

Independent Risk Factors Contributing To The Depressive Symptoms Of Individuals With Low Back Pain

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Abstract- Background: Low back pain (LBP) is a global health issue and the largest contributor to disability affecting about 80% of people during their lifetime and some will develop into Chronic Low Back Pain (CLBP). Low back pain also causes mental health problems such as stress, anxiety, and depression. The most common mental health problems associated with low back pain are symptoms of depression. Considering that there is still a lack of awareness of mental disorders that cause an increase in the number of cases of depression in low back pain patients, this present study is to investigate factors related to the development of depressive symptoms in low back pain. 97 samples of patients with low back pain were obtained in this study. Multiple linear regression was then used to assess relationships of independent risk factors to depressive symptoms score. The final multivariate result in the model that fit the factors associated with depression in low back pain patients were age with p value = 0.012 and r value = -0.152, monthly income with p < 0.001 and r value = -0.473, duration of disease with p value < 0.001 and r value = 0.233 were found to contribute to depressive symptom scores for as much as 73.5%. Age, monthly income, duration of disease, are contributing factors related to depressive symptom score among low back pain patients.

Index Terms- Depression, Low Back Pain Patients, PHQ – 9.

I. INTRODUCTION

Low back pain is the leading disability disease world-wide affecting nearly 80% of individuals over the course of their life time. Low back pain alters not only physical, but also psychosocial aspects of individuals related to the its nature to persist and contribute to chronic pain.¹⁻³ Depression is mood altering pathology, characterized by the presence of depressive mood, loss of energy or pleasure. Depression plays a major role in causing difficulty to concentrate and engage in daily activities and may even impose suicide risk to affected individuals.⁴ Prevalence of depression among individuals with low back pain is found higher compared to general population. Study in Korea found that 20.3% individuals with low back pain develops depressive

symptoms. This number is higher by 4.5% compared to general population.⁵ Considering that development of depressive symptoms are common in individuals with low back pain, we aimed to investigate contributing risk factors that may play a role in the development of depressive symptoms among individuals with low back pain.

II. METHOD

This present study is a cross sectional study obtaining individuals with low back pain from neurology outpatient clinic. Samples were obtained consecutively. A total of 52 participants were obtained for this study. Depressive symptoms were measured by using PHQ-9 and independent risk factors were assessed by using multivariate regression linear. Initial bivariate analysis was conducted to assess data distribution and determine which independent variables that can be included in multivariate analysis. Cut-off p-value of less that 0.25 was used to determine whether or not the independent variables are eligible for further multivariate analysis.⁵

III. RESULT AND DISCUSSION

Participant characteristics in our study are presented in Table 1. Higher proportion of individuals with low back pain that we found was women (n = 62, 63.9%).

Table 1. Participants characteristics

Characteristic	Median	Mean ± SD	n%
Age		51 ± 9.956	
Gender			
Male			35(36.1)
Female			62(63.9)
Duration of illness	8.00(1-48)		
Income	3.00(1-7)		

BMI			24(18-39)
Nuptial status			
Married			71(73.2)
Not married			26(26.8)
Depressive symptom score		9.91±4.750	

In this study, vast majority of participants have regular monthly income of IDR 3 million which is considered as standard monthly wage in our country. Participants have been living with low back pain for approximately 8 months. Median BMI of the participants was 24 (18-39). We also found that most of our participants were married (n=71, 73.2%) and depressive score was found to be 9.91 ± 4.750.

Table 2 shows bivariate results of independent variables with depressive score. Bivariate analysis shows that all independent variables were eligible for multivariate analysis.

Table 2. Bivariate analysis of independent variables

Variable	r	p
Age	-0.374	<0.001*
Income	-0.710	<0.001*
Duration of illness	0.579	<0.001*
BMI	0.431	<0.001*
Gender		0.187**
Nuptial status		0.103***

*Pearson

**T-Independent

***Mann-Whitney

Multivariate analysis is presented in Table 3. Interestingly, monthly income was found to be independent contributing factors with strongest correlation. It was found to be negatively correlated with depressive symptoms severity, in which higher monthly income is related to alleviated depressive symptom severity ($\beta = -1.435, p < 0.001$). Age was also found to be related to alleviated depressive symptom severity, but the relationship was not strong. Duration of illness and BMI, in the other hand, was found to be related to aggravated depressive symptoms.

Table 3. Multivariate analysis

Variable	β	p
Age	-0.072	<0.012
Income	-1.435	<0.001
Duration of illness	0.119	<0.001
BMI	0.204	<0.001

*Adjusted $R^2 = 73.5\%$

IV. DISCUSSION

Depressive symptoms is related to numerous social cues, including income. Individuals may interpret income subjectively, but studies have long been established that depressive symptoms

may be more aggravating in those with lower income. This may be due to the fact that lower income is related to more limitation to gain access to optimal health service or physical rehabilitation options that are crucial for recovery or alleviating pain in individuals with chronic disease, including low back pain.⁶ This is in line with study by Hu et al. in China which found that depressive symptoms are more severe in low back pain patients from lower economical background.⁵

In the other hand, BMI serves as an aggravating factor which is in line with a study from Hauser et al. in Germany (OR=1.99, CI 95% = 1.36-2.91).⁷ Low back pain is related to limitation of movement which also plays a role in imposing individuals to sedentary life style, hence higher risk for obesity. Obesity is known to be related to depression, mainly due to stigma which results in shame and insecurity, hence obese individuals are more likely to experience much more severe form of depressive symptoms.⁸

V. CONCLUSION

Age, monthly income, duration of disease, and BMI are contributing factors related to depressive symptom score among low back pain patients. Age and monthly income serve as alleviating factor, while duration of illness and BMI may aggravate the depressive symptoms.

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