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A Cross-Sectional Observational Pilot Study of the Main Risk Factors Related to Lower Back Pain in Spanish Hospitality Workers

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Abstract: Lower back pain (LBP) describes pain of indeterminate duration between the lower edge of the ribs and the buttocks. LBP hinders movement, quality of life, and mental well-being, and limits work activities and engagement with family and friends. LBP represents a public health problem, and most workers are expected to experience LBP symptoms throughout their working lives. The study's main objective was to characterize LBP in the hospitality population of the province of León, Spain, determining the risk factors. A pilot study with a cross-sectional observational design was developed following the guidelines of Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for 150 Spanish hotel workers. Sociodemographic and lifestyle, occupational, and clinical data related to LBP were obtained through surveys. The annual prevalence of LBP in this study was 87.1% which was higher in women. A significant relationship ($p < 0.05$) was obtained between sex, income, smoking, sleep quality, and all labor variables with LBP. In addition, the Fear Avoidance Beliefs Questionnaire (FABQ) results revealed that 49% of the participants had a score > 14. Also, 83.3% of patients with >6 annual LBP crises suffered from sciatica. Once the results were known, preventive intervention would be needed to reduce these main risk factors for LBP for hospitality workers.

Keywords: lower back pain; hospitality workers; risk factors; occupational health; prediction

1. Introduction

The pathologies associated with skeletal muscle alterations produce activity restriction, functional loss, and disability in the individual who suffers from them [1]. These muscular alterations of ergonomic origin in the labor environment are the health problems in workers with the highest incidence and prevalence. In this sense, lower back pain (LBP), a painful sensation in the lumbar spine area that prevents optimal mobility [2], is an example of these musculoskeletal disorders [3]. LBP is located between the last thoracic vertebra (T12)

and below the gluteal fold and ends at the top of the sacral spine with or without leg pain, excluding nerve root pain or severe spinal pathology [4]. Non-specific lower back pain (NLP) is the most common presentation of lower back pain (about 90% of cases) [4]. In 2020, lower back pain (LBP) affected 619 million people worldwide, and the number of cases is estimated to increase to 843 million by 2050 [5]. LBP can be specific or non-specific. Specific lower back pain is pain caused by a certain disease or structural problem in the spine, or when the pain radiates from another part of the body [2]. NLP is when it is not possible to identify a specific disease or structural reason to explain the pain [4].

In this way, NLP, according to the International Classification of Disease (ICD 10: M545), is defined as the sensation of pain or discomfort located between the lower limit of the ribs and the lower limit of the buttocks [5]. NLP causes, in addition to pain, a high degree of discomfort or disability in the lower back [4]. In addition, a significant proportion of NLP patients are exposed to occupational or non-occupational factors that cause or contribute to their lower back pain [6]. Work-related musculoskeletal disorder LBP (WLBP) is multifactorial and indicates a relationship with physical, organizational, psychosocial, and sociological factors in its development [7]. WLBP is a product of the structural and/or functional deficiency of contractile and inert tissues in the lumbar region and has a multifactorial background that generates a limitation in activity, which prevents the performance of the individual's daily activities, either temporarily or permanently [8]. The different risk factors that can produce LBP are described in Table 1. Among the work-related risk factors are forceful lifting, bending, and twisting of the trunk, whole body vibration, and heavy manual work. In addition, static work postures, such as remaining seated or standing for long periods, may also contribute to WLBP [9]. Overall, jobs associated with LBP are most commonly those associated with "material handling" tasks [7].

Table 1. Main lower back pain risk factors and their evidence levels.

Risk Factors	Evidence Level	References
Age	+++	Chenot et al., 2017 [10]; Chou et al., 2021 [2]; Knezevic et al., 2021 [4]
Gender	+++	Sribastav et al., 2018 [11]
BMI (24.0–27.9 kg/m^2)	+++	Russo et al., 2018 [12]
Education time (>18 años)	+++	Lu et al., 2023 [1]
Marital status (married)	+++	Geisser et al., 2005 [13]
Poor general health	++	Noh et al., 2022 [14]
Exercise frequency (<2 times/week)	+++	van Middelkoop et al., 2010 [15]; Gordon and Bloxham, 2016 [16]; Shiri et al., 2018 [17]
Other sociodemographic characteristics	+	Jordan et al., 2008 [18]; Karos, 2022 [19]
Past history of lower back pain (yes)	+++	Maher et al., 2017 [20]
Labor intensity (medium, heavy/extremely heavy)	+++	Andrasfay et al., 2021 [7]
Characteristics of the work activity over time	+++	Andrasfay et al., 2023 [21]
Working posture (/fixed)	+++	Joseph et al., 2023 [3]
Exposure to vibration sources (yes)	+++	Krajnak, 2018 [9]
Quality of life	++	Parreira et al., 2018 [22]
Mental state	++	Russo et al., 2019 [12]
Non-spinal LBP	+++	Shokri et al., 2023 [23]
Pathologic causes of LBP (red flags)	++	DePalma, 2020 [24]
Individual recovery expectations	++	Hayden et al., 2019 [25]

Abbreviations: +++ very strong evidence, ++ strong evidence, + moderate evidence. References [1–4,7,9–25].

The high prevalence, significant consequences for disability, and increasing impact on healthcare expenditures resulting from massive healthcare utilization, sickness absence from work, and early retirement of WLBP is considered a relevant health problem worldwide [26,27]. The annual cost of NLP in industrialized countries is 1.7% of the Gross Domestic Product (GDP), and most of it corresponds to indirect costs, such as sick leave [28]. Also, LBP is the first cause of work absenteeism worldwide and the first cause of work incapacity in Spain [28], where LBP is one of the six most prevalent rheumatic diseases in the Spanish adult population [29].

In Spain, approximately 80% of people will suffer from LBP at some time in their lives, especially if their work is unsatisfactory, they are in the service sector, their workplace is noisy and stressful, and the work environment is not conducive [28]. However, the influence of risk factors varies according to the work environment and the individual. Hostelry services, despite being especially important in a tourist service country like Spain, meet the requirements for workers to develop LBP, causing considerable personal suffering and economic losses for workers, employers, and insurers. Furthermore, identifying the probability of recurrent WLBP episodes could help in decision making for LBP prevention and treatment [8]. Given the above, the main objective of the present study is to characterize LBP in the hospitality population of the province of León (Spain); that is, to determine whether these workers present greater risk factors related to LBP than the rest of the population. This would allow us to establish adequate preventive measures. It is hypothesized that hotel workers present more risk factors related to LBP than the rest of the population.

2. Materials and Methods

2.1. Design

A pilot study was developed with a cross-sectional observational design following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [30] (Table A1). This study was conducted in collaboration with the Physiotherapy Department, Institute of Biomedicine (IBIOMED), University of León (León, Spain), and the Spain Conference of Deans of Physiotherapy Faculties (Madrid, Spain) from January 2023 to May 2023.

2.2. Ethical and Legal Considerations

This study was approved by the Clinical Research Ethics Committee (CEIC) of the University of León (Ref: ETHICS-ULE-036-2020). All subjects provided written informed consent in accordance with the Declaration of Helsinki and the 2013 Fortaleza revision [31].

2.3. Participants

A total sample of 168 volunteers was recruited through a publishing promotion by the Physiotherapy Department, University of Leon (Spain), to recruit staff in the catering industry from León (Spain), from September 2022 to December 2022. Regarding the calculation of the sample size, the total number of hostelry workers in León is close to 10,000 subjects. Considering a sampling error of 4%, 587 subjects would be necessary. For this reason, our results should be taken with caution and as mentioned above, this aspect has been included in the limitations of the study. The calculation was performed with the granmo program (available at https://www.imim.cat/ofertadeserveis/software-public/granmo/) (accessed on 14 August 2022).

The inclusion criteria established were (i) active hospitality workers in the age range of $\geq$18 years to $\leq$65 years; (ii) signed informed consent and voluntary participation of the worker; and (iii) Spanish language $\geq$ B_2 level. On the other hand, the exclusion criteria were (i) adults with a previous pathology not related to the hospitality profession; (ii) health leave for reasons not related to the hospitality profession (e.g., car accidents, sports injuries); and (iii) adults who did not meet the inclusion criteria, who were excluded from this study. Of a total of 168 volunteers, 18 subjects were excluded. Six volunteers did not meet the

inclusion criteria, seven subjects declined to participate, and five adults did not correctly complete the study's questionnaires. The total sample was 150 participants. (Figure 1).

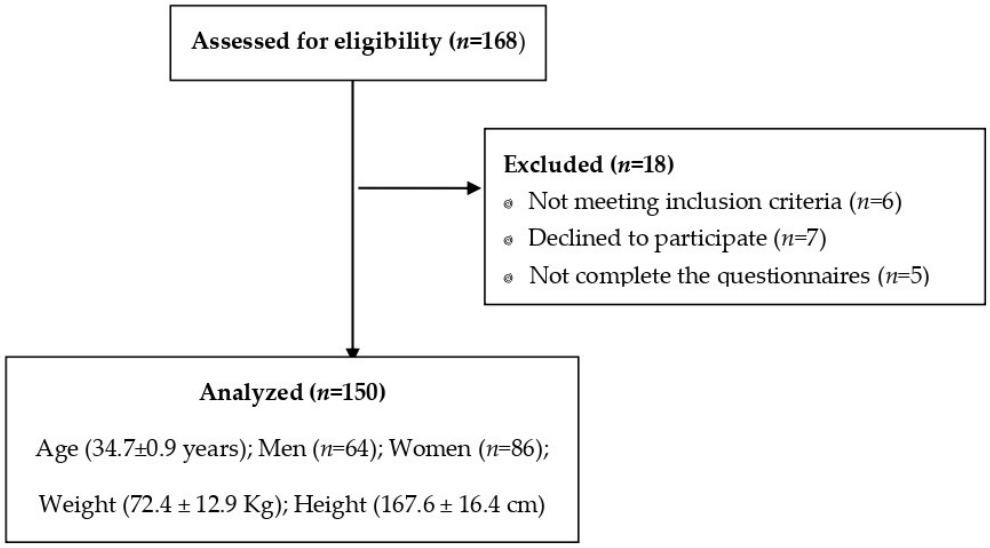

Figure 1. STROBE [30] flowchart for recruitment.

2.4. Data Collection

Two study investigators (M.Z.G. and D.F.-L.) examined the questionnaires and performed specific tests designed for this study. Measures included in the data collection were sociodemographic and lifestyle, labor catering characteristics, aftermath of the LBP characteristics, and clinical characteristics related to patients with LBP.

2.4.1. Sociodemographic and Lifestyle

Gender, age, marital status, cohabitation, parental responsibility for children < 5 years, gross income per year, level of education, height, weight, tobacco consumption (smokers or non-smokers), practice physical activity (physically active or non-physical activity), sleeping (hours and quality), and usual treatment antidepressants were included as sociodemographic and lifestyle characteristics (Table 2).

Table 2. Sociodemographic and lifestyle characteristics related to study participants.

Characteristics	Full Cohort (*n* = 150)
Sociodemographic and Lifestyle	
Gender, *n* (%)	
Male	64 (42.7)
Female	86 (57.3)
Age (years), mean (SD)	34.7 (1.0)
Marital status, *n* (%)	
Married	60 (40.0)
Separated/divorced	5 (3.3)
Single	83 (55.3)
Widowed	2 (1.3)
Cohabitation, *n* (%)	
Living alone	129 (86.0)
Not living alone	21 (14.0)

Table 2. *Cont.*

Characteristics	Full Cohort (*n* = 150)
Parental responsibility for children ≤ 5 years, *n* (%)	
0	127 (84.7)
1	19 (12.7)
2	4 (2.7)
Gross income per year, *n* (%)	
EUR ≤ 9000	32 (21.3)
EUR 9001–18,000	99 (66.0)
EUR 18,001–30,000	13 (8.7)
EUR > 30,000	6 (4.0)
Level of education, *n* (%)	
No education	2 (1.3)
Primary	50 (33.3)
Vocational training	25 (16.7)
High school	54 (36)
University	19 (12.7)
Height (centimeters), mean (SD)	167.7 (16.4)
Weight (Kilograms), mean (SD)	72.4 (12.9)
Non-smoker, *n* (%)	98 (65.3)
Smoker, *n* (%)	52 (34.7)
≤11 cigarettes	26 (17.3)
>11 cigarettes	26 (17.3)
Do not physical activity, *n* (%)	61 (40.7)
Practice physical activity, *n* (%)	89 (59.3)
Physical activity per week (hours), mean (SD)	4.7 (3.0)
Sleeping (hours), *n* (%)	
<5	17 (11.3)
6–8	125 (83.3)
>8	8 (5.3)
Sleep quality, *n* (%)	
Very poor	5 (3.3)
Poor	18 (12.2)
Normal	51 (34.0)
Solid	64 (42.7)
Excellent	12 (8.0)
Usual treatment antidepressants, *n* (%)	
No	145 (96.7)
Yes	5 (3.3)

Values are expressed as mean (SD) for quantitative variables and as frequency (percentage) categorical variables.

2.4.2. Labor Catering Characteristics

Table 3 shows labor catering characteristics such as employment status, kind of work, late shift, weekly working hours, and labor conditions.

Table 3. Labor catering characteristics related to study participants.

Labor Catering Characteristics	
Employment status, *n* (%)	
Apprentice	1 (0.7)
Assistant	10 (6.6)
Waiter	2 (1.3)
Cook	4 (2.6)
Managing director	3 (2.0)
Foreman	38 (25.2)
Principal manager	6 (4.0)
Boss	6 (4.0)
Staff	57 (37.7)
Supervisor	1 (0.7)
Kind of work, *n* (%)	
Non-manual	43 (28.7)
Manual	46 (30.7)
Intermediate position	37 (24.7)
Managerial position	2 (1.3)
Senior management	4 (2.7)
Self-employed	18 (12.0)
Late shift, *n* (%)	
No	50 (33.3)
Casual	56 (37.3)
Work shift	8 (12.0)
Usual	32 (21.3)
Weekly working hours, mean (SD)	37.7 (15.3)
Maximum, hours	94
Minimum, hours	6
Labor conditions, *n* (%)	
Stand $\geq$ 50% work shift	144 (96.0)
Sit $\leq$ 50% work shift	6 (4.0)
Bend trunk	108 (72.0)
Turn trunk	17 (11.3)
Load handling	97 (64.7)
Suffer vibrations	4 (2.7)
Employment contract, *n* (%)	
Permanent/indefinite	114 (76)
$\leq$0.5 year	7 (4.7)
1 year	1

Table 3. *Cont.*

Labor Catering Characteristics	
2 years	1
3 years	1
Temporary by termination	6 (4)
Self-employed	20 (13.3)
Employment contract, mean (SD) years	2.2 (2.5)
Working hours, *n* (%)	
Flexible schedule	41 (27.3)
Rotating shifts	36 (24.0)
Fixed shift starting	23 (15.3)
Fixed intensive work	21 (14.0)
Part-time	7 (4.7)
Fixed shift	22 (14.7)
Working hours, mean (SD)	37.7 (15.3)

Values are expressed as mean (SD) for quantitative variables and as frequency (percentage) for categorical variables.

2.4.3. Aftermath of the Lower Back Pain Characteristics

LBP crises per year, duration of LBP crisis, a longer duration of LBP crisis, LBP plus sciatica pain crisis, *n* (%), and working capability were evaluated by the Visual Analogue Scale (VAS) from Ernest W. Johnson [32] and are shown in Table 4 as the aftermath of the LBP characteristics.

Table 4. Aftermath of the lower back pain and clinical characteristics related to study participants.

Characteristics	**Full Cohort (*n* = 150)**
Aftermath of the Lower Back Pain Characteristics	
Lower back pain crisis per year, *n* (%)	
No	20 (13.3)
1–2	79 (52.7)
3–6	25 (16.7)
≥6	26 (17.7)
Duration of lower back pain crisis, *n* (%)	
≤1 day	62 (47.0)
2–14 days	56 (42.4)
15–30 days	8 (6.1)
>30 days	6 (4.5)
Longer duration of lower back pain crisis, *n* (%)	
≤1 day	53 (40.5)
2–14 days	56 (42.7)
15–30 days	9 (6.9)
>30 days	13 (9.9)
Lower back pain plus sciatica pain crisis, *n* (%)	
Yes	51 (37.0)

Table 4. *Cont.*

Characteristics	Full Cohort (*n* = 150)
No	87 (63.0)
Working capability [1]	
Totally disabled from work	5 (3.6)
Partially disabled from work	15 (10.7)
Possibility to work	23 (16.4)
Able to work	39 (27.8)
Totally able to work	58 (41.4)
Clinical Characteristics	
Disability from lower back pain [2], *n* (%)	
≤14 score	89 (96.0)
>14 score	4 (4.0)
Disability from lower back pain [2], mean (SD)	4.0 (4.2)
Fear avoidance beliefs by work [3], *n* (%)	
≤14 score	76 (50.7)
>14 score	74 (49.0)
Fear avoidance beliefs by work [3], mean (SD)	1.5 (0.5)
Lower back pain crisis alone [1], *n* (%)	
Slight	87 (58.0)
Moderate	35 (23.4)
Severe	28 (18.6)
Lower back pain crisis alone [1], mean (SD)	3.4 (3.5)
Lower back pain plus sciatica pain crisis [1], *n* (%)	
Slight	112 (74.7)
Moderate	29 (19.3)
Severe	9 (6.0)
Lower back pain plus sciatica pain crisis [1], mean (SD)	2.0 (2.9)

Values are expressed as mean (SD) for quantitative variables and as frequency (percentage) for categorical variables. [1] Assessed by the Visual Analogue Scale (VAS) from Johnson, EW. [32]; [2] evaluated by the Spanish version of the Roland–Morris questionnaire in patients with lower back pain, adapted from Kovacs et al. [33]; [3] assessed by the Spanish version of the Fear Avoidance Beliefs Questionnaire (FABQ) in patients with lower back pain, adapted from Kovacs et al. [34].

2.4.4. Clinical Characteristics

Disability by LBP was calculated according to the Spanish version of the Roland–Morris questionnaire in patients with LBP, adapted from Kovacs et al. [33], fear avoidance beliefs by work was estimated by the Spanish version of the Fear Avoidance Beliefs Questionnaire (FABQ) in patients with LBP, adapted from Kovacs et al. [34], and LBP crisis alone and LBP crisis plus sciatica was analyzed by the VAS [32].

2.5. Data Analysis

The information collected on the study participants was coded using Excel spreadsheets and exported to the Statistical Package for Social Sciences (SPSS) software version 26.0 for Windows (IBM SPSS Statistics 2019) for analysis. To describe the characteristics of the sample, means and standard deviations were used for continuous variables, frequencies, and percentages for categorical variables. The Kolmogorov–Smirnov test was

performed to verify that the sample followed a normal distribution. The outcome of interest in this study was LBP. The independent variables were subjected to bivariate analysis to determine the variables significantly associated with LBP. A Pearson χ^2 test was performed. All variables that reached a level of p-value < 0.05 in the bivariate analyses were considered statistically significant.

3. Results

A total of 168 participants were invited to participate in this study, and seven decided not to take part in the study. Two participants were excluded because they were <18 years, four participants had previous pathologies unrelated to their work performance, and five subjects did not complete the questionnaires correctly. Finally, 150 questionnaires were analyzed and included in the study (Figure 1).

Two study investigators (M.Z.G. and D.F.-L.) collected the sociodemographic and lifestyle characteristics data (Table 2), labor catering characteristics (Table 3), and clinical characteristics after LBP (Table 4).

3.1. Sociodemographic and Lifestyle

Tables 2 and 3 show the sociodemographic, lifestyle, and occupational characteristics of the 150 participants included in the study with a mean age of 34.7 years. A total of 57.3% (n = 86) were women, 55.3% (n = 83) of the participants were single, and 86% (n = 129) lived alone. A total of 65.3% (n = 98) of the participants were non-smokers, and 59.3% (n = 89) engaged in frequent physical activity (4.7 h per week on average). Regarding sleep quality, 34% (n = 51) reported normal quality, while 42.7% (n = 64) reported solid quality. In addition, 83.3% (n = 125) slept between 6–8 h per day (Table 2). The employment statuses 37.7% (n = 57) and 25.2% (n = 38) were staff and foremen, respectively, and 0.7% (n = 1) were supervisors and apprentices. In addition, 96% (n = 144) of the participants stood $\geq$ 50% during their work shift and 72% (n = 108) performed repetitive bend trunk movements. Overall, participants worked a total of 37.7 h per week (Table 3).

3.2. Clinical Characteristics

Table 4 describes the sequelae of LBP and the different clinical characteristics. A total of 52.7% (n = 79) of the participants have suffered from 1 to 2 LBP crises in the last year, and 17.7% (n = 26) > 6 LBP crises. The duration of these LBP crises was from 2 to 14 days in 42.4% (n = 56), and 37% (n = 51) of LBP crises contained sciatica. Regarding the degree of disability evaluated through the Roland–Morris questionnaire [33], 96% (n = 89) had a <14 score, qualifying the LBP as "Not Disabling". A total of 49% (n = 74) of the participants had a >14 score on the FABQ questionnaire [34] (high fear of pain). LBP attacks were classified as slight in 58% (n = 87) of the study's subjects (Table 4).

3.3. Analysis of Annual Crises of Lower Back Pain and Sociodemographic, Lifestyle, Work, and Hospitality Characteristics

A total 76.9% of the participants who suffered more than six annual LBP episodes were female (p = 0.03). Also, 96% and 92.3% of the participants who had 3 to 6 and >6 annual LBP crises, respectively, lived alone (p = 0.04). A total of 75.9% of the hoteliers with one or two episodes did not smoke (p = 0.002). Analyzing sleep quality, we obtained that 53.8% of the participants with >6 LBP crises claim to have a normal quality, while 58.2% of those with one or two crises have a solid quality (Table 5). Regarding the employment status, the staff represented 45.6% of the participants with one or two LBP annual crises, and 30% of the foremen had >6 LBP annual crises (p = 0.002). A total of 42.3% of hoteliers with >6 LBP crises performed manual labor (p = 0.001) and worked 25 to 40 h per week or >41 h per week (p = 0.001). The maximum duration of LBP crises was 2–14 days in 79.2% of hoteliers with 3–6 annual LBP episodes (p = 0.00); moreover, 75% of LBP crises referred to sciatica (p = 0.001) (Table 6).

Table 5. Bivariate analysis of annual episodes of lower back pain and sociodemographic and lifestyle characteristics related to study participants.

Characteristics	Annual Crises of LBP (%)				*p*-Value
	0	1–2	3–6	>6	
Sociodemographic and lifestyle					
Gender					
Male	30	53.2	40	23.1	0.03 *
Female	70	46.8	60	76.9	
Age (Range)					
18–30	8	37	11	4	0.19
31–40	10	29	8	12	
41–50	2	11	5	8	
51–64	0	2	1	2	
Marital status					
Married	40	31.6	40	65.4	0.008 *
Separated/divorced	0	5.1	4	0	
Single	60	63.3	56	26.9	
Widowed	0	0	0	7.7	
Cohabitation					
Living alone	5	21.5	4	7.7	0.04 *
Not living alone	95	78.5	96	92.3	
Parenteral responsibility for children <5 years					
0	85	89.9	84	69.2	0.91
1	15	7.6	16	23.1	
2	0	2.5	0	7.7	
Gross income per year					
EUR $\leq$ 9000	20	13.9	24	42.3	0.01 *
EUR 9001–18,000	65	78.5	60	34.6	
EUR 18,001–30,000	15	5.1	12	11.5	
EUR > 30,000	0	2.5	4	11.5	
Smoker					
No	70	75.9	32	61.5	0.002 *
$\leq$11 cigarettes	5	15.2	36	23.1	
>11 cigarettes	25	8.9	32	23.1	
Sleep quality					
Very poor	0	3.8	0	7.7	0.004 *
Poor	10	10.1	20	11.5	
Normal	35	21.5	52	53.8	
Solid	45	58.2	24	11.5	
Excellent	10	6.3	4	15.4	

Values are expressed as frequency (percentage) for categorical variables; *: *p*-value < 0.05 was considered significant, according to the Pearson χ^2 test.

Table 6. Bivariate analysis of annual episodes of lower back pain and labor catering characteristics related to study participants.

Labor Catering Characteristics					
Employment status					
Apprentice	0	0	4	0	0.002 *
Assistant	5	2.5	16	11.5	
Waiter	0	17.7	28	7.7	
Cook	10	1.3	4	0	
Managing director	5	0	0	7.7	
Foreman	15	29.1	16	30.8	
Principal manager	5	1.3	8	7.7	
Boss	0	2.5	8	7.7	
Staff	60	45.6	16	23.1	
Supervisor	0	0	0	3.8	
Kind of work					
Non-manual	30	46.8	0	0	0.001 *
Manual	40	17.7	52	42.3	
Intermediate position	20	25.3	32	19.2	
Managerial position	0	1.3	0	3.8	
Senior management	5	1.3	0	7.7	
Self-employed	5	7.6	16	26.9	
Weekly working hours					
1–24 h	35	5.1	12	15.4	0.001 *
25–40 h	55	75.9	56	42.3	
>41 h	10	19	32	42.3	
Working hours					
Flexible schedule	35	35.4	12	11.5	0.001 *
Rotating shifts	10	32.9	16	15.4	
Fixed shift starting	10	11.4	20	26.9	
Fixed intensive work	10	7.6	24	26.9	
Part-time	20	2.5	0	3.8	
Fixed shift	15	10.1	28	15.4	

Values are expressed as frequency (percentage) for categorical variables; *: p-value < 0.05 was considered significant, according to the Pearson χ^2 test.

3.4. Analysis of Annual Crises of Lower Back Pain, Sequalae's, and Clinical Characteristics

A total of 15.3% of the participants who suffered more than six LBP crises per year were unable to go to work ($p = 0.001$). Additionally, 65.4% of these hoteliers scored > 14 on the FABQ questionnaire [34] ($p = 0.001$). Also, 83.3% of the participants with sciatica had a duration of LBP crises > 30 days ($p = 0.001$) (Table 7).

Table 7. Bivariate analysis of annual episodes of lower back pain and its aftermath and clinical characteristics related to study participants.

Characteristics	Annual Crises of LBP (%)				*p*-Value
	0	1–2	3–6	>6	
Aftermath of the lower back pain characteristics					
Longer duration of lower back pain crisis					
≤1 day	100	60.8	8.3	3.8	0.001 *
2–14 days	0	30.4	79.2	50	
15–30 days	0	7.6	0	11.5	
>30 days	0	1.3	12.5	34.6	
Lower back pain plus sciatica pain crisis					
Yes	11.1	19	75	65.4	0.001 *
No	88.9	81	25	34.6	
Working capability					
Totally disabled from work	0	0	0	19.2	0.001 *
Partially disabled from work	10	5.1	24	15.3	
Possibility to for work	20	10.2	22	19.2	
Able to work	30	24.1	36	30.7	
Totally able to work	40	60.8	8	15.4	
Clinical characteristics					
Disability from lower back pain [1]					0.16
Fear avoidance beliefs by work [2]					
≤14 score	65	63.3	16	34.6	0.001 *
>14 score	35	36.7	84	65.4	
	≤1 day	2–14 days	15–30 days	>30 days	
Sciatica vs. duration of lower back pain					
Yes	16.1	54.5	62.5	83.3	0.001 *
No	83.9	45.5	37.5	16.7	

Abbreviations = LBP: lower back pain; values are expressed as frequency (percentage) for categorical variables; *: *p*-value < 0.05 was considered significant, according to the Pearson χ^2 test. [1] Evaluated by the Spanish version of the Roland–Morris questionnaire in patients with lower back pain, adapted from Kovacs et al. [33]; [2] assessed by the Spanish version of the Fear Avoidance Beliefs Questionnaire (FABQ) in patients with lower back pain, adapted from Kovacs et al. [34].

3.5. Analysis of Annual Crises of Lower Back Pain, Gender, and Sciatica

A total of 87.5% of the participants who suffered LBP crises from 15 to 30 days were female ($p = 0.04$), and 70.6% of the hoteliers with LBP crises who also presented sciatica were female ($p = 0.01$) (Table 8).

Table 8. Bivariate analysis of annual episodes of lower back pain and gender.

Characteristics	Days of Crises of LBP (%)				*p*-Value
LBP duration	≤1 d	2–14 d	15–30 d	>30 d	
Male	56.5	37.5	12.5	44.7	0.04 *
Female	43.5	62.5	87.5	66.7	
	Plus Sciatica (%)				
Sciatica	Yes		No		
Male	29.4		51.7		0.01 *
Female	70.6		48.3		

Abbreviations = LBP: lower back pain; values are expressed as frequency (percentage) for categorical variables; *: *p*-value < 0.05 was considered significant, according to the Pearson χ^2 test.

4. Discussion

4.1. Prevalence and Gender

The lumbar region is the most frequent location of LBP, and it most frequently (≥70%) corresponds to the lumbar region [35]. According to the 2021 National Health System Report (published in April 2022), LBP in the Spanish population is the second most common chronic health problem, with 18.5% of the population affected, behind arterial hypertension (19.8%) [36]. The 6-month prevalence among the population between 26 and 44 years, which includes working age, is 41%, and the annual prevalence is around 56% [23,37]. However, our workers showed a higher prevalence of LBP (87.1%). We have reported that LBP was significantly related to gender, with women having a higher prevalence than men. Our results were consistent with those reported by Yang et al. [38] on US workers and the report of the Spanish National Health System [36]. These differences, between men and women, could be a consequence of gender segregation in the workforce, different exposures to the same job or task, differences in the methods used to perform the same task, and differences in coping strategies in relation to stress [38]. In addition, women would have more responsibilities at home, dedicating more time to housework than men [39], which could trigger greater crises of LBP. However, men are also vulnerable to LBP due to exposure to occupational risk factors [40].

4.2. Socioeconomic Status and Health Inequalities

The significant relationship between annual income measured in hoteliers and LBP suggests that socioeconomic status could be an important factor in health inequalities. A total of 78.5% of the participants who had one or two episodes of LBP crises had an income range between EUR 9001 and 18,000. These results could be attributed to the fact that this range of salaries corresponded to 66% of the population. However, Suman et al. [41] reported that lower socioeconomic status groups remember more specific information campaigns and, therefore, can help reduce health disparities. In Spain, there is a universal and free health system based on a primary care model that could be effective in reducing health inequalities [42], especially in LBP.

4.3. Unhealthy Lifestyle Habits: Sleep and Smoking

Sleep quality was associated, in a statistically significant way, with LBP. In this sense, people with "normal" sleep quality had more episodes of LBP per year compared to those with good and/or very good sleep quality. These results are consistent with those described by Scarabottolo et al. [43]. Thus, poor sleep quality and LBP would be a public health problem. Also, regarding the relationship between tobacco consumption and LBP, statistical significance was found. In this sense, the smoking participants were more likely to suffer a greater number of LBP crises. Our results were consistent with those of a cross-sectional study conducted on 150 patients [43]. These results could suggest that smoking increases the chances of LBP.

4.4. Labor Variables and LBP

A statistically significant relationship was established between the labor variables and LBP, in all the aspects studied (employment situation, type of work, weekly working hours, and working hours). To the best of our knowledge, this is the first time that these labor variables have been analyzed. Perhaps it would be interesting to include them in future studies.

4.5. LBP Annual Episodes, Aftermath, and Clinical Characteristics

A total of 88.9% of the participants stated that they did not present sciatica associated with LBP crises. However, a high percentage of patients with ≥3 annual LBP crises had sciatica. Our results could establish a relationship between radicular pain and the duration of the episodes [44]. In addition, this group of patients with ≥3 LBP plus sciatica obtained a score > 14 on the FAB questionnaire, which could indicate that it was related

to poor fear avoidance beliefs. These patients with repetitive LBP plus sciatica would have substantially worse fear avoidance beliefs than those with LBP of a shorter duration and without sciatica [44]. In this way, LBP has somatic, psychological, and/or social pathologies [45]. Thus, psychological indicators such as depression, anxiety, fear avoidance, and low self-efficacy are associated with an increased risk of developing pain and disability in LBP patients [46]. Fear avoidance beliefs have been suggested to be a good predictor of long-term sick leave, disability, and pain in patients with LBP [46]. Overall, in LBP patients, there is a close relationship between the fear of patients with LBP. In such a way, in these patients it is fear—and not pain—that is mainly responsible for the reduction in quality of life and social costs [46]. In our study, most of the population studied felt capable of going to work, which suggests that the subjects of our study have developed coping strategies and adaptation processes, reducing fear avoidance beliefs, which have allowed them to obtain an acceptable level of well-being. Perhaps, in our Spanish patients with LBP, fear does not seem to predict the evolution of disability or influence absenteeism due to LBP.

4.6. Practical Applications

It would be very appropriate to carry out interventions focused on postural education and the promotion of self-care in this type of worker because most of them perform shift work (SW). In this sense, it must be considered that SW is the main work schedule worldwide and has been significantly associated with lower back pain [47], especially in overweight or obese workers [48]. Specifically, a multidisciplinary approach is recommended to obtain good results. Thus, correct assessment, early diagnosis, psychosocial interventions (e.g., multifaceted interventions with education and training sessions with experts to discuss issues related to mental health in the workplace and social awareness campaigns), management of risk factors (e.g., removal of barriers in the workplace, safety at work, management of aversive factors in the workplace, and promotion of appetitive factors), and the provision of educational content on LBP would be effective to reduce the incidence of WLBP and related absenteeism.

Physical activity (PA) is one of the most important factors in determining health outcomes. It is well established that for many musculoskeletal problems, PA and exercise are the paths to better health [49]. You might think that if a person is active 8 h a day in hospitality work, then that person should be in good health. However, this occupational activity includes lifting objects and performing movements that involve intense contractions of skeletal muscles and increased blood pressure, which is a risk for cardiovascular disease, in addition, the high intensity of the activity could cause musculoskeletal injuries and LBP. Perhaps employers can reduce healthcare costs and benefits by encouraging a healthier workforce. Healthy employees use less time due to illness and LBP, reduce their stress levels, and increase their energy and attention span [50].

5. Conclusions

This cross-sectional pilot study has obtained a high prevalence of LBP, 87.1%, with sex, income, smoking, sleep quality, and all labor variables being the main risk factors for LBP in Spanish hoteliers. Furthermore, the highest number of LBP crises was associated with sciatica. However, our participants have developed coping strategies and adaptation processes, reducing fear avoidance beliefs.

5.1. Limitations

The authors of this study acknowledge several limitations. First, the small sample size. The total number of hostelry workers in León is close to 10,000 subjects. Taking into account a sampling error of 4%, 587 subjects would be necessary; however, the sample size of this study is 150. Second, 90% of the subjects worked in a private entity. Most of the hostelry businesses belong to private entities, so it is not surprising that 90% of the sample pertains to private entities. For this reason, the results should not be generalized to the public sector. Third, our study only included hospitality workers from a single León province in

Spain; therefore, we caution against generalizing the results to other geographic locations. However, León has recently been chosen as the Spanish city of gastronomy [51,52], which meant a huge influx of visitors and tourists, so the work of hostelry employees increased significantly, and with it the working hours and effort. Unfortunately, employers did not take adequate measures regarding industrial hygiene or occupational ergonomics. For this reason, the study of the main risk factors related to LBP hostelry workers in León province seemed pertinent to us, and the opportunity of the moment was unique and optimal. In addition, our study has a cross-sectional pilot study design. Therefore, the results we provide in this cross-sectional pilot study should be taken with a grain of salt, and given the limitations, we caution against generalizing the results without further investigation. However, we believe that our methodology for obtaining information through the questionnaires used in this study was adequate, which allowed us to rigorously evaluate and present results. In addition, our study was performed following the STROBE rules [30].

5.2. Futures Scenarios

Future lines of research are needed to collect measures on work variables, including sick leave, to establish their relationship and LBP. In complementary studies, the types of physical activity should be specified. In the same way, it would be of great interest to carry out a cost-effectiveness study of prevention measures, given the high economic and social cost of temporary work disabilities derived from lower back pain.

Also, the relationship between chronic non-communicable diseases (NCDs) and LBP should be considered. In this sense, NCDs and musculoskeletal conditions have a significant global burden and often coexist. Musculoskeletal conditions may contribute to the development of chronic diseases [53]. In fact, LBP is a common problem in diabetic patients in terms of the intensity, frequency, and functional level of disability. This could be due to the abnormal deposition of collagen in the periarticular connective tissues, altering the structural matrix and the mechanical properties of these tissues [54]. LBP was associated with a higher prevalence of myocardial infarction and coronary heart disease due to early genetic and environmental influences [55].

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. STROBE statement—checklist of items that should be included in reports of cross-sectional studies.

	Item No.	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract
		(b) Provide in the abstract an informative and balanced summary of what was performed and what was found
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any prespecified hypotheses
Methods		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(a) Give the eligibility criteria and the sources and methods of selection of participants
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/measurement	8 *	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding
		(b) Describe any methods used to examine subgroups and interactions
		(c) Explain how missing data were addressed
		(d) If applicable, describe analytical methods taking account of sampling strategy
		(e) Describe any sensitivity analyses
Results		
Participants	13 *	(a) Report numbers of individuals at each stage of study—e.g., numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed
		(b) Give reasons for non-participation at each stage
		(c) Consider the use of a flow diagram
Descriptive data	14 *	(a) Give characteristics of study participants (e.g., demographic, clinical, social) and information on exposures and potential confounders
		(b) Indicate the number of participants with missing data for each variable of interest
Outcome data	15 *	Report numbers of outcome events or summary measures
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included
		(b) Report category boundaries when continuous variables were categorized
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period

Table A1. *Cont.*

	Item No.	Recommendation
Other analyses	17	Report other analyses performed—e.g., analyses of subgroups and interactions and sensitivity analyses
Discussion		
Key results	18	Summarize key results with reference to study objectives
Limitations	19	Discuss the limitations of the study, taking into account sources of potential bias or imprecision. Discuss both the direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of the results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalizability	21	Discuss the generalizability (external validity) of the study results
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

* Give information separately for exposed and unexposed groups. Note: An explanation and elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/) (accessed on 15 May 2023). Information on the STROBE initiative is available at www.strobe-statement.org (accessed on 15 May 2023).

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