ORIGINAL ARTICLE

WORKING, SAFETY AND HEALTH CONDITIONS IN THE ECONOMICALLY ACTIVE AND EMPLOYED POPULATION IN URBAN AREAS OF PERU

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ABSTRACT

Objetives: The present study aims to know the work, safety and health conditions at the jobs of the economically active urban population in Peru. **Materials and Methods:** A cross-sectional study was carried out based on a probabilistic sample of multistage areas in which 3122 people over 14 years of age distributed nationwide participated. **Results:** The majority were men (53.6%) between 30 and 59 years (50%). As for working conditions, most people work more than 48 hours per week (39.8%), and Monday through Saturday (44.7%). Regarding the safety, hygiene, ergonomic and psychosocial conditions, the results showed a lower risk exposure. Regarding health conditions, the majority report that the identification and evaluation of occupational hazards is not carried out in their workplace (35.9%), they do not have occupational health services (40.7%) or a delegate or a Health and safety committee (39.4%) and no occupational medical evaluations (39.3%). **Conclusions:** The economically active urban population of Peru is more frequently exposed to noise, solar radiation, awkward postures and repetitive movements, work at a fast pace with little control and hide their emotions; In addition, occupational health is not managed adequately in workplaces. These conditions may affect the health of workers and the quality of work.

Keywords: Working Conditions; Occupational Risks; Employment; Occupational Health (Source: MeSH NLM).

INTRODUCTION

Employment generates economic and social growth and affects workers' health and well-being, i.e. it can be a source of improvement or harm. Paid work is the main source of income for most people, and it is a strong component of their social identity [1].

Workers are exposed to conditions that affect their health, either positively or negatively. Such conditions involve the characteristics of the work organization, its environment and immediate surroundings, which can be considered physical, chemical, psychosocial, mechanical, and environmental risk factors, among others. Therefore, occupational health and safety conditions are established in organizations, these are related to the implementation of measures to eliminate or reduce the risk of suffering injuries, damaging health, material damage to equipment, machines or infrastructure. Similarly, workers' health management, and preventive activities and resources involved within the organizations, are included [1,2].

Therefore, a worker with adequate working, safety and health conditions is strongly identified with the organization's policies which are strengthened, as well as his or her motivation and productivity. On the contrary, if the workplace has precarious conditions, the workers' health could be affected, in addition to the previously mentioned aspects, which generates a high social cost [2].

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According to the International Labor Organization, there is a high frequency of deaths caused by work accidents or diseases, related to poor occupational safety and health practices. These health issues generate a high social and economic cost, due to losses related to working time, production development, medical care and rehabilitation of workers, as well as the payment of compensation [3,4].

On the labor aspect, Peru maintained an economic growth that allowed a 2.4% increment of formal employment from April 2013 to March 2014 [5], and Metropolitan Lima showed a variation of 6.6% during first quarter 2019 [6]. In addition, under the Occupational Safety and Health Act, employers must create means and conditions to protect workers' health and safety [7] by developing management systems according to their needs, and report to the Ministry of Labor any occupational accidents and diseases that occur in their organizations [8].

Occupational surveys on working conditions are valuable tools for obtaining information to develop strategies for promoting health and preventing negative events for working groups. These surveys are useful for monitoring workers' health [9], and working, employment and health conditions worldwide.

As indicated in the National Plan for Occupational Safety and Health 2017-2021 [8], there are national statistics on occupational accidents and diseases; however, they do not express all of the occurrences, nor do they record the working conditions of the economically active population (EAP). For this reason, the aim of the present study was to determine the safety and health conditions at work of urban economically active occupied in Peru, by applying a population survey.

KEY MESSAGES

Motivation for the study: To know the working, safety and health conditions of the urban economically active occupied population of Peru.

Main findings: The urban economically active occupied working population is more frequently exposed to noise, solar radiation, uncomfortable postures and repetitive movements; they work fast with little control and hide their emotions; moreover, occupational health is not managed in the workplace. These conditions can affect workers' health and the quality of their work

Implications: Knowing working and health conditions of the economically active population will allow the establishment of guidelines for improvement within the framework of the Law on Safety and Health at Work

MATERIALS AND METHODS

Study Design

A cross-sectional design study based on a probability sample associated to geographical areas, in which the likelihood of being selected is associated with geographical areas in the scope of study, which is also multi-stage. The sample was designed to give reliable estimates at the national urban level.

Sample Framework

The sample framework was obtained from the statistical information of the National Institute of Statistics and Informatics (INEI in Spanish), from the 2007 Census and updated with information from the Household Targeting System (SISFOH in Spanish) 2012-2013, a system used by the INEI for conducting population surveys [10]. The population comprises the habitual residents, over 14 years old, from urban private dwellings nationwide. The sample used was requested from the INEI, which included clusters with information on blocks, dwellings, population and EAP from 252 districts of Peru.

Participants

Residents of urban areas of Peru, over 14 years old, who work or have worked, at least for one hour, the week before the survey or who are temporarily absent from work due to vacation, illness, leave, etc. [11]. Children under 14 years old and those children whose surveys showed errors in completion were excluded.

Sample

The sample was probabilistic, area-based, stratified and multi-stage. With a known population and applying the proportion formula with a confidence level of 95%, a permissible error of 2.7%, a non-response rate of 10% and a design effect of 1.2. The calculated sample was 3,120 persons distributed in 520 clusters.

The sampling was carried out in several stages. First stage: selection of clusters with probability proportional to the size of the households (clusters: group of households defined by the INEI that include approximately 100 to 150 households). Second stage: selection of blocks within each cluster (systematic random sampling with random start). Third stage: random selection of households in the selected blocks (random sampling through a random number chart). Fourth stage: random selection of the person to be interviewed. The unit of analysis was the working person, selected among people who work in each household.

Variables

Socio-demographic variables, such as sex, age, education, job, economic activity of the company and number of workers. Working conditions, including employment conditions (weekly working hours, working days, type of relationship, contract, form of contract, type of workday, remuneration), other conditions such as safety, hygiene, ergonomic and psychosocial factors, resources and preventive activities (information or training on occupational risks, evaluations, measurements or controls of possible risks, access to occupational health services, occupational health and safety or hygiene committee, occupational medical examination, and workers participation). Health conditions, such as the perception of health, as well as injuries, and occupational diseases.

Instrument

The Basic Questionnaire on Working, Employment and Health Conditions in Latin America and the Caribbean (CTESLAC in Spanish) [12,13] provides information on workers' perceptions of working, employment and health conditions in their workplaces. It has 77 questions which include socio-demographic characteristics, employment conditions, work, health, resources, and preventive occupational health activities in the work centers, and family characteristics of the respondents. It was developed by the Network of Experts on Surveys of Working, Employment and Health Conditions (RED ECTS in Spanish), based on surveys of working conditions used in Spain, Colombia, Argentina, Chile, Uruguay and Central America, in order to improve the comparability of survey results in Latin America and the Caribbean.

The answers to the questions include: frequency of the condition (always, several times, sometimes, very few times and never; or if it presents or not a certain condition), the completion time of the questionnaire is of 25 minutes and the results are expressed according to the answer options.

For this study, a group of 34 experts in occupational health (doctors, psychologists, nurses and medical technologists) reviewed and adapted the questionnaire. They discussed the relevance of each item, and the application of a pilot questionnaire to 34 workers in Lima, Ica and Arequipa. The partial response rate (i.e., the omission of information in some of the questions) [14] was 3.2%.

An acceptable correlation was found in safety (0.52-0.77), hygiene (0.29-0.50) and ergonomics (above 0.3). However, the psychosocial aspect showed a low correlation (less than 0.3). Overall, the questionnaire has a high reliability of the safety, hygiene and ergonomic aspects [15]. It is important to point out that, regarding the correlation of psychosocial conditions, we consider that it does not affect the gathering of information, since the questionnaire is not a diagnostic instrument and therefore allows for the collection of relevant information on working conditions.

The final version of the questionnaire consists of three filter questions and 87 Likert-scale questions. An adequately trained interviewer applied the questionnaire to the participants in their homes, with an average duration of 20 minutes.

Procedure and statistical analysis

The information-gathering phase took place from November 2016 to June 2017. The process was gradual and on different dates, however, it was simultaneous at some points. For this purpose, experienced surveyors were called in, and the team of researchers trained them in occupational health, working conditions, handling the questionnaire and selecting the respondents in the field. The questionnaire was printed on paper and applied to each participant.

For the selection of the household, in each cluster (according to the criteria of the INEI, as a subpopulation, which has characteristics present in the population, with attributes such as geographical location, being over 14 years old, worker [16]), the following procedure was taken into account: at random, in each block, the households were selected (nine households, of which three were replacement households, in the event that a possible participant was not identified), and then, for the random selection of the occupied EAP member, within the households, the Kish (or random) chart was used.

To calculate the confidence intervals (sampling errors), the statistical program SPSS 20, complex samples section, was used, which provides the sample variability estimators for population parameters (the elaborated frequency plan contained: the file plan, the frame stratum, the cluster and the expansion factor by district, for the construction of the expansion factors, the selection probabilities in each stage were taken into consideration), such as totals, means, ratios and proportions for the different estimation domains, and the algorithm used by SPSS is based on the method of the variance estimators of the final clusters [17].

Ethical aspects

The study was approved by the Institutional Committee of Ethics and Research of the National Institute of Health. Informed consent (assent for those under 18 years old) was applied, which was codified and guarded by the research team.

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RESULTS

Out of 3,126 questionnaires applied, 4 were eliminated because of errors in the filling process. As can be seen in Table 1, men had the highest participation (56.6%), between 30 and 59 years of age (50%), and of secondary level education (32.9%).

In terms of employment, most were service workers and shop and market assistants (30.8%), from wholesale and retail trade sector, in the repair of motor vehicles and motorcycles (31.0%), and worked in small centers, that is, between 1 and 10 persons (66.7%).

Regarding working conditions (Table 2), 39.8% worked 49 hours or more per week; 44.7% worked from Monday to Saturday; and 61.1% worked split shifts, morning and afternoon. Regarding the net monthly income of the participants, the highest percentage received remuneration between 851 soles and 1,700 soles (40%); 51.8% were dependent workers; and regarding the form and type of contract, 26.8% had a written contract and 33.1% a temporary contract. With respect to the social protection coverage of the interviewees, 67.2% said that they did not contribute to any retirement system and 53.5% did not have any health insurance (Figure 1).

With respect to exposure to occupational risk factors, less than 6.5% of those surveyed indicated that they are often or always exposed to falls at the same or lower levels; more than 7% of workers reported that they are often or always exposed to a level of noise that forces them to raise their voice to talk to another person and more than 8% reported that they are oftenor always exposed to solar radiation for a minimum period of one hour per day. Their tasks make them keep uncomfortable or forced postures (12.9%) or to make repetitive movements (21.6%). Psychosocially, they must work very fast (13.9%) and hide their emotions or feelings when doing their work (12.9%) (Table 3). With regard to resources and preventive activities, 7.7% of the workers reported having received poor information about occupational risks. With regard to the identification and evaluation of occupational risks, 35.9% of the dependent workers did not have a risk evaluation for their job in the last 12 months; 40.7% did not have an occupational health service or area in their work center; 39.4% did not have a prevention delegate or supervisor or an occupational health and safety or hygiene committee; 39.3% did not have an occupational health examination in the last 24 months, and 36.5% indicated that their work center did not hold regular meetings to discuss health and safety issues (Table 4).

Finally, regarding the participants' perception of their health in general, the majority (49.9%) responded that their health was good. A total of 9.1% reported that they had suffered some injury or damage due to an accident at work, and 4.5% reported that they had suffered from one or more diseases caused by work (Table 5).

DISCUSSION

Peru's urban occupied active population has a profile characterized by a high percentage of workers with long working hours, low social protection coverage (the highest percentages of workers were not registered in any retirement plan or health system), and independent workers have long working hours, low pension coverage and low economic income. These situations can affect workers' health and performance, as well as the quality of their work, which could be related to informality or precariousness of employment. These results are different from those reported in Colombia [18], Argentina [19], Chile [20] and Central America [21], where most workers do have these systems

A total of 9.2% of participants always work in noisy environments, a frequency of exposure lower than the observed in other countries of the region [19-21], which in general exceed 15%. This differs to the report made in 2017, when 59.2% of the occupational illnesses notified to the Ministry of Labor and Employment Promotion (MTPE in Spanish) of Peru [22] were due to hearing loss or deafness caused by noise. However, this higher percentage of hearing-related illnesses may be explained by a lower quantity of reported cases from other pathologies.

Between 9.1% and 21.6% of surveyed subjects suffer from uncomfortable postures, they lift or move loads, or make repetitive movements. These figures are lower than those observed in the surveys carried out in Colombia, Argentina, Chile, Central America and Uruguay [23]. However, no musculoskeletal diseases related to such exposure were reported in the MTPE [22] during 2017. Regarding psychosocial conditions, between 12% and 41% of the population surveyed said that they always work too fast or hide their emotions, or that they never influence the amount of work assigned to them, similar to that found in surveys in other countries [19-21].

It should also be noted that this is the first time that Peru gets information on prevention and resources from companies, which, according to the regulations [7], they are the ones that must carry out these preventive activities. The surveyed subjects report that their work organizations do not identify nor evaluate occupational risks at workplace, provide occupational health service, consider a prevention delegate or supervisor at the workplace, provide annual occupational medical evaluations. These reported information by the sub-

Table 1. Socio-demographic characteristics, jobs, economic activity and number of workers in the company, Peru, 2017

Characteristics	n	% [a]	95%CI
Sex			
Male	1,638	53.6	51.3-55.9
Female	1,484	46.4	44.1-48.7
Age (years)			
14-19	415	13.0	11.5-14.6
20-29	736	23.2	21.5-25.0
30-59	1,543	50.0	47.5-52.6
≥ 60	428	13.8	12.2-15.5
Education			
No education	31	0.8	0.6-1.2
Kindergarten	1	0.2	0.0-0.3
Incomplete Primary school	171	4.5	3.8-5.3
Complete Primary school	176	5.0	4.2-6.0
Incomplete Secondary school	350	10.7	9.4-12.1
Complete Secondary school	1,012	32.9	30.8-35.1
Incomplete non- university higher education	278	9.5	8.2-11.0
Complete non- university higher education	431	13.6	12.2-15.2
Incomplete university education	231	7.9	6.8-9.2
Complete university education	441	14.9	13.1-17.0
Workplace			
Service workers, and shop and market assistants	950	30.8	28.9-32.8
Fundamental occupations	559	17.2	15.8-19.0
Construction, building, handicrafts, electricity and telecommunications	410	12.9	11.5-14.4
Scientific and intellectual professionals	365	12.1	10.8-13.7
Industrial machinery operators, assemblers and transport drivers	242	7.3	6.3-8.4
Managers and administrative employees	227	8.4	7.3-9.6
Technicians	183	6.4	5.4-7.5
Farmers and skilled workers, agriculture, forestry and fisheries	147	3.3	2.7-4.1
Members of the Executive, Legislative and Judicial Sectors and senior staff of the public and private administration	30	1.2	0.8-1.7
Military and police occupations	9	0.4	0.2-0.7
Economic activity of the company			
Wholesale and retail trade; repair of motor vehicles and motorcycles	958	31.0	29.0-33.1
Transport and storage	252	8.0	6.9-9.2
Accommodation and Catering Activities	234	7.1	6.2-8.2
Manufacturing Industries	221	6.8	5.7-7.6
Administrative and support service activities	213	7.6	6.5-8.9
Agriculture, livestock, forestry and fisheries	201	4.6	3.8-5.5
Teaching	188	5.9	5.0-6.9
Other service activities	182	5.6	4.8-6.6
Professional, scientific and technical activities	176	6.5	5.4-7.8
Construction	130	4.4	3.7-5.3
Human healthcare and social work activities	98	3.5	2.8-4.5
Public administration and defense; mandatory social security schemes	70	2.2	1.7-2.9
Activities of households as employers;	70	2.4	1.9-3.1
Artistic entertainment and recreational activities	28	1.0	0.7-1.6
Financial and insurance activities	25	0.8	0.5-1.3
Information and Communications	19	0.6	0.4-1.1
Mining and quarrying	17	0.4	0.2-0.8
Supply of electricity, gas, steam and air conditioning	17	0.8	0.5-1.3
Water supply, wastewater disposal, waste management and decontamination	16	0.5	0.3-0.9
Real estate activities	7	0.3	0.1-0.7
Number of employees in the company			
1-10	2,156	66.7	64.3-69.1
11-100	736	25.3	23.1-27.6
101-499	153	5.3	4.4-6.5
≥ 500	77	2.7	2.1-3.5

95%CI: 95% Confidence Intervals
[a] Weighted percentages according to expansion factors

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Table 2. Employment conditions by weekly working hours, working days, type of workday, remuneration, role, contract and type of contract in workers in Peru, 2017

Conditions of employment	n	%[a]	95%CI
Weekly working hours			
≤ 40	1,071	32.2	30.3-34.2
41-48	826	28.0	26.0-30.0
≥ 49	1,225	39.8	37.6-42.0
Working days			
From Monday to Friday	596	20.2	18.5-22.0
From Monday to Saturday	1,366	44.7	42.7-46.7
From Monday to Sunday	807	24.5	22.8-26.2
Weekends and holidays only	73	2.0	1.6-2.7
Irregular, non-fixed or mobile days	280	8.6	7.5-9.9
Type of workday			
Morning and Afternoon	1,883	61.1	58.9-63.3
Continuous during morning	519	16.1	14.4-18.0
Continuous afternoon - night	221	6.5	5.6-7.6
Continuous night - dawn	24	0.8	0.5-1.2
Rotating shifts except night shift	64	2.1	1.6-2.8
Rotating shift including night shift	131	4.0	3.2-4.9
Irregular or variable workdays according to the days	150	4.7	3.8-5.7
Others	130	4.7	3.6-6.0
Remuneration, PER (USD)			
≤ 850 (≤ 259)	1,284	37.9	35.8-40.2
851-1,700 (260-520)	1,206	40.0	37.6-42.4
1,701-2,550(521-780)	334	11.8	10.3-13.5
2,551-3,400 (781-1040)	73	2.7	2.1-3.6
3,401-4,250 (1,041-1,300)	37	1.4	1.0-2.1
4,251-5,100 (1,301-1,560)	18	0.5	0.3-0.9
≥ 5,101 (≥ 1,561)	10	0.3	0.1-0.5
No answer	160	5.4	4.4-6.5
Type of bond			
Employer	250	8.4	7.2-9.8
Independent worker	1,087	35.4	33.2-37.6
Dependent worker	1,657	51.8	49.4-54.2
Household worker	31	1.0	0.7-1.4
Unpaid family worker	97	3.4	2,7-4.4
Form of contract			
Written	887	26.8	24.7-28.9
Oral or verbal	624	20.4	18.7-22.2
No contract	263	8.8	7.6-10.2
Don't know / Don't answer	11	0.2	0.1-0.5
NA	1,337	43.8	41.5-46.1
Type of contract			
Fixed indefinite or permanent	610	18.5	16.8-20.3
Temporary	1,036	33.1	31.1-35.3
Internship, scholarship or practicum	10	0.2	0.1-0.4
Don't know / Don't answer	129	4.3	3.5-5.4
NA	1,337	43.9	41.5-46.1

95%CI: 95% Confidence Intervals, NA: No Answer
1 USD= 3,27 PER (change rate for 2017)
[a] Weighted percentages according to expansion factors

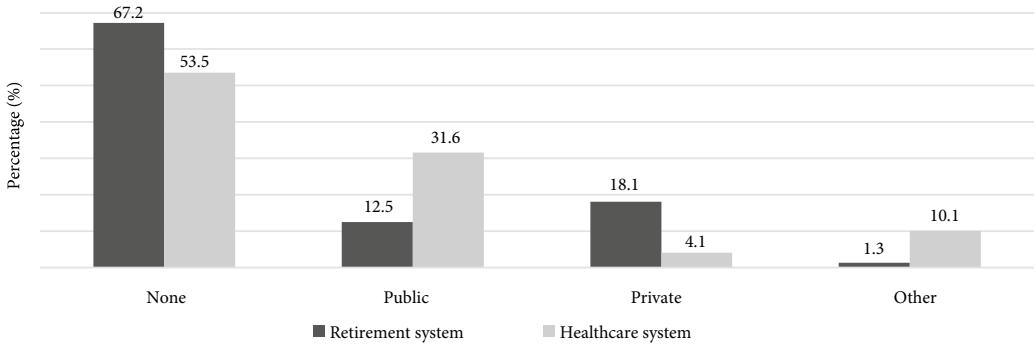

Figure 1. Employment conditions by social protection coverage according to the pension system, 2017

jects can be explained by the fact that not all employers have implemented the guidelines of the Occupational Safety and Health law in their organizations, or, that workers are not correctly informed about it.

As for the perception of health, this is similar to that found in the surveys of Colombia, Chile and Central America, which perceive, in a high percentage, that their workers are healthy, and have a low percentage of accidents and oc-

Table 3. Working conditions according to safety, hygiene, ergonomics and psychosocial aspects of workers in Peru, 2017

Working Conditions	Always		Several times		Sometimes		Almost never		Never		DK/DA	
	n	%[a]	n	%[a]	n	%[a]	n	%[a]	n	%[a]	n	%[a]
SC: Risk of falls on the same level [b]	170	5.5	228	6.5	409	12.1	262	8.0	2047	67.7	6	0.2
SC: Risk of falls on different level [c]	220	6.5	207	5.8	350	10.5	256	7.8	2084	69.2	5	0.2
SC: Exposure to machines or tools [d]	440	12.9	249	7.4	384	11.5	249	7.4	1793	60.6	7	0.2
HC: Exposure to noise [e]	260	9.2	324	10.6	536	17.3	414	12.8	1578	50.0	10	0.1
HC: Exposure to chemical risks (breathe) [f]	263	7.9	281	8.0	468	13.9	329	9.6	1773	60.3	8	0.3
HC: Exposure to biological risks [g]	87	3.0	73	2.4	129	4.2	245	8.0	2579	82.3	9	0.1
HC: Exposure to radiation [h]	448	13.9	307	8.8	450	13.4	239	8.3	1671	55.5	7	0.1
EC: Exposure to unnatural postures [i]	373	12.9	426	13.4	827	26.3	511	15.8	980	31.5	5	0.1
EC: Exposure to lifting load [j]	269	9.1	396	11.6	825	26.4	487	15.1	1139	37.7	6	0.1
EC: Exposure to repetitive motions [k]	638	21.6	594	18.9	741	23.1	411	12.1	727	24.0	11	0.3
PC: Exposure to a high pace of work [l]	377	13.9	525	16.6	973	30.9	447	14.1	786	24.0	14	0.5
PC: Exposure to less control at work [m]	430	15.1	512	17.2	869	27.7	591	17.2	707	22.4	13	0.4
PC: Risk of hiding emotions [n]	374	12.9	486	15.4	698	20.4	508	15.4	1038	35.4	18	0.5
PC: Not applying knowledge [o]	1253	41.0	759	24.3	650	20.0	255	7.9	194	6.4	11	0.4
PC: Not learning [p]	1002	33.2	681	21.7	874	26.9	301	9.3	255	8.5	9	0.4
PC: High amount of work [q]	603	19.4	461	14.6	669	21.9	399	12.4	958	30.5	32	1.2
PC: Perception of the salary [r]	350	13.3	571	18.8	1040	33.3	432	13.3	460	14.6	269	6.7

SC: safety conditions; HC: hygiene conditions; EC: ergonomic conditions; PC: psychosocial conditions; DK/DA: don't know / don't answer

[a] Weighted percentage according to expansion factors.
[b] Do you work in environments with unstable, uneven and/or slippery floors, which may cause you to fall?
[c] Do you work in environments with surfaces with holes, stairs and/or unevenness that can cause you to fall?
[d] Do you use equipment, instruments, tools and/or work machines that can cause you damage or injury such as cuts, blows, scratches or scrapes, punctures, amputations, etc.?
[e] Are you exposed to a level of noise that forces you to raise your tone of voice when talking to others?
[f] Do you inhale chemicals in the form of dust, fumes, aerosols, vapors, gases and/or mist? It does not include tobacco smoke.
[g] Do you handle, or are you in contact with, animals or people who may be infected, or contaminated materials such as garbage, body fluids, laboratory equipment, etc.?
[h] Are you exposed directly to the sunlight or radiation for at least 1 hour a day?
[i] Do you perform tasks that force you to maintain uncomfortable or forced postures (positions)?
[j] Do you lifts, move, push or pull loads, people, animals or other heavy objects?
[k] Do you perform tasks that require you to make repetitive movements?
[l] Do you have to work very fast?
[m] Does your job demands that you have to control many things at once?
[n] Does your job require you to hide your emotions or feelings?
[o] Does your job allow you to apply your knowledge and/or skills?
[p] Does your job allow you to learn new things?
[q] Do you have any influence on the amount of work you are given?
[r] Think about all the work and effort you put in. Do you think the recognition you receive at work is appropriate?

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Table 4. Resources and preventive activities and identification and evaluation of occupational risks for workers in Peru, 2017

Preventive resources	n	%[a]	95%CI
Occupational risk information or training [b]			
Very well informed	320	11.2	9.6-13.1
Well informed	1,333	45.0	42.3-47.7
More or less informed	2	0.1	0.0-0.3
Misinformed	275	7.7	6.6-9.0
Very misinformed	20	0.5	0.3-0.9
Not informed	979	29.0	26.6-31.5
Don't know / Don't answer	193	6.5	5.2-8.2
Assessments, measurement or control of potential risks [c]			
Yes	545	16.4	14.8-18.2
No	1,111	35.9	33.6-38.2
Don't know / Don't answer	131	4.3	3.5-5.4
NA	1,335	43.4	41.0-45.8
Access to occupational healthcare service or area [d]			
Yes	462	14.3	12.7-16.0
No	1,268	40.7	38.5-43.0
Don't know / Don't answer	47	1.3	1.0-1.8
NA	1,345	43.7	41.3-46.1
Health, safety or hygiene committee at work [e]			
Yes	515	15.7	14.1-17.4
No	1,216	39.4	37.2-41.7
Don't know / Don't answer	49	1.3	1.0-1.9
NA	1,342	43.6	41.3-46.0
Occupational Medical Examination [f]			
Yes	550	16.7	15.0-18.5
No	1,212	39.3	37.1-41.5
Don't know / Don't answer	23	0.6	0.4-0.9
NA	1,337	43.4	41.1-45.8
Employee participation [e]			
Yes	615	19.3	17.4-21.3
No	1,138	36.5	34.4-38.7
Don't know / Don't answer	36	0.9	0.6-1.4
NA	1,333	43.3	40.9-45.6

95%CI: 95% confidence intervals, NA: No answer
[a] Weighted percentages according to expansion factors.
[b] Are you informed about the risks to your health and safety related to your work?
[c] Do you know if any assessments, measurements or monitoring of potential health risks have been carried out in your workplace during the last 12 months?
[d] Do you have access to an occupational healthcare service or area at your workplace?
[e] Is there a delegate, supervisor, health, safety or hygiene committee in your workplace?
[f] Have you had an entry, periodic or retirement medical occupational examination in your workplace during the last 24 months?

cupational diseases. Similar to what was found in the National Socio-economic Survey about Access to Health from EsSalud Insured Persons in Peru [24], which indicates that 64.1% of the insured population refers having no symptoms, illness or accident.

Among the advantages of this study, it should be mentioned that, in order to obtain the information, the surveys were applied in the households, having as a common filter people who had worked, at least one hour, in the week prior to the interview. Unlike the surveys carried out in Colombia [18], Argentina [19], Chile [20] and Uruguay [23], where the interviews took place in the formal workplaces.

Among the limitations, it should be mentioned that the information collected has not been verified. That is, the instrument collects the perceptions of the workers and this information is based on their honesty (we do not verify the conditions in their workplaces), which is common in this kind of study. Similar surveys were conducted in the European Union since 1990, every five years [25]. However, and despite the fact that information was not verified, this study provides for the

Table 5. Perception of health, injuries and occupational diseases in workers in Peru, 2017

Questions	n	%[a]	95%CI
Health Perception[b]			
Very Good	292	11.2	9.6-13.1
Good	1,531	49.9	47.5-52.3
Regular	1,110	33.3	31.1-35.5
Bad	167	4.8	3.9-5.8
Very bad	13	0.5	0.3-0.9
Don't know	3	0.1	0.0-0.4
Don't answer	6	0.2	0.1-0.5
Workplace injuries[c]			
Yes	299	9.1	7.7-10.7
No	2,811	90.5	88.9-91.9
Don't know	3	0.1	0.0-0.5
Don't answer	9	0.3	0.1-0.6
Occupational diseases[d]			
Yes	110	4.5	3.4-6.1
No	2,997	95.0	93.4-96.1
Don't know	5	0.2	0.1-0.5
Don't answer	10	0.3	0.2-0.7

95%CI: confidence intervals

[a] Weighted percentages according to expansion factors.
[b] In the last two weeks, in general, which of the following statements reflect your health state?
[c] During the last 12 months, have you suffered any injury or damage due to an accident at work?
[d] During the past 12 months, have you suffered from one or more illnesses diagnosed by a doctor, caused by work?

first time a description of the working, employment and health conditions in a representative sample of the occupied active population in urban areas of Peru.

In conclusion, there is ample room for occupational risk prevention among Peru's urban occupied economically active population, especially among dependent workers with long working hours, low social protection coverage and low economic income, poor occupational health management in their workplaces; situations that might affect their health and performance, as well as the quality of their work.

This first task provides the basis for monitoring and surveillance of the working, employment and health conditions of the urban occupied active population in Peru. Similar studies should be carried out periodically. In addition, occupational health information should be disseminated to raise awareness in the workers (independent and dependent) and their employers in order to reduce exposure to occupational risks and prevent work-related accidents and diseases.

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