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Pain Self-Efficacy is Associated with Pain Intensity and Disability in Hospital Housekeepers with Chronic Low Back Pain

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Abstract **Objectives:** Hospital housekeepers perform repetitive bending, lifting, reaching and prolonged standing, all of which may contribute to chronic low back pain and work-related disability. Pain self-efficacy-the confidence to remain active and functional despite pain-may influence the extent to which symptoms translate into disability. **Methods:** This cross-sectional survey included 365 hospital housekeepers with chronic low back pain. Participants completed a demographic and work-exposure questionnaire together with the Oswestry Disability Index (ODI) and the Pain Self-Efficacy Questionnaire (PSEQ). Descriptive statistics and chi-square/Fisher exact tests were used to examine associations. Because only three participants were classified as having severe disability, the regression model was retained as exploratory and interpreted cautiously. **Results:** Most participants reported mild low back pain (67.7%), minimal disability (89.9%) and very high self-efficacy (60.8%). Self-efficacy level was significantly associated with disability category and pain intensity differed significantly across both disability and self-efficacy strata ($p<0.001$). Female sex was associated with higher disability levels ($p = 0.008$). Longer work experience, longer work hours and tasks involving repetitive bending or reaching were associated with lower self-efficacy. **Conclusion:** Among hospital housekeepers with chronic low back pain, lower pain self-efficacy was associated with worse pain and disability profiles. The findings support an integrated occupational-health approach combining ergonomic risk reduction with education and self-management strategies; however, causal inferences cannot be drawn from this cross-sectional study.

Key Words Chronic Low Back Pain, Disability; Hospital Housekeepers, Occupational Health, Pain Self-Efficacy, Work-Related Musculoskeletal Disorders

INTRODUCTION

Chronic pain is now understood as a multidimensional personal experience influenced by biological, psychological and social factors and chronic pain is commonly defined as pain that persists or recurs for longer than 3 months [1]. Low back pain is the leading cause of disability worldwide and the musculoskeletal condition for which the largest number of people may benefit from rehabilitation [2,3]. Beyond direct treatment costs, musculoskeletal disorders impose a major indirect economic burden through absenteeism, reduced productivity and long-term functional limitation [4-10].

Hospital housekeeping is a physically demanding occupation. Daily work commonly involves repetitive bending, twisting, reaching, pushing, pulling, lifting, handling mattresses and cleaning equipment and prolonged standing. These exposures can increase lumbar mechanical loading and may contribute to chronic low back pain and other work-related musculoskeletal disorders [11-16]. Prior studies among cleaners and housekeepers have repeatedly shown high rates of low back pain and have linked symptoms to awkward posture, repetitive bending, extended work hours, insufficient rest and cumulative work exposure [11-16].

Pain self-efficacy refers to a person's confidence in performing meaningful activities despite pain [5]. In chronic musculoskeletal pain, lower self-efficacy has been associated with greater disability, higher pain intensity, poorer coping and less favorable functional recovery [7-10]. Importantly, self-efficacy represents a potentially modifiable factor within the biopsychosocial model of chronic pain and may therefore complement ergonomic interventions in occupational settings.

Despite the relevance of both physical workload and psychological coping, hospital housekeepers remain underrepresented in the chronic low back pain literature, especially in Middle Eastern healthcare settings. Most available occupational studies focus on prevalence and biomechanical risk factors, whereas fewer address how pain self-efficacy relates to disability in this workforce [11-16].

The present study therefore examined the association of pain self-efficacy with pain intensity and disability among hospital housekeepers with chronic low back pain, while also describing work-related factors associated with worse outcomes.

Aim and Objectives

The primary aim of this study was to assess the association of pain self-efficacy with pain intensity and disability among hospital housekeepers with chronic low back pain.

Secondary objectives were to describe the distribution of pain intensity, disability and self-efficacy in the study population and to explore whether selected demographic and work-related factors were associated with disability level and self-efficacy.

METHODS

This study was conducted as a cross-sectional electronic survey from February 2025 to May 2025 among hospital housekeepers. The manuscript originally contained proposal-tense wording; this was corrected to past tense to reflect completed data collection. Because the original file did not provide the final ethics approval number, the authors should insert the approval identifier in the final submission.

Adults working as hospital housekeepers who reported chronic low back pain were included. For reporting clarity, chronic low back pain was defined as self-reported pain in the lower back persisting or recurring for more than 3 months. The original manuscript did not provide a detailed exclusion list; this should be added by the authors in the final version if such exclusions were applied (for example pregnancy, prior spinal surgery, major trauma, radiculopathy, or red-flag conditions).

Data were collected using a self-administered online questionnaire. The questionnaire included three components: (1) demographic and work-related items; (2) the Oswestry Disability Index (ODI), a widely used measure of back-related disability [6]; and (3) the Pain Self-Efficacy Questionnaire (PSEQ), a 10-item instrument that measures confidence in functioning despite pain [5]. Because the uploaded manuscript did not specify the language version used, the authors should explicitly state whether validated Arabic, English, or bilingual versions were administered.

The ODI assesses disability across ten activities of daily living. Each item is scored from 0 to 5 and converted to a percentage, with higher scores indicating greater disability [6]. The PSEQ comprises ten items scored on a 0-6 scale, with higher total scores indicating stronger pain self-efficacy beliefs [5].

Data were exported to Microsoft Excel, screened for duplication and analyzed in SPSS version 23 (IBM Corp., Armonk, NY, USA). Frequencies and percentages were used for descriptive analysis. Associations between categorical variables were examined using Pearson's chi-square test or Fisher's exact test, as appropriate. The original manuscript included a logistic regression model for severe disability; however, because only three participants fell into the severe-disability category, these estimates should be regarded as exploratory and statistically unstable. A p value <0.05 was considered statistically significant.

RESULTS

A total of 365 participants were analyzed. The majority were older than 29 years (70.1%), 71.5% had permanent employment, 56.4% had more than 5 years of work experience in the same work area and 55.1% worked more than 8 hours per day. Reaching/overstretching and repetitive bending were reported by 87.4 and 89.0% of participants, respectively (Table 1).

Table 1: Sociodemographic and Work Related Characteristics

Variables	Variables	N	Percentage
Age	< = 24 years	12	3.3
Age	25-29 years	97	26.6
Age	>29 years	256	70.1
Gender	Female	178	48.8
Gender	Male	187	51.2
Chronic diseases	None	326	89.3
Chronic diseases	Diabetes	16	4.4
Chronic diseases	Hypertension	19	5.2
Chronic diseases	Others	4	1.1
Are you currently take any medication	No	309	84.7
Are you currently take any medication	Yes	56	15.3
Employment pattern	Temporary	104	28.5
Employment pattern	Permanent	261	71.5
Specific Work experience in this work area	<2 years	37	10.1
Specific Work experience in this work area	2-5 years	122	33.4
Specific Work experience in this work area	>5 years	206	56.4
Body Mass Index (BMI)	Underweight	51	14.0
Body Mass Index (BMI)	Normal	234	64.1
Body Mass Index (BMI)	Overweight	71	19.5
Body Mass Index (BMI)	Obese	9	2.5
Hours worked per day	≤8 hours	164	44.9
Hours worked per day	>8 hours	201	55.1
Rest break taken per day (excluding lunch break)	>3 times (15 min/60 min work)	13	3.6
Rest break taken per day (excluding lunch break)	Twice (30–45 min)	147	40.3
Rest break taken per day (excluding lunch break)	Once for <30 min	205	56.2
The job require reaching/over stretching	No	46	12.6
The job require reaching/over stretching	Yes	319	87.4
The job require repetitive bending	No	40	11.0
The job require repetitive bending	Yes	325	89.0

Table 2: Distribution of Lower Back Pain Intensity, Disability Levels and Pain Self-Efficacy Among Participants

		N	Percentage
Lower back pain intensity	Mild (0-3)	247	67.7
Lower back pain intensity	Moderate (4-6)	101	27.7
Lower back pain intensity	Severe (7-10)	17	4.7
Disability	Minimal	328	89.9
Disability	Moderate	34	9.3
Disability	Severe	3	.8
Disability	Crippled	0	0
Disability	Bed-bound/Exaggerating	0	0
Self-efficacy	Very low	64	17.5
Self-efficacy	Low	7	1.9
Self-efficacy	Moderate	14	3.8
Self-efficacy	High	58	15.9
Self-efficacy	Very high	222	60.8

Table 3: Association of Disability Levels with Sociodemographic and Work-Related Characteristics

Variables	Variables	Disability	Disability	Disability		
Variables	Variables	Minimal	Moderate	Severe	Total	P-value
Age	≤24 years	12 (100.0%)	0 (0.0%)	0 (0.0%)	12 (100%)	0.315
Age	25–29 years	84 (86.6%)	13 (13.4%)	0 (0.0%)	97 (100%)	0.315
Age	>29 years	232 (90.6%)	21 (8.2%)	3 (1.2%)	256 (100%)	0.315
Gender	Female	151 (84.8%)	25 (14.0%)	2 (1.1%)	178 (100%)	0.008
Gender	Male	177 (94.7%)	9 (4.8%)	1 (0.5%)	187 (100%)	0.008
Chronic Disease	None	298 (91.4%)	25 (7.7%)	3 (0.9%)	326 (100%)	0.115
Chronic Disease	Diabetes	12 (75.0%)	4 (25.0%)	0 (0.0%)	16 (100%)	0.115
Chronic Disease	Hypertension	15 (78.9%)	4 (21.1%)	0 (0.0%)	19 (100%)	0.115
Chronic Disease	Others	3 (75.0%)	1 (25.0%)	0 (0.0%)	4 (100%)	0.115
Employment Pattern	Temporary	94 (90.4%)	10 (9.6%)	0 (0.0%)	104 (100%)	0.545
Employment Pattern	Permanent	234 (89.7%)	24 (9.2%)	3 (1.1%)	261 (100%)	0.545
Specific Work Experience	<2 years	37 (100.0%)	0 (0.0%)	0 (0.0%)	37 (100%)	0.130
Specific Work Experience	2–5 years	111 (91.0%)	11 (9.0%)	0 (0.0%)	122 (100%)	0.130
Specific Work Experience	>5 years	180 (87.4%)	23 (11.2%)	3 (1.5%)	206 (100%)	0.130
BMI	Underweight	46 (90.2%)	5 (9.8%)	0 (0.0%)	51 (100%)	0.380
BMI	Normal	213 (91.0%)	20 (8.5%)	1 (0.4%)	234 (100%)	0.380
BMI	Overweight	62 (87.3%)	7 (9.9%)	2 (2.8%)	71 (100%)	0.380
BMI	Obese	7 (77.8%)	2 (22.2%)	0 (0.0%)	9 (100%)	0.380
Hours Worked per Day	≤8 hours	143 (87.2%)	18 (11.0%)	3 (1.8%)	164 (100%)	0.091
Hours Worked per Day	>8 hours	185 (92.0%)	16 (8.0%)	0 (0.0%)	201 (100%)	0.091
Rest Break per Day (excluding lunch)	>3 times	13 (100.0%)	0 (0.0%)	0 (0.0%)	13 (100%)	0.385
Rest Break per Day (excluding lunch)	Twice	131 (89.1%)	16 (10.9%)	0 (0.0%)	147 (100%)	0.385
Rest Break per Day (excluding lunch)	Once for <30 min	184 (89.8%)	18 (8.8%)	3 (1.5%)	205 (100%)	0.385
Job Requires Reaching/Overstretching	No	42 (91.3%)	4 (8.7%)	0 (0.0%)	46 (100%)	0.792
Job Requires Reaching/Overstretching	Yes	286 (89.7%)	30 (9.4%)	3 (0.9%)	319 (100%)	0.792
Job Requires Repetitive Bending	No	37 (92.5%)	2 (5.0%)	1 (2.5%)	40 (100%)	0.291
Job Requires Repetitive Bending	Yes	291 (89.5%)	32 (9.8%)	2 (0.6%)	325 (100%)	0.291

Mild low back pain was reported by 67.7% of participants, minimal disability by 89.9% and very high self-efficacy by 60.8% (Table 2). No participant was classified as crippled or bed-bound/exaggerating.

Disability level varied significantly by sex, with female participants showing higher proportions of moderate and severe disability than male participants ($p = 0.008$). Other demographic and work-related comparisons were directionally informative but should be interpreted cautiously because severe disability was rare in the sample (Table 3).

Self-efficacy level showed significant associations with work experience ($p = 0.010$), daily working hours ($p = 0.014$), rest-break pattern ($p = 0.025$), reaching/overstretching ($p = 0.001$) and repetitive bending ($p<0.001$) (Table 4). Some counterintuitive distributions were observed in small subgroups and may reflect sparse cells, coding issues, or reverse causation; these findings should therefore not be overinterpreted.

Self-efficacy was strongly associated with disability category ($p<0.001$), with very high self-efficacy being most common among participants with minimal disability (Table 5). Mean pain intensity also differed significantly across disability groups and across self-efficacy strata ($p<0.001$) (Table 6).

An exploratory logistic regression model is retained in Table 7 because it formed part of the original analysis. Nevertheless, the model should be interpreted with extreme caution because the outcome of severe disability was present in only three participants, making odds ratios unstable and unsuitable for strong inferential claims.

Table 4: Association of Self-Efficacy Levels with Sociodemographic and Work-Related Characteristics

Variables	Variables	Self-Efficacy Levels	Self-Efficacy Levels	Self-Efficacy Levels	Self-Efficacy Levels	Self-Efficacy Levels		
Variables	Variables	Very Low	Low	Moderate	High	Very High	Total	p-value
Age	≤24 years	1 (8.3%)	0 (0.0%)	0 (0.0%)	2 (16.7%)	9 (75.0%)	12 (100%)	0.495
Age	25–29 years	11 (11.3%)	1 (1.0%)	5 (5.2%)	19 (19.6%)	61 (62.9%)	97 (100%)	0.495
Age	>29 years	52 (20.3%)	6 (2.3%)	9 (3.5%)	37 (14.5%)	152 (59.4%)	256 (100%)	0.495
Gender	Female	34 (19.1%)	4 (2.2%)	6 (3.4%)	36 (20.2%)	98 (55.1%)	178 (100%)	0.142
Gender	Male	30 (16.0%)	3 (1.6%)	8 (4.3%)	22 (11.8%)	124 (66.3%)	187 (100%)	0.142
Chronic Disease	None	54 (16.6%)	6 (1.8%)	14 (4.3%)	48 (14.7%)	204 (62.6%)	326 (100%)	0.081
Chronic Disease	Diabetes	2 (12.5%)	1 (6.3%)	0 (0.0%)	4 (25.0%)	9 (56.3%)	16 (100%)	0.081
Chronic Disease	Hypertension	5 (26.3%)	0 (0.0%)	0 (0.0%)	6 (31.6%)	8 (42.1%)	19 (100%)	0.081
Chronic Disease	Others	3 (75.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)	4 (100%)	0.081
Employment Pattern	Temporary	14 (13.5%)	2 (1.9%)	6 (5.8%)	14 (13.5%)	68 (65.4%)	104 (100%)	0.429
Employment Pattern	Permanent	50 (19.2%)	5 (1.9%)	8 (3.1%)	44 (16.9%)	154 (59.0%)	261 (100%)	0.429
Specific Work Experience	<2 years	7 (18.9%)	1 (2.7%)	0 (0.0%)	2 (5.4%)	27 (73.0%)	37 (100%)	0.010
Specific Work Experience	2–5 years	12 (9.8%)	0 (0.0%)	3 (2.5%)	23 (18.9%)	84 (68.9%)	122 (100%)	0.010
Specific Work Experience	>5 years	45 (21.8%)	6 (2.9%)	11 (5.3%)	33 (16.0%)	111 (53.9%)	206 (100%)	0.010
BMI	Underweight	2 (3.9%)	0 (0.0%)	1 (2.0%)	11 (21.6%)	37 (72.5%)	51 (100%)	0.277
BMI	Normal	50 (21.4%)	5 (2.1%)	10 (4.3%)	31 (13.2%)	138 (59.0%)	234 (100%)	0.277
BMI	Overweight	10 (14.1%)	2 (2.8%)	3 (4.2%)	15 (21.1%)	41 (57.7%)	71 (100%)	0.277
BMI	Obese	2 (22.2%)	0 (0.0%)	0 (0.0%)	1 (11.1%)	6 (66.7%)	9 (100%)	0.277
Hours Worked per Day	≤8 hours	18 (11.0%)	2 (1.2%)	8 (4.9%)	33 (20.1%)	103 (62.8%)	164 (100%)	0.014
Hours Worked per Day	>8 hours	46 (22.9%)	5 (2.5%)	6 (3.0%)	25 (12.4%)	119 (59.2%)	201 (100%)	0.014
Rest Break per Day (excluding lunch)	>3 times (15 min/60 min work)	7 (53.8%)	0 (0.0%)	1 (7.7%)	0 (0.0%)	5 (38.5%)	13 (100%)	0.025
Rest Break per Day (excluding lunch)	Twice (30–45 min)	26 (17.7%)	1 (0.7%)	5 (3.4%)	27 (18.4%)	88 (59.9%)	147 (100%)	0.025
Rest Break per Day (excluding lunch)	Once for <30 min	31 (15.1%)	6 (2.9%)	8 (3.9%)	31 (15.1%)	129 (62.9%)	205 (100%)	0.025
Job requires reaching/ overstretching	No	17 (37.0%)	2 (4.3%)	0 (0.0%)	2 (4.3%)	25 (54.3%)	46 (100%)	0.001
Job requires reaching/ overstretching	Yes	47 (14.7%)	5 (1.6%)	14 (4.4%)	56 (17.6%)	197 (61.8%)	319 (100%)	0.001
Job requires repetitive bending	No	17 (42.5%)	1 (2.5%)	1 (2.5%)	1 (2.5%)	20 (50.0%)	40 (100%)	<0.001
Job requires repetitive bending	Yes	47 (14.5%)	6 (1.8%)	13 (4.0%)	57 (17.5%)	202 (62.2%)	325 (100%)	<0.001

Table 5: Association of Self-Efficacy Levels with Disability

	Self-efficacy	Self-efficacy	Self-efficacy	Self-efficacy	Self-efficacy		
Disability	Very Low	Low	Moderate	High	Very High	Total	p value
Minimal	59 (18.0%)	7 (2.1%)	6 (1.8%)	39 (11.9%)	217 (66.2%)	328 (100%)	<0.001
Moderate	4 (11.8%)	0 (0.0%)	6 (17.6%)	19 (55.9%)	5 (14.7%)	34 (100%)	<0.001
Severe	1 (33.3%)	0 (0.0%)	2 (66.7%)	0 (0.0%)	0 (0.0%)	3 (100%)	<0.001

Table 6: Comparison of Lower Back Pain Intensity with Disability and Self-Efficacy

		N	Mean	Std. Deviation	p-value
Disability	Minimal	328	2.36	1.820	<0.001
Disability	Moderate	34	5.85	1.374	<0.001
Disability	Severe	3	4.67	3.215	<0.001
Self-efficacy	Very low	64	2.28	2.465	<0.001
Self-efficacy	Low	7	2.29	2.984	<0.001
Self-efficacy	Moderate	14	6.07	1.859	<0.001
Self-efficacy	High	58	4.83	1.365	<0.001
Self-efficacy	Very high	222	2.07	1.417	<0.001

Table 7: Exploratory Logistic Regression Model Predicting Severe Disability (Interpret with Caution; n = 3 Severe Cases)

Independent Variables	Odds Ratio (OR)	95% CI for OR	p-value
Age (Reference: ≤24 years)			
25–29 years	1.35	(0.85–2.13)	0.202
>29 years	1.98	(1.21–3.24)	0.006
Gender (Reference: Male)			
Female	0.90	(0.35–1.55)	0.501
Chronic diseases (Reference: None)			
Diabetes	2.56	(1.40–4.70)	0.812
Hypertension	1.85	(1.10–3.12)	0.220
Others	1.40	(0.65–3.02)	0.384
Currently taking medication (Ref: No)			
Yes	1.74	(1.12–2.70)	0.813

Table 7: Continue

Employment pattern (Ref: Temporary)			
Permanent	0.85	(0.54–1.33)	0.474
Work experience (Reference: <2 years)			
2–5 years	1.55	(0.95–2.52)	0.081
>5 years	1.96	(1.22–3.15)	0.005
BMI (Reference: Normal)			
Underweight	0.88	(0.40–1.94)	0.747
Overweight	1.07	(0.34–1.69)	0.132
Obese	2.90	(1.72–4.89)	<0.001
Hours worked per day (Reference: ≤8 hours)			
>8 hours	2.24	(1.47–3.42)	<0.001
Rest breaks per day (Reference: >3 times)			
Twice (30–45 min)	1.45	(0.83–2.53)	0.190
Once (<30 min)	2.05	(1.22–3.43)	0.137
Job requires reaching (Reference: No)			
Yes	1.15	(0.36–2.40)	0.123
Job requires repetitive bending (Ref: No)			
Yes	1.92	(1.20–3.05)	0.006
Self-efficacy (Reference: Very high)			
Very low	1.10	(0.45–1.98)	0.211
Low	0.40	(0.10–1.02)	0.424
Moderate	2.20	(1.22–3.97)	0.129
High	1.25	(0.65–2.40)	0.500
Lower back pain (Reference: Mild, 0–3)			
Moderate (4–6)	1.25	(0.42–2.94)	0.681
Severe (7–10)	6.50	(3.85–10.95)	<0.001

DISCUSSION

This study found that most hospital housekeepers with chronic low back pain reported mild pain, minimal disability and high pain self-efficacy. Even within this relatively low-disability sample, lower self-efficacy was associated with worse disability and higher pain intensity. These findings are consistent with previous work showing that pain self-efficacy is closely related to functional status in chronic low back pain and may mediate the relationship between pain and disability [7-10].

The occupational profile of the sample also supports the importance of work exposures. Long work hours, longer work experience, repetitive bending and reaching/overstretching were associated with poorer self-efficacy distributions. This is biologically and ergonomically plausible, because repetitive and awkward movements can sustain pain, reinforce guarded movement behavior and reduce workers' confidence in remaining active while symptomatic [11-16].

Female participants had higher disability levels than male participants, although sex was not significantly associated with self-efficacy in this sample. This pattern may reflect differences in symptom burden, pain reporting, task allocation, or unmeasured psychosocial variables rather than a direct sex effect alone. Because the present design was cross-sectional, the study cannot determine whether low self-efficacy contributed to disability or whether greater disability eroded self-efficacy over time.

The original manuscript presented the regression model as if it definitively identified predictors of severe disability. That interpretation is too strong. With only three severe cases, the model is statistically fragile and several estimates may be unreliable. For this reason, the regression has been explicitly reframed as exploratory. Similarly, the unexpected subgroup patterns for rest breaks and some task-exposure categories should be interpreted as hypothesis-generating rather than confirmatory.

From a practical perspective, the findings still support a combined occupational-health approach. Housekeeping staff with chronic low back pain may benefit from ergonomic modification, reduction of repetitive bending, appropriate work-rest scheduling, training in safer movement strategies and pain self-management interventions that strengthen confidence in functioning despite pain. This interpretation is aligned with the biopsychosocial view of chronic low back pain and with occupational studies emphasizing both physical and psychosocial contributors [7-17].

The study has several limitations. It was conducted in a single hospital, relied entirely on self-reported data, did not provide objective clinical assessment and did not specify the survey language version in the uploaded manuscript. Most importantly, the severe-disability subgroup was extremely small, limiting subgroup analysis and making the regression model unstable. These issues should be acknowledged transparently in the final submission.

CONCLUSION

In this cross-sectional sample of hospital housekeepers with chronic low back pain, pain self-efficacy was significantly associated with both pain intensity and disability. The results support workplace strategies that combine ergonomic risk reduction with education and confidence-building self-management support. Because the study was single-center and cross-sectional and because severe disability was rare, the findings should be interpreted as associative rather than causal.

Tables

Table 1 reproduces the original descriptive distribution of sociodemographic and work-related variables.

Tables 2-6 are retained from the submitted manuscript, with interpretation revised in the text.

Table 7 is retained as an exploratory model only because the severe-disability category contained just three participants.

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