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QUALITY OF LIFE AND PRODUCTIVITY LOSS COST ASSOCIATED WITH LOW BACK PAIN BY SEVERITY IN KOREA

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Background

- Low back pain is a musculoskeletal problem causing significant discomfort. It adversely affects quality of life and work productivity, resulting in economic burdens and decrease well-being.
- The previous studies has shown that health-related quality of life and lost productivity costs increase with the severity of pain.
- This study aims to determine the burden of disease in patients with low back pain by measuring the productivity loss cost and quality of life according to the severity of pain.

Methods

Study design: A randomized controlled multicenter pilot study

Outcomes: Health-related quality of life and Productivity loss cost

- Health-related quality of life: Quality of life was measured with a validated Korean version of the EuroQol-5-dimension-5-level (EQ-5D-5L) at baseline. The utility weights will be derived using the EQ-5D tariff for the Korean population.
- Productivity loss cost: Productivity loss cost was measured with a validated Korean version of iMTA Productivity Cost Questionnaire (iPCQ) at baseline.

Eligible criteria

Participants aged 19-65 with low back pain (lasting over 2 weeks) and pain level ≥5 on NRS.

Voluntary participation with signed consent.

Statistical analysis

- Baseline characteristics and outcomes were summarized descriptive analysis. We measured mean and standard deviation for continuous variables and summed counts and percentage for categorical variables.
- Independent t-test and fisher exact test were used to investigate the baseline characteristics of study population.
- Subgroup analysis was performed in a moderate group (4≤NRS<7) and a severe group (NRS≥7) using independent t-test for comparison.
- A p-value of less than 0.05 was considered statistically significant.
- All data were analyzed using SAS 9.4 version (SAS Institute Inc., Cary, NC, USA).

Discussion

- This study indicate no significant productivity loss attributable to absenteeism. Furthermore, presenteeism is higher than absenteeism, which suggests that patients are working despite low back pain, although they may be less productive.
- The severe group had a higher cost of unpaid work compared to the moderate group. It may indicate that their low back pain is so disabling that they are unable to perform unpaid work.
- Patients with low back pain had lower quality of life compared to the general Korean population, and quality of life decreased significantly with increasing pain intensity.

Conclusions

- We found differences in quality of life and productivity loss costs according to severity in low back pain patients.
- These estimates could be used in quantifying the benefit of improving the quality of life and productivity loss when effectively managing Low back pain patients by severity level.

References

1. Mutubuki, E. N., et al. "The longitudinal relationships between pain severity and disability versus health-related quality of life and costs among chronic low back pain patients." Quality of life research 29 (2020): 275-287.
2. Szende, Agota, Bas Janssen, and Juan Cabases. "Self-reported population health: an international perspective based on EQ-5D." (2014): 212.

Results

Baseline characteristics

Table 1. Baseline characteristics

Characteristics	Overall (n=30)	Moderate (n=15)	Severe (n=15)	P -value
Gender, n (%)				
Female	25 (83.3)	12 (80.0)	13 (86.67)	0.500[b]
Age (years), mean (SD)	51.5 (10.3)	50.1 (12.1)	52.9 (8.3)	0.466[a]
BMI (kg/m²), mean (SD)	23.2 (3.1)	22.6 (2.2)	23.9 (3.7)	0.245[a]
Education, n (%)				0.480 [b]
Middle school	2 (6.7)	2 (13.3)	-	
High school	9 (30.0)	3 (20.0)	6 (40.0)	
Junior college	5 (16.7)	3 (20.0)	2 (13.3)	
Bachelor	14 (46.7)	7 (46.7)	7 (46.7)	
Occupation, n (%)				0.818 [b]
Officer	2 (6.7)	2 (13.3)	-	
Practitioner	1 (3.3)	1 (6.7)	-	
Self-employment	1 (3.3)	-	1 (6.7)	
Service	3 (10.0)	1 (6.7)	2 (13.3)	
Homemaker	17 (56.7)	8 (53.3)	9 (60.0)	
Farmer/Fisherman	2 (6.7)	1 (6.7)	1 (6.7)	
Other	4 (13.3)	2 (13.3)	2 (13.3)	

SD, standard deviation; BMI, body mass index; [a] Independent t-test, [b] Fisher exact test

- **Table1** shows the baseline characteristics of patient with low back pain. We identified 30 patients with low back pain, with 15 (50.0%) classified in the moderate group and the same percentage of patients in the severe group. 83.3% of the patients were female.
- Education showed no significant difference between the two groups (p=0.480), with the highest percentage (63.3%) having completed college education.

Health-related quality of life and Productivity loss cost

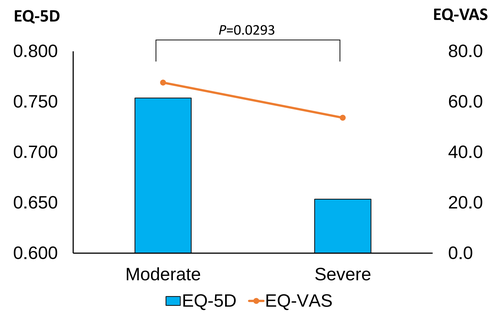

Figure 1. Mean of health-related quality of life in patient with low back pain

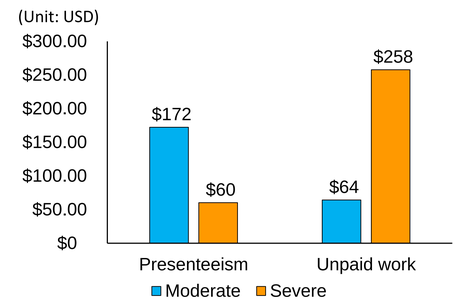

Figure 2. Mean of total productivity loss cost in patient with low back pain (Unit: USD)

Table 2. Productivity loss and health related quality of life value in patient with Low back pain

Loss of Productivity	Overall (n=30)	Moderate (n=15)	Severe (n=15)	P –value
Presenteeism				
Number of patients, n (%)	6 (26.7)	4 (13.3)	2 (13.3)	0.651 [b]
Hours, mean(SD)	6.7 (20.0)	9.9 (25.5)	3.5 (12.4)	0.391[a]
Costs, mean (SD)	$116 (349)	$172 (446)	$60 (216)	0.389 [a]
Unpaid work				
Number of patients, n (%)	10 (33.3)	4 (26.7)	6 (40.0)	0.593 [b]
Hours (SD)	14.4 (36.5)	5.7 (13.2)	23.0 (49.3)	0.208 [a]
Costs, mean (SD)	$161 (409)	$64 (148)	$258 (552)	0.208 [a]
Productivity loss cost, mean (SD)	$277 (511)	$237 (444)	$318 (584)	0.670 [a]
EQ-5D, mean (SD)	0.704 (0.128)	0.754 (0.0604)	0.654 (0.0407)	0.0293 [a]
EQ-VAS, mean (SD)	60.6 (20.9)	67.6 (4.9)	53.7 (20.9)	0.0671 [a]

SD, Standard deviation; EQ-5D, EuroQol-5-dimension;EQ-VAS, EuroQol visual analogue scale.
[a] Independent t-test, [b] Fisher exact test

- Health-related quality of life: **Figure 1** show the Mean of health-related quality of life in patient with low back pain. The mean EQ-5D-5L score for the moderate group was 0.754 (SD 0.0604), and for the severe group was 0.654 (SD 0.0407), with a significant difference of 0.10 points (p<0.05) between the two groups.
- Productivity loss cost: The average productivity loss cost associated with presenteeism, and unpaid work was $116 and $161, respectively, while absenteeism was not identified **(Table 2)**.

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