

Clinical analysis of mental health score in patients with low back pain using JOABPEQ and painDETECT

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Introduction

- ✓ In patients with low back pain (LBP) who combine psychosocial factors with clinical findings of pain, there is a possibility that the psychosocial factors modify the pain.
- ✓ In the current study, we investigated the relationship between the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ) mental health score and the characteristics of LBP.

Methods

✓ 331 patients included in this study

Patients were excluded if they had signs of nerve root compromise, defined as sensory loss and severe motor deficits, or were diagnosed as having poor mental illness with a history of many oral antipsychotics drugs and suicide attempts or metastatic tumors

✓ All patients between the ages of 20 and 79 were asked to complete a set of questionnaires

- Japanese version of the painDETECT (PDQ- J)
- Numeric Rating Scale (NRS)
- Japanese Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ)
- Short Form 36 (SF-36)

In order to examine the effect of mental health, the patients were divided into two groups

✓ JOABPEQ mental health score <50

Low score group

✓ JOABPEQ mental health score ≥ 50

High score group

Results

Characteristic	Mental health of JOABPEQ < 50	Mental health of JOABPEQ ≥ 50	
No. of patients (%)	196 (59.2)	135 (40.8)	
painDETECT (PDQ- J)	13.6 ± 6.3	9.4 ± 5.9	<i>p</i> < .001
mean age ± SD (years)	55.0 ± 15.4	54.0 ± 17.9	<i>p</i> = .896
Sex (Male/Female) (%)	101 / 95 (51.5 / 48.5)	92 / 43 (68.1 / 31.9)	<i>p</i> < .001
Lower limb symptoms (+ / -) (%)	92 / 104 (46.9 / 53.1)	43 / 92 (31.9 / 68.1)	<i>p</i> < .01
Duration of symptom (chronic > 3 months)	No. % 87 44.4	No. % 43 31.9	<i>p</i> < .05
NRS (Present)	6.8 ± 2.2	5.4 ± 2.3	<i>p</i> < .001
NRS (Maximum: 4W)	8.0 ± 2.1	6.4 ± 2.5	<i>p</i> < .001
NRS (Average:4W)	6.2 ± 2.2	4.5 ± 2.2	<i>p</i> < .001

✓ The mean PDQ- J and NRS scores and percentage of LBP patients with lower limb symptoms were higher in the low score group

Results of the SF-36 scores for the patients in the two groups

SF-36	Mental health of JOABPEQ < 50	Mental health of JOABPEQ ≥ 50	<i>p value</i> *
PF	52.8 ± 26.3	74.8 ± 21.2	<.001
RP	48.3 ± 30.2	72.9 ± 24.1	<.001
BP	31.5 ± 19.8	48.2 ± 20.6	<.001
GH	43.7 ± 14.0	61.9 ± 15.3	<.001
VT	35.0 ± 20.1	60.8 ± 16.1	<.001
SF	60.2 ± 29.2	85.1 ± 18.9	<.001
RE	57.4 ± 32.3	82.8 ± 21.1	<.001
MH	50.1 ± 20.1	75.6 ± 13.7	<.001
PCS	27.9 ± 14.8	36.5 ± 11.8	<.05
MCS	44.8 ± 8.8	53.5 ± 8.5	<.001
RCS	37.7 ± 18.2	49.0 ± 11.3	<.001

Results of correlations between the mental health of JOABPEQ score and the various subscales 8 multi subscales

	Mental health (331)	<i>p value</i> *
PF	0.553	<.001
RP	0.545	<.001
BP	0.474	<.001
GH	0.651	<.001
VT	0.686	<.001
SF-36	0.523	<.001
RE	0.537	<.001
MH	0.692	<.001
PCS	0.411	<.001
MCS	0.475	<.001
RCS	0.449	<.001

Results of the JOABPEQ scores for the patients in the two groups

	Mental health of JOABPEQ < 50 Median (Mean± S.D.)	Mental health of JOABPEQ ≥ 50 Median (Mean± S.D.)	<i>p value *</i>
low back pain	29 (31.7± 27.1)	57 (55.1± 30.3)	<.001
lumbar function	42 (43.8± 30.6)	58 (60.4± 27.1)	<.001
walking ability	36 (41.5± 30.6)	71 (66.1± 28.2)	<.001
social life function	38 (37.3± 21.5)	57 (59.2± 20.9)	<.001
mental health	36 (33.2± 13.1)	60 (61.6± 9.9)	<.001

Results of correlations between the mental health of JOABPEQ score and the JOABPEQ subscales

	<i>r</i>	<i>p value *</i>	
low back pain	0.421	<.001	
JOABPEQ (mental health)	lumbar function walking ability social life function	0.397 0.515 0.608	<.001 <.001 <.001

Results of correlations between the mental health of JOABPEQ score and the lower limb symptoms using chi-square test in 331 LBP patients

	Mental health of JOABPEQ < 50	Mental health of JOABPEQ ≥ 50	Total
Lower limb symptoms (-)	104	92	196
Lower limb symptoms (+)	92	43	135
Total	196	135	331

Discussion

Table 1. Characteristics of 20 studies included in the analysis to assess the prevalence rate of the neuropathic pain component in patients with low back pain.

Author, year (Reference number of the study)	Country	Method of Diagnosis [^]	Questionnaire	Sample Size	Duration of LBP#	Prevalence (95% CI)	Study Quality [§] %
Hassan et al, 2004 (34)	SA	1	LANSS	100	Chronic	41 (31.4 – 50.6)	83.3
Kaki et al, 2005 (35)	SA	1	LANSS	1,169	Chronic	54.7 (51.8 – 57.5)	100
Freynhagen et al, 2006 (2)	Germany	1	PDQ	7,772	Chronic	64.7 (63.6 – 65.8)	100
Freynhagen et al, 2006 (27)	Germany	2	-	717	Chronic	33 (29.6 – 36.4)	100
Scholz et al, 2009 (7)	UK	1,2*	StEP	137	Chronic	54.7 (46.4 – 63)	85.71
Sissi et al, 2010 (31)	UAE	1	LANSS	1,134	Chronic	55.4 (52.5 – 58.3)	100
Attal et al, 2011 (24)	France	1	DN4	132	Chronic	70.4 (62.6 – 78.2)	100
Beith et al, 2011 (25)	England, UK	1	PDQ	343	NR	40.5 (35.3 – 45.7)	85.71
Morsø et al, 2011 (28)	Denmark	1	PDQ	145	Chronic	45.5 (37.4 – 53.6)	100
Ouedraogo et al, 2011 (36)	Burkina Faso, Africa	1	DN4	107	Acute/Subacute, Chronic	49.5 (40 – 59)	100
Smart et al, 2012 (29)	Ireland, UK	2	-	464	Acute/Subacute, Chronic	44.8 (40.3 – 49.3)	83.33
				123	Acute/Subacute	32.5 (24.2 – 40.8)	
				341	Chronic	49.3 (44 – 54.6)	
Walsh et al, 2012 (30)	Ireland	1	S-LANSS, DN4*	45	NR	42 (27.6 – 56.4)	85.71
Uher et al, 2012 (9)	Czech Republic	1	PDQ	66	Acute/Subacute, Chronic	71.2 (60.3 – 82.1)	100
				40	Acute/Subacute	70 (55.8 – 84.2)	
				26	Chronic	73 (56 – 90.1)	
Yamashita et al, 2013 (10)	Japan	1	NPQ	17	Chronic	29.4 (7.7 – 51)	66.66
Forster et al, 2013 (26)	Germany	1	PDQ	1,083	NR	30.7 (28 – 33.4)	83.33
Selimoglu et al, 2013 (37)	NR	1	DN4	224	Chronic	55.8 (49.3 – 62.3)	
Doualla et al, 2013 (8)	Cameroon	1	DN4	167	Chronic	28.1 (21.3 – 35)	
Hiyama et al, 2014 (17)	Japan	1	PDQ	331	Acute/Subacute, Chronic	42.5 (37.2 – 47.8)	100
				201	Acute/Subacute	25.3 (19.3 – 31.3)	
				130	Chronic	31.5 (23.5 – 39.5)	
Sakai et al, 2015 (33)	Japan	1	NPQ*, PDQ	30	Chronic	43.3 (25.6 – 61)	66.66
Park et al, 2015 (32)	Korea	1	LANSS	86	NR	36 (25.8 – 46.1)	100

NR, Not reported; SA, South Africa; UK, United Kingdom; UAE, United Arab Emirates; LANSS, Leeds Assessment of Neuropathic Symptoms and Signs; NPQ, Neuropathic Pain Questionnaire; PDQ, PainDETECT Questionnaire; DN4, Douleur Neuropathique 4 questionnaire

[^] 1: questionnaire; 2: clinician rated * Standard method considered if more than one method used for the diagnosis of NPC

Acute: duration of LBP less than 6 weeks; Subacute: duration of LBP 6 to 12 weeks; Chronic: duration of LBP more than 12 weeks.

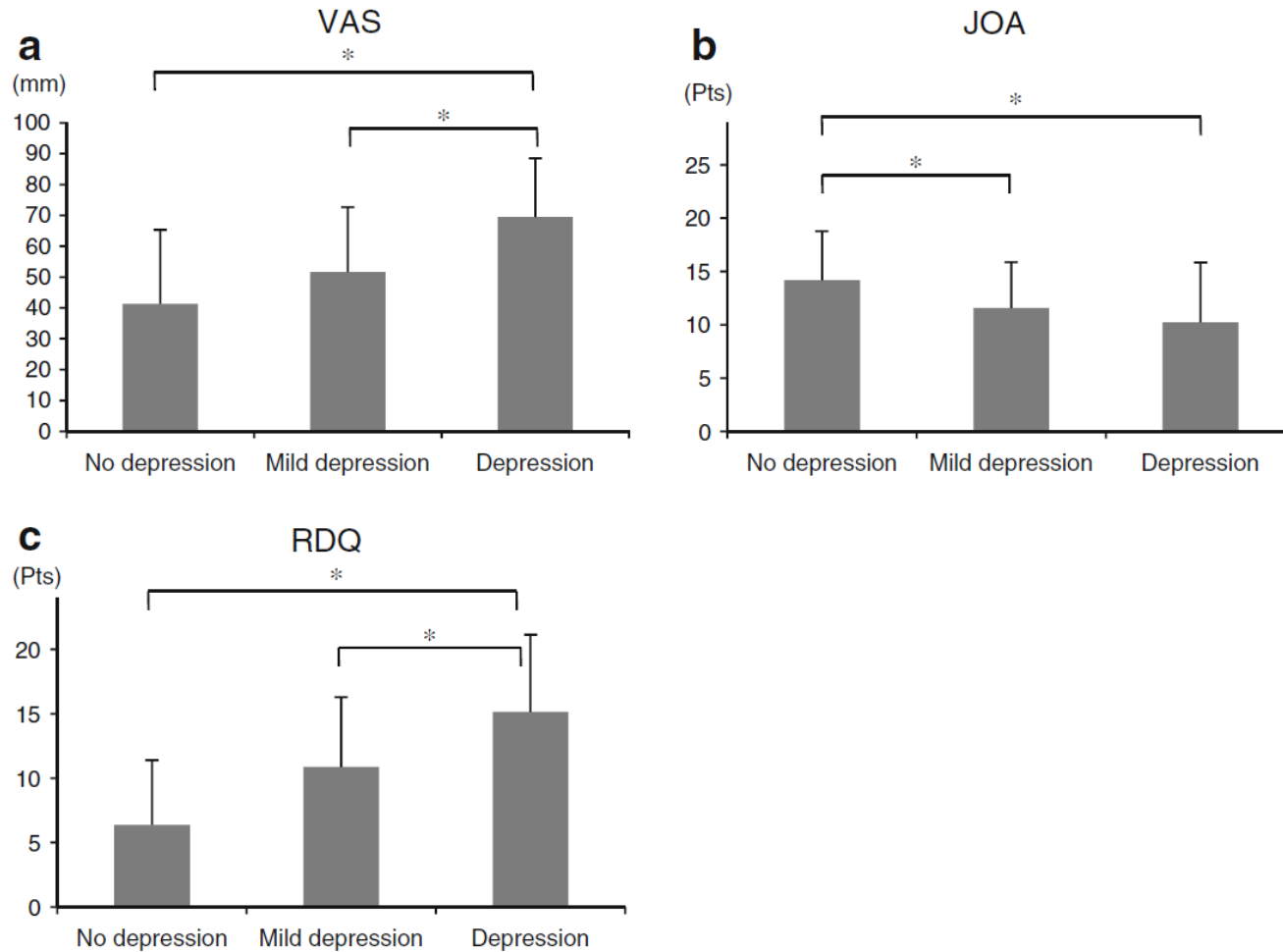
C.I; Confidence Interval

[§] Quality was assessed using scale developed by Fishbain et al (here modified)

✓ Meta-analysis of 20 studies, including 14,269 participants, found that the prevalence rate of NeP in patients with LBP was 47% (40% – 54%), hence NeP may need to be considered as a significant clinical problem in these patients

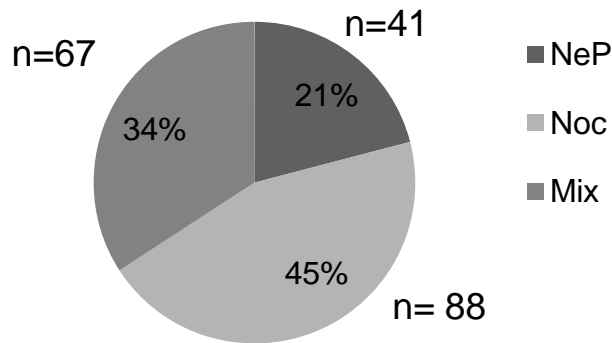
✓ NeP LBP patients is associated with a higher incidence of comorbidities such as depression and anxiety disorders

Tetsunaga et al. demonstrated a relationship between LBP and mental health status in a Japanese population

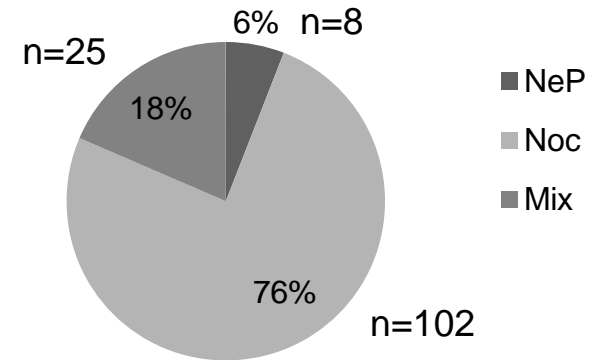


- ✓ Our study revealed that LBP patients with lower mental health scores had higher rates of neuropathic pain, and had impaired social life as well as psychological issues

**mental health of JOABPEQ < 50
(low score group)**



**mental health of JOABPEQ ≥ 50
(high score group)**



	Mental health of JOABPEQ < 50 Median (Mean± S.D.)	Mental health of JOABPEQ ≥ 50 Median (Mean± S.D.)	<i>p value</i> *
low back pain	29 (31.7± 27.1)	57 (55.1± 30.3)	<.001
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mental health	36 (33.2± 13.1)	60 (61.6± 9.9)	<.001

Conclusion

- ✓ We conducted a study into the relationship between the JOABPEQ mental health score and the pain characteristics of 331 LBP patients assessed by the PDQ-J score.
- ✓ We found that psychological factors may modify pain intensity and may lead to an exaggerated or histrionic presentation of the pain, or neuropathic LBP may be exacerbating psychological factors.

The EUROSPINE 2017 Disclosure of Conflict of Interest

Name of first author: Akihiko Hiyama

I have no COI
with regard to our presentation.

