden; ergonomic assessment method; informal labor; musculoskeletal disorders; street vendors.

Carga física postural en vendedores ambulantes de Boyacá, Colombia

Resumen

Se realizó un estudio observacional de corte transversal con enfoque descriptivo con el objetivo de evaluar la carga física postural en vendedores ambulantes de frutas y verduras en Boyacá, Colombia a través del método de evaluación ergonómica REBA. La población del estudio correspondió a quince trabajadores de una asociación de vendedores ambulantes de la ciudad de Sogamoso. Los resultados muestran que los vendedores tienen un riesgo alto y muy alto de generar trastornos musculo esqueléticos por la carga postural a la que están expuestos. Se presentaron recomendaciones para disminuir la carga física desde cuatro líneas estratégicas: capacitación, responsabilidad social, autoaprendizaje y control de ingeniería en los puestos de trabajo. Se concluye que la problemática identificada en esta población trabajadora del sector informal es similar a la presentada en otras regiones y países; se recomienda la participación en la construcción de políticas que permitan mejorar sus condiciones laborales y calidad de vida.

Palabras clave: carga física postural; método de evaluación ergonómica; trabajo informal; trastornos músculo esqueléticos; vendedores ambulantes.

1. Introduction

Below there are mentioned the most relevant aspects of the previously addressed topics for the development of this research work.

1.1 Informal labor and decent labor

In Latin America and the Caribbean, the labor scope is marked by the uncertainty of people belonging to the working population, given that unemployment is increasing and the quality in job offers is getting worse. The social uneasiness shows the lack of decent labor, related to the few opportunities to access to a decent work, fair payment, social protection and occupational rights. The unemployment rate in the region tends to increase, registering less growth in paid employment and a deceleration in the registered employment, being both formal labor indicators. Whereas, there was an increase in self-employment, which suggests a higher tendency to the informal labor [1].

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After the pandemic the decent work deficit has increased and so the historic levels of inequality in Latin America and the Caribbean, being one of the most affected regions worldwide. In 2021 the rate of unemployment in the region increased to 11% and in Colombia the increase was higher getting close to 16%. During this year the informal labor leaded the employment recovery contributing with almost 70% of the new jobs. Nevertheless, the link between labor informality, low incomes and inequality became more evident. Additionally, the informal workers have been deeply affected by the deduction of employment and incomes [2].

In Colombia the informal sector is constituted by enterprises that do not have commercial register before the Chamber of Commerce and neither are they classified as quasi-partnerships for not having a complete or simplified accountability that allows them to separate their outcomes, this also includes the enterprises without accountability of their workers. Between September of 2022 and February of 2023, the informal occupation was 58,1% on average [3,4].

In this way, the goal of decent labor since the beginning has been to link the economic social development with people´s occupational rights. According to the principles of decent labor, the labor is not merchandising and all human beings have the right to material welfare and spiritual development in conditions of freedom, dignity, economic security and equality [5].

For these reasons, the National Government committed, through the article 74 of the Law 1753 of 2015 under the coordination of the Ministry of Labor, to adopt the national policy of decent labor, this policy is currently being processed and it seeks the creation of employment, the labor formality, el social dialogue, the occupational rights guarantee and the protection to workers in public and private sectors throughout the country [6].

1.2 Risk factors and musculoskeletal disorders associated to physical burden

The musculoskeletal disorders (MSDs) are currently considered as one of the most important health problems in labor affecting all the economic sectors. The movement repetitiveness, the excessive use of strength, the inadequate postures and the weight lifting are the main cause of damages in the musculoskeletal system [7]. The MSDs represent an important workload for the world´s economy and health, being the low-back pain one of the most frequent causes of disability in the majority of countries [8].

In Colombia, according to a study which analyzed the constant of accidentality and occupational illness between 1994 and 2016, it was identified that the most frequent diagnoses of occupational illness during 2002 were MSDs, where 20% corresponded to a carpal tunnel syndrome and 18% to lumbosacral spine disorders. This situation was evidenced again in 2011, where 40% of pathologies corresponded to a carpal tunnel syndrome, followed by less than 10% of non-specified low-back pain [9].

According to the third National Health and Work Conditions Survey performed in 2021, in Colombia the percentual distribution of occupational dangers in workplaces shows the physical burden with the highest percentages; among them hands and/or arms repetitive movements (73.58 %), tasks requiring to hold still during all or great part of the working hours (70.06 %) and biomechanical danger with the possibility of causing pain (57.81 %) [10].

In a bibliometric analysis performed in different countries around the world about work and occupational health in informal workers during 2010-2016, in which Colombia contributed with the biggest amount of scientific production, it was found that within informal labor the activities of street sales and waste recovery stand out. Amongst the identified risks with the highest frequency there could be found biomechanical aspects of physical burden such as repetitive movements, body postures and overexertion due to burden manipulation. The body sections with the biggest affectation were the upper limbs, the back and the neck among others with musculoskeletal affectations mainly. In terms of labor characteristics, it is pointed out the lack of affiliation to social security, long working days and rights violation [11].

According to a study developed by the Social Protection Ministry in 2008 about the health and work conditions of workers from the informal sector in twenty states of the country, it was found that the informal commerce sector is related to the diverse health problems and unsafe work environment. Among the priority risk factors identified it was found that 47,2% of workers perform strained postures or movements [12].

1.3 Ergonomics and physical burden

The ergonomics allows to apply theories and design methods to optimize the human welfare and the productive systems development. The domain areas of ergonomics cover the physical, cognitive and organizational aspects of human being related to work. Within the physical ergonomics it is analyzed the human biomechanics in relation to physical activity, covering aspects such as the postures, the manual manipulation of burden and the repetitive movements, among others [13].

Fernández [14] describes the work of physical burden as the group of physical requirements to the ones the worker is exposed. It is measured through physiologic indicators and it can be manifested in the short term as a work accident or in the long term as an occupational illness.

In relation to human posture, it can be defined as a sequential and automatic process that allows the permanent global positioning of the body axis in relation to the movement of the center of mass on a base of support, allowing the motor act to respond to a particular environment [15].

The work postures generate dynamic and static burdens in the musculoskeletal system of a person. During the static work the blood circulation and the muscle metabolism decrease, reducing the efficiency of muscular performance. Being exposed to a continuous or frequent static burden generates local muscular contraction and, consequently, fatigue, which may produce disorders in the muscular system [16].

The Technical Note for Prevention N° 452 indicates that the postural burden can be reduced by improving the tasks, the work conditions and increasing the functional capacity of the workers´ musculoskeletal system [16]. For the estimate of physical burden, the ergonomic assessment methods allow to identify and estimate the risk factors present at the workplaces [17].

1.4 Street vendors association

The Street vendors association in this case of study is located in the city of Sogamoso, Boyacá and it has as its main goal the development of activities related to street sales (stationary and traveling) aiming to satisfy the needs of commercialization of products from the shopping basket and to acquire economic resources for the subsistence of its fifteen associated members.

The association is a small enterprise and it has registered its economic activity before the Chamber of Commerce, publicly proving its activity as informal merchants. In a preliminary observation done to the vendors from the association, it could be established that the risk they are exposed the most due to physical burden are the inadequate postures, given the unfavorable conditions in which this population perform their work.

According to the Decree number 487 of 2021 [18] in which it is established the statute for the use of public space in the territory of Sogamoso, the informal street vendors offer their goods or services by going around the routes and other public spaces.

2 Methodology

It was performed an observational study of transversal cut with a descriptive approach, with the objective of evaluating the postural physical burden of fruits and vegetables street vendors in Boyacá, Colombia through the ergonomic assessment method REBA.

2.1 Population

The population for the study corresponds to the fifteen vendors from the association, from whom, in its entirety, it was collected the necessary data for the development of the investigation.

2.2 Collection and data analysis strategies

The collection and data analysis were performed in three stages:

2.2.1 Stage 1

In the first stage, an initial description of the workplaces of the vendors from the association was done, these merchants used carts as the principal tool for transporting and selling their products, from which some aspects were described such as the number of wheels, the space they take, the materials they are built with and its weight.

Then, it was done a description of the sales activity, for this, it was presented the different tasks done in a working day and aspects such as the number of baskets filled with products which are transported by cart, the baskets' weight, the distance from the storage cellar to the point of sale and the number of hours with higher sales.

After that, it was performed a sociodemographic characterization of the workers, for which a questionnaire was used in which data was collected about age, gender, number of children, the existence of any kind of disability, social stratum, marital status, educational level, number of people they are in charge of, the time destined to street sales, days of the week they work, as well as the hours they work every day and the laterality.

Finally, it was determined the perception of musculoskeletal symptoms in the vendors, for this the Nordic questionnaire [19] was used, which allowed to collect data about the presence of corporal pain, the body sections with symptomatology (arms, wrists, legs, neck, torso), the perception of symptomatology (muscle cramps, pain, mobility loss, stiffness) and the pain frequency.

2.2.2 Stage 2

The second stage was focused on developing an assessment of the postural physical burden in the vendors from the association through the ergonomic assessment method named REBA (Rapid Entire Body Assessment), which allows to estimate the strained postures in upper limbs.

To select this ergonomic assessment method an observation of the vendors´ sales activity was done; where it was identified as principal risk factor the postural burden being the most frequent among other biomechanical risk factors such as the repetitive movements and manual manipulation of de burdens.

2.2.3 Stage 3

In this stage the recommendations for the reduction of the postural physical burden were set. For this, initially the risk factors that generated the highest rates in the application of the assessment method REBA were identified. Then, it was performed a revision of different documents such as articles, norms and guides about the recommendations for the reduction of the physical burden. Finally, the recommendations most in line with the problem and the context analyzed were selected.

2.3 Ergonomic assessment method REBA

The Method REBA allows to estimate the strained postures that present a high frequency in the tasks and that involve the upper limbs mainly. The method divides the body in two groups: group A, where torso and neck movements are estimated as well as the leg positioning, additionally it is estimated the relation burden/strength. In the group B the arms positioning and forearms and wrists movements are estimated, additionally it is estimated the grip, with the aid of Tables 1 and 2 [20].

Table 1.
Group A

Neck													
		1				2				3			
Legs		1	2	3	4	1	2	3	4	1	2	3	4
Torso	1	1	2	3	4	1	2	3	4	3	3	5	6
	2	2	3	4	5	3	4	5	6	4	5	6	7
	3	2	4	5	6	4	5	6	7	5	6	7	8
	4	3	5	6	7	5	6	7	8	6	7	8	9
	5	4	6	7	8	6	7	8	9	7	8	9	9

Burden / Strength			
0	1	2	+ 1
< 5 kg	5 - 10kg	10kg	Quick or abrupt installation

Source: [20]

Table 2.
Gruup B

Forearm							
		1			2		
Wrist		1	2	3	1	2	3
Arm	1	1	2	2	1	2	3
	2	1	2	3	2	3	4
	3	3	4	5	4	5	5
	4	4	5	5	5	6	7
	5	6	7	8	7	8	8
	6	7	8	8	8	9	9

Grip			
0 - Good	1 - Regular	2 - Bad	3 - Unacceptable
Good grip and grip force	Acceptable grip	Possible but not acceptable	Uncomfortable, no hand grip

Source: [20]

Table 3.
Combination groups A and B

		Score B											
		1	2	3	4	5	6	7	8	9	10	11	12
Score A	1	1	1	1	2	3	3	4	5	6	7	7	7
	2	1	2	2	3	4	4	5	6	6	7	7	8
	3	2	3	3	3	4	5	6	7	7	8	8	8
	4	3	4	4	4	5	6	7	8	8	9	9	9
	5	4	4	4	5	6	7	8	8	9	9	9	9
	6	6	6	6	7	8	8	9	9	10	10	10	10
	7	7	7	7	8	9	9	9	10	10	11	11	11
	8	8	8	8	9	10	10	10	10	10	11	11	11
	9	9	9	9	10	10	10	11	11	11	12	12	12
	10	10	10	10	11	11	11	11	12	12	12	12	12
	11	11	11	11	11	12	12	12	12	12	12	12	12
	12	12	12	12	12	12	12	12	12	12	12	12	12
Task	1	One or more static body parts											
	1	Repetitive movements											
	1	Unstable postures											

Source: [20]

Afterwards, the estimates from groups A and B are combined and it is added the estimate of additional aspects such as static postures and repetitive movements with the aid of Table 3, which allows to obtain a final score final from the task assessment.

Next, with the final score it is determined the level of action and risk and the necessary intervention through the Table 4.

Table 4.
Determination of risk level

Action level	Score	Risk Level	Intervention
0	1	Imperceptible	Not necessary
1	2 to 3	Low	May be necessary
2	4 to 7	Medium	Necessary
3	8 to 10	High	Necessary soon
4	1 to 15	Very high	Immediate action

Source: [20]

Table 5.
Description of workplaces

Workplace	Wheels	Area m^2	Structural material	Roof material	Weight Kg
1	2	1	Steel	Polyester	200
2	3	1,4	Steel	vinyl canvas	400
3	4	1,26	Steel	vinyl canvas	250
4	4	0,9	Steel and wood	vinyl canvas	150
5	4	1,4	Wood	vinyl canvas	250
6	3	1,26	Steel and wood	vinyl canvas	250
7	3	0,8	Steel and wood	vinyl canvas	175
8	3	0,8	Steel	vinyl canvas	275
9	3	0,8	Steel and wood	vinyl canvas	250
10	3	1	Wood	vinyl canvas	275
11	3	1,1	Wood	Polyester	300
12	3	0,72	Wood	Polyester	300
13	3	0,72	Steel	vinyl canvas	100
14	4	1,2	Steel	vinyl canvas	250
15	4	1,2	Steel	vinyl canvas	250

Source: The authors.

3 Results and discussion

3.1 Description of workplaces

The carts are presented as the main tool used by vendors for transportation and sales.

According to the Table 5, the carts have from 2 to 4 wheels, they occupy an area of 0,72 to 1,4 m2 and the materials used for its structure building are wood and steel and for the roof it is used polyester and vinyl canvas.

3.2 Description of the fruits and vegetables street sales activity

The activity can be divided into the following tasks:

- Getting the cart ready
- Putting the baskets with product on the cart
- Transporting the cart from the cellar to the point of sales
- Organizing the products on the cart
- Packing the products in plastic bags
- Selling the products
- Transporting the cart from the point of sales to the cellar

Below, in the Table 6, there are presented aspects that describe the street sales activity.

According to the Table 6, from 5 to 20 baskets are transported by carts, having a weight from 20 to 30 Kgs. The distance from the cellar to the points of sales is from 1,28 to 1,98 Kms.

In geographical terms there is a concentration of Street vendor activity mainly in the central zone of the city of Sogamoso, located in strategic points of mobility such as the corners of streets, taking the space of the sideways. The cellar is located in the reseller's marketplace, in the northwest zone of the city.

Table 6.
Description of the sale activity

Vendor	Baskets transported daily	Basket' weight (Kg)	Distance from the cellar to the point of sale (Km)	Number hours with higher sales
1	6	25	1,28	2
2	7	20	1,79	3,5
3	15	25	1,28	2
4	5	22,5	1,33	1
5	11	20	1,28	2
6	9	25	1,33	2
7	6	25	1,86	3
8	20	20	1,6	3,5
9	12	25	1,98	3
10	15	25	1,6	2
11	17	25	1,44	3
12	17	30	1,37	3
13	8	20	1,6	2
14	9	25	1,6	2
15	11	25	1,69	3
Average	11,20	23,83	1,54	2,47

Source: The authors.

Table 7.
Sociodemographic profile of vendors from the association

Categorie	Variable	%
Age (years)	18 – 29	14%
	30 – 39	13%
	40 – 49	40%
	50 – 59	20%
	>60	13%
Gender	Female	80%
	Male	20%
Number of children	1– 3	54%
	4– 6	33%
	>7	13%
Disability population	Yes	20%
	No	80%
Social stratum	1	7%
	2	93%
Marital status	Married	28%
	Free Union	36%
	Single	29%
	Divorced	7%
Educational level	Primary	40%
	Secondary	53%
	Technical	7%
Number of people they are in charge of	1	10%
	2	20%
	3	40%
	4	30%
Time destined to street sales	1 to 10 years	13%
	11 to 20 years	20%
	More than 20 years	67%
Days of the week they work	5 days	6%
	6 days	47%
	7 days	47%
Hours they work every day	1 to 8 hours	33%
	9 to 11 hours	47%
	12 hours or more	20%
Laterality	Right	80%
	Left	20%

Source: The authors.

3.3 Sociodemographic profile of vendors from the association

Some of the most important aspects that can be observed in the Table 7, are that 40% of vendors are between 40 to 49 years old, 80% are women, all of them are from the social strata 1 and 2, 53% have completed high school, 67% have been working in the same area for more than 20 years and 47% work during 9 to 11 hours per day.

3.4 Perception of the symptoms associated to musculoskeletal disorders

In the Table 8 there are presented the categories and variables that were considered in perception of symptoms, referred by the surveyed workers and associated people as musculoskeletal disorders.

It was found that the body sections where the symptomatology is presented more frequently are neck and torso, the most frequent symptomatology is pain and it mainly appears when they finish the working day. These results are similar to the ones found in other research works worldwide [11], where it was also found the symptomatology in neck and torso of workers from the informal sector as well as pain as the most frequent symptom related to physical burden [8,10].

3.5 Assessment of the postural physical burden in vendors from the association through the ergonomic assessment method REBA

Below, in the Table 9 it is presented the estimate for the different body sections gathered in the groups A and B, the score increases in relation to the pain that represents each posture adopted by the vendors.

Table 8.
Perception of the symptoms associated to musculoskeletal disorders

Categories	Variable	%
Body pain	Yes	87%
	No	13%
Body sections with symptomatology	Arms	4%
	Wrists	13%
	Legs	13%
	Neck	30%
	Torso	27%
	None	13%
Perception of symptomatology	Muscle cramps	7%
	Pain	27%
	Mobility loss	20%
	Stiffness	33%
	None	13%
Pain frequency	Finish the working day	40%
	Permanently	27%
	During the work day	13%
	None	13%
	Only at night	7%

Source: The authors.

Table 9.
Application of the REBA method

Vendor		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Group A	Torso	4	4	4	3	4	4	3	4	3	3	4	3	4	4	4
	Neck	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
	Legs	2	1	2	2	2	2	3	2	2	1	1	1	3	2	1
	Total	6	5	6	5	6	6	6	6	4	4	5	4	7	6	5
Group B	Arms	3	2	2	2	2	5	5	4	3	4	3	3	3	4	3
	Forearms	1	1	1	1	2	1	1	1	1	2	1	1	1	1	2
	Wrists	2	3	2	2	3	2	3	2	3	2	2	2	2	2	2
	Total	4	3	2	2	4	7	8	5	5	6	4	4	4	5	4
Group C	Strength exerted	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Total group A	8	7	8	7	8	8	8	7	6	6	7	6	9	8	7
	Grip type	1	1	2	2	2	2	1	2	1	1	0	1	0	1	2
	Total group B	5	4	4	4	6	9	9	8	6	7	4	6	4	6	6
	Total group C	10	8	9	7	10	10	10	10	8	9	8	8	10	10	9
Muscular activity	One or more static body parts	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Repetitive movements	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	Unstable postures	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0
Final score		13	10	11	10	13	12	12	12	10	11	10	10	13	12	11

Source: The authors.

According to the Table 10, it is found that the body section with the highest score was the torso, followed by the arms and the neck, these results are related to the perception of symptoms where the neck and the torso showed the most frequent symptomatology. The latter is similar to what was found in other research works developed at national and international level [11], where the affectations in the back and the neck in workers from the informal sector were the most representative.

The results from the ergonomic assessment show that the vendors have a high and very high risk of generating any kind of musculoskeletal disorder due to the postural physical burden they are exposed to. In a similar way to other research [11,12] performed at a national and international level, it can be identified in the informal workers a high physical burden generated by inadequate postures, together with excessive use of strength and repetitive movements that may generate MSDs.

3.6 Recommendations for reducing the postural physical burden

The recommendations are organized in four strategic angles: education, social responsibility, self-learning and engineering control at workplaces:

Table 10.
Interpretation of risk level

Vendor	Final score	Risk		
		Level	Risk	Action
1	13	4	Very high	Immediate action
2	10	3	High	Necessary soon
3	11	4	Very high	Immediate action
4	10	3	High	Necessary soon
5	13	4	Very high	Immediate action
6	12	4	Very high	Immediate action
7	12	4	Very high	Immediate action
8	12	4	Very high	Immediate action
9	10	3	High	Necessary soon
10	11	4	Very high	Immediate action
11	10	3	High	Necessary soon
12	10	3	High	Necessary soon
13	13	4	Very high	Immediate action
14	12	4	Very high	Immediate action
15	11	4	Very high	Immediate action

Source: The authors.

3.6.1 Education

It is suggested to begin with a feedback where the vendors from the association realize the inadequate postures they are currently adopting, the additional risk factors that were identified, the risk they are exposed to and the possible affectations these postures can generate in their health.

Then, information can be shared through lectures about postural hygiene, looking for a good positioning in the comfort angles from their different body sections.

Likewise, recommendations can be given about the importance of postural change, the use of comfortable and safe clothing to work, the use of elements for resting as chairs, the correct positioning of the lower limbs on the ground, the task rotation, the implementation of adequate postures for the manual manipulation of burdens, the maximum allowed weight to manipulate and the adequate shape that the handles should have.

3.6.2 Social responsiblity

The Ministry of Labor in Colombia establishes through the article 5 of the Law 1988 of August 2nd, 2019 [21] the guidelines for the elaboration of the public policy of informal vendors and in the Resolution number 1213 of 23 June 2020 [22] the methodologic structure and the deadlines for its creation in the different territorial collectivities around the country. Hence, it corresponds to the Municipal Administration of Sogamoso, the creation and implementation of this public policy. For its creation, in the system of agents, there should be included the different informal vendors organizations.

The purpose of the public policy is to seek strategies that provide solutions to different situations of vulnerability in the sector and thus increase the capacities and opportunities towards conditions of fairness and equity, diminishing the levels of poverty and inequality. Based on this, it is recommended for the association to actively participate in the creation process of this public activity.

3.6.3 Self-learning

It is recommended the implementation of a self-assessment and self-care tool that allows the worker, through simple questions or images, to identify possible musculoskeletal symptoms in his different body sections and eventually provide recommendations of postural hygiene.

3.6.4 Engineering control at workplaces

It is suggested to adapt the current workplaces or to replace them for newer ones that help to solve the identified issue. Some of the new features proposed for the workplaces are:

- Steering and brake system with the intention of reducing the transportation effort.
- Gyratory chair that allows to reduce torso rotations, with backrest and adjustable height.
- The reach to different components must be at a short or medium distance to the vendors avoiding positions out of comfort angles.
- Four-wheel mobility, seeking better stability and burden distribution in the product transportation.
- Separated compartments for product exhibition that allow better organization and avoid the products for sale to be mixed among themselves.
- Unfolding roof that covers the workplace and the vendor.
- The use of light materials such as polymers and aluminum, with the intention to reduce the total weight of the workplace.
- General dimensions according to the daily sales volume, seeking to avoid over dimensioning which represents a higher total weight of the workplace.

4. Conclusions

The results of the study show that 73 % of the workers have a very high risk of generating MDSs due to postural physical burden they are exposed to, which means that an immediate intervention must be done to improve their work conditions.

The identified issue in this work population from the informal sector is similar to the one presented in other regions and countries; it is recommended to look for support from the government and participate in the development of policies that favor the improvement of their work conditions and quality of life.

In terms of the work conditions of the street vendors, it was evidenced a high physical burden with higher exposition to risk in group A (torso, neck and legs) according to the assessment of the method REBA, which includes inadequate postures together with repetitive movements and manual manipulation of burden.

Similar to other regions and countries, the street vendors from the association in Sogamoso lack affiliation to social security within the contributive regiment, besides, they lack affiliation to retirement pensions and occupational risks, with the future implications that this issue has for their quality of life and the one of their families.

The street vendors from the association, having to work in public space, are exposed to other risks of biological, chemical, climatic and physical kind as well as insecurity, among others, that must be investigated and assessed in further research aiming for an integral solution to this issue.

It is necessary to coordinate work groups between the association and the territorial entity (Municipality de Sogamoso, Boyacá) to manage the given recommendations for decreasing the postural physical burden.

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