


Quality of Life of Elderly Patients with Low Back Pain at Ulin General Hospital Banjarmasin

Raihan Febri Rumboko,[1] Zairin Noor,[2] Pandji Winata Nurikhwan,[3] Husna Dharma Putera,[2] Roselina Panghiyangani[4]

[1]Faculty of Medicine and Health Science, [2]Department of Orthopaedic and Traumatology, Faculty of Medicine and Health Science, [3]Department of Medical Education, Faculty of Medicine and Health Science, [4]Doctoral Study Program for Medicine, Universitas Lambung Mangkurat, Banjarmasin, Indonesia

ABSTRACT

Introduction: Low back pain can change the daily life and quality of life of the elderly. This study aims to determine the quality of life of elderly patients with and without low back pain at Ulin General Hospital Banjarmasin. **Methods:** This study used an analytical observational approach with a cross-sectional design. Sampling was through a purposive sampling approach according to the inclusion criteria. The study population was 100 patients aged 60 and over, half of the population with low back pain. The Indonesian versions of the WHOQoL-BREF and SF-36 questionnaires were used as a research instrument. **Results:** The results showed significant differences in the quality of life in the elderly patients with low back pain in 4 domains, namely physical functioning ($p = 0.006$), role limitations due to physical health ($p = 0.023$), social functioning ($p = 0.009$), and general health ($p < 0.001$), with median of each domain in order are 62,5 (0–100), 50 (0–100), 75 (0–100), and 50 (4–100). No significant differences in other domains in the WHOQoL-BREF and SF-36 questionnaire. **Conclusion:** Low back pain affects the life of elderly patients at Ulin General Hospital Banjarmasin, which was different in 4 aspects, namely physical functioning, role limitations due to physical health, social functioning, and general health.

Keywords: Elderly, low back pain, quality of life, SF-36, WHOQoL-BREF.

ABSTRAK

Pendahuluan: Nyeri punggung bawah dapat mengubah kehidupan dan kualitas hidup lanjut usia. Penelitian ini bertujuan untuk meneliti perbedaan kualitas hidup lanjut usia dengan dan tanpa nyeri punggung bawah di Rumah Sakit Umum Daerah Ulin Banjarmasin. **Metode:** Penelitian ini menggunakan pendekatan observasional analitik dengan desain studi potong lintang. Pengambilan sampel dilakukan melalui pendekatan sampel purposif sesuai dengan kriteria inklusi. Populasi penelitian terdiri dari 100 pasien berusia 60 tahun ke atas, setengah dari populasi tersebut mengalami nyeri punggung bawah. Kuesioner WHOQoL-BREF dan SF-36 versi Indonesia digunakan sebagai instrumen penelitian. **Hasil:** Penelitian menunjukkan adanya perbedaan signifikan kualitas hidup pasien geriatri dengan nyeri punggung bawah pada 4 *domain*, yaitu fungsi fisik ($p = 0,006$), batasan peran akibat kesehatan fisik ($p = 0,023$), fungsi sosial ($p = 0,009$), dan kesehatan umum ($p = <0,001$), dengan median masing-masing domain secara berurutan adalah 62,5 (0–100), 50 (0–100), 75 (0–100), dan 50 (4–100). Hasil *domain* lain pada kuesioner WHOQoL-BREF dan SF-36 tidak berbeda signifikan**.** **Simpulan:** Nyeri punggung bawah memengaruhi kualitas hidup pasien lanjut usia di Rumah Sakit Umum Daerah Ulin Banjarmasin berbeda pada 4 aspek kualitas hidup, yaitu fungsi fisik, keterbatasan peran karena kesehatan fisik, fungsi sosial, dan kesehatan umum. **Raihan Febri Rumboko, Zairin Noor, Pandji Winata Nurikhwan, Husna Dharma Putera, Roselina Panghiyangani. Kualitas Hidup Lanjut Usia dengan Nyeri Punggung Bawah di Rumah Sakit Umum Daerah Ulin Banjarmasin.**

Kata Kunci: Lanjut usia, nyeri punggung bawah, kualitas hidup, SF-36, WHOQoL-BREF.

INTRODUCTION

Geriatrics may experience decline in terms of motivation, physical health, mental health, and difficulties in social adaptation.[1] About 10.5% of Indonesia's population in 2022 is elderly, and is predicted to be 15.8% in 2035.[2,3] Elderly are defined as people aged over 60 years old.[1] Common health problems in the elderly include physical weakness, decreased function of the sensory system, and joint pain.[1]

Low back pain (LBP) is defined as pain felt

Alamat Korespondensi *pandji.winata@ulm.ac.id*


in the lower back (lumbar) area.[4] This can be a sign of a disorder in the musculoskeletal system, especially in the vertebrae bones and joints, pelvic complex, facets, discs, muscles, ligaments, nervous, vascular, visceral systems, or psychogenic.[5] The world prevalence of all cases of back pain reaches 85%.[6] The prevalence of LBP in Indonesia is estimated between 7.6% and 37%.[7] LBP has a negative impact on daily activities, sleep quality, functional mobility, psychological symptoms, and decreased health-related quality of life.[8] The elderly had the highest prevalence of LBP at 25.4%.[9]

Quality of life (QoL) is a multidimensional standard that individuals or society expect to have a good life.[10] The elderly with LBP can experience disabilities that interfere with their daily activities; other changes include emotional reactions to life events, disposition, satisfaction with work, and satisfaction with personal relationships. These changes can affect the quality of life.

Research on geriatric patients with LBP in Indonesia is still limited to risk factors and prevalence in the community. There is a higher risk of LBP in people over the age of 50.[8] Julianti, *et al.*, also found that low education increases the risk of LBP in the elderly because it is related to manual work and low income.[9] Farah Diba, *et al.*, also show that LBP is generally experienced by the elderly, which is reinforced by the history of osteoporosis, tumors, and osteomyelitis.[4] Housewives are also vulnerable to LBP.[4] There has been no research using two instruments to determine the quality of life in the elderly. Research related to the elderly conducted in Indonesia is rarely found, especially in Banjarmasin, particularly in the use of international instruments. This study aimed to evaluate the quality of life in geriatric patients with low back pain at Ulin General Hospital Banjarmasin.

MATERIALS AND METHODS

Study Design, Participants, and Variables

A cross-sectional study on geriatric patients with and without low back pain was conducted from August to October 2023 at Ulin General Hospital Banjarmasin. This study used the non-probability sampling technique. The sample consisted of geriatric patients with LBP symptoms at Ulin General Hospital, Banjarmasin. The sample size required for this study is 100 samples, 50 patients each with and without LBP. Sample size was determined using the 2-group unpaired numerical comparative analysis formula.[11]

$$n1 = n2 = 2\left(\frac{(Z\alpha + Z\beta)S}{X1 - X2}\right)^2$$

Figure. Sample size calculation.

The mean of low back pain patients' quality of life is 59,6±17,[12] with a standard deviation value of 17, the calculation goes:

$$n1 = n2 = 2\left(\frac{(1{,}64 + 1{,}28)17}{10}\right)^2 = 49{,}2826 = 50$$

- The probability of falsely rejecting a true null hypothesis (α) = 0.05, $Z\alpha$= 1,64
- The probability of failing to reject a false null hypothesis (β) = 0.1, $Z\beta$ = 1,28
- The standard deviation of the population being studied (S) = 17[12]
- The subtraction of the mean of sample 1 and sample 2 (X1-X2) = 10 (decided by the authors)

This study needed 50 samples.

Quality of life is defined as an individual's perception of their position in life related to physical health, psychological health, level of independence, social relationship, and relationship to their environment in the context of the culture and value systems.[10] Low back pain is a common disorder caused by many activities; it describes pain in lower back and a sign of musculoskeletal disorders related to bones and joints on vertebrae, pelvic, disks, muscles, ligaments, and facet or other health problems on vascular, nerves, visceral, and psychogenic.[5]

Ethical Statement

This study was approved by the Ethical Committee of the Faculty of Medicine, Universitas Lambung Mangkurat (No: 130/KEPK-FK ULM/EC/VI/2023).

Data Collection

The research was conducted with guided interviews using the Indonesian versions of the WHOQoL-BREF and SF-36 quality of life questionnaires.[13,14] The written informed consent was obtained from all participants. The patients were asked for their name, age, gender, occupation, weight, height, LBP symptoms, comorbidity, and drug consumption history. The interview was conducted with the standard questionnaire improved with simplified questions to facilitate the understanding of patients with different local languages and education levels.

Low Back Pain Assessment

Assessment is carried out by orthopedic doctors responsible for the diagnosis in geriatrics at Ulin General Hospital Banjarmasin. Diagnosis was based on pain in the lower back with a moderate pain score.[5]

Quality of Life Assessment

WHOQoL-BREF and SF-36 are specific questionnaires commonly used for the evaluation of health-related QoL.[15] WHOQoL-BREF consists of 26 questions in 4 domains: physical health, psychological health, social relationships, and environment. SF-36 has 36 questions in 8 domains: physical functioning, role limitations due to physical health, role limitations due to emotional problems, fatigue, emotional well-being, social functioning, pain, and general health. This study used the Indonesian version of the WHOQoL-BREF and SF-36 questionnaires.[13,14]

Statistical Analysis

Mean ± SD/median (minimum-maximum) and percentages were presented as descriptive results. Group comparisons were conducted with independent t-test. The Mann-Whitney test was used if the sample distribution was not normal. Statistical analyses were done using IBM SPSS v.25.0.

RESULTS

The mean age of 100 patients was 70.2 ± 6.05 years, patients with LBP have an average age of 70.48 ± 48 years and patients without LBP have an average age of 69.92 ± 6.57 years **(Table 1)**. The samples were mostly female. The patient's medical history includes controlled


Table 1. Sample characteristics (n = 100).

Characteristics	Number of Patients n (%)	Mean ± SD/Median (Minimum-Maximum)
Age (years)		70.2 ± 6.054*
LBP		70.48 ± 5.537*
Non-LBP		69.92 ± 6.574*
Weight (kg)		58.25 ± 11.073*
LBP	44 (44)	56.36 ± 11.111*
Non-LBP	43 (43)	60.19 ± 10.822*
Data not available	13 (13)	
Height (m)		156 ± 7.83*
LBP	43 (43)	155 ± 7.872*
Non-LBP	38 (38)	158 ± 7.583*
Data not available	19 (19)	
BMI (kg/m^2)		23 (18–35)
LBP	43 (43)	22 (18–30)
Non-LBP	38 (38)	24.26 ± 3.832*
Data not available	19 (19)	
Gender		
Male	38 (38)	
LBP	13 (34)	
Non-LBP	25 (66)	
Female	62 (62)	
LBP	37 (60)	
Non-LBP	25 (40)	
Occupation		
Retired civil servants	40 (40)	
Housewives	34 (34)	
Self-employed	20 (20)	
Others	6 (6)	

Abbreviations: LBP: Low back pain; BMI: Body mass index.
*Data is normally distributed

Table 2. Statistical test results.

Domain (n=100)	Median (Minimum-Maximum)
WHOQoL-BREF	
Domain 1 (physical health)	14 (7–18)
Domain 2 (psychological)	16 (10–20)
Domain 3 (social)	13 (6–17)
Domain 4 (environment)	17 (12–20)
SF-36	
Physical functioning	62.5 (0–100)
Role limitations due to physical health	50 (0–100)
Role limitations due to emotional problems	66 (33–100)
Fatigue	85 (25–100)
Emotional well-being	100 (25–100)
Social functioning	75 (0–100)
Pain	57 (0–100)
General health	50 (4–100)

hypertension, controlled diabetes mellitus, osteoporosis, controlled heart disease, gouty arthritis, dyslipidemia, prostate disease, osteoarthritis, dyspepsia, and other diseases. All patients receive regular treatment.

The Cronbach's Alpha value for the WHOQoL-BREF questionnaire was 0.798 and for the SF-36 questionnaire was 0.745, indicating good reliability of the questionnaires. The p-value of the normality test was less than 0.05, which means all domains were not normally distributed, so an alternative statistical test was applied using Mann-Whitney test. The statistical result from each domain showed descriptive data from the questionnaire aspects that contain 4 domains in WHOQoL-BREF and 8 domains in SF-36 (**Table 2**).

WHOQoL-BREF analysis showed that domain 1 (physical health), domain 2 (psychology), domain 3 (social), domain 4 (environment) has no significant difference between geriatric patients with and without LBP **(Table 3)**. The SF-36 result analysis, showed that the physical functioning domain, role limitations due to the physical health domain, social functioning domain, and the general health domain significantly different between geriatric patients with and without LBP ($p < 0.05$). Other domains include role limitations due to the emotional problems domain, fatigue domain, emotional well-being domain, and the pain domain which have no significant difference between geriatric patients with and without LBP.

DISCUSSION

Domain 1, physical health, is not significantly different. The presence of LBP complaints does not significantly affect physical health aspects. This result is in accordance with the theory, which states that pain in LBP does not significantly affect quality of life.[12] Another study said that pain intensity (correlated to physical health) in different age ranges does not significantly affect quality of life.[16] Studies of pregnant women with LBP found otherwise.[17] Data showed that LBP symptoms did not affect daily activities because the average patient was still able to carry out daily activities even though they were followed by longer

Table 3. Results of Mann-Whitney test.

	Domain		Mean ± SD/ Median (Minimum-Maximum)	Asymptotic Significance (2-tailed)
WHOQoL-BREF	Domain 1 (physical health)	LBP	14 (7–18)	0.463
		Non-LBP	14 (7–18)	
	Domain 2 (psychological)	LBP	16 (10–20)	0.677
		Non-LBP	16 (10–20)	
	Domain 3 (social)	LBP	13 (6–17)	0.628
		Non-LBP	13 (6–17)	
	Domain 4 (environment)	LBP	17 (12–20)	0.133
		Non-LBP	16 ± 1.896**	
SF-36	Physical functioning	LBP	62.5 (0–100)	**0.006***
		Non-LBP	75 (0–100)	
	Role limitations due to physical health	LBP	50 (0–100)	**0.023***
		Non-LBP	50 (25–100)	
	Role limitations due to emotional problems	LBP	66 (33–100)	0.806
		Non-LBP	50 (25–100)	
	Fatigue	LBP	85 (25–100)	0.762
		Non-LBP	85 (25–100)	
	Emotional well-being	LBP	100 (56–100)	0.490
		Non-LBP	100 (56–100)	
	Social functioning	LBP	75 (0–100)	**0.009***
		Non-LBP	75 (0–100)	
	Pain	LBP	57 (0–100)	0.176
		Non-LBP	67 (0–100)	
	General health	LBP	50 (4–100)	**<0.001***
		Non-LBP	55 ± 20.321**	

*Statistically significant
**Data is normally distributed

rest and accompanied by pain. Patients over 70 years old were more easily tired during activities. However, patients were generally satisfied with their ability to move and work.

Domain 2, psychological aspect, showed no significant differences between groups; LBP complaints do not significantly affect the psychological aspect. Research found that as LBP patients get older, they tend to avoid anxiety, depression, and affective stress.[16] In general, patients tend to enjoy life and are satisfied with themselves; with increasing age, the workload also decreases due to retirement. Patients also tend to accept their body appearance and rarely have negative feelings.

Domain 3, social relationships, showed no significant difference between groups, indicating that LBP complaints do not significantly influence the social aspect. These results are in line with studies by Farah Diba, *et al.*,[4] But in other studies, LBP patients experience significant social problems, especially in patients with chronic pain, which results in decreased quality of life.[18] Patients still carry out social activities, such as religious activities, social gatherings, or other social activities. The patient's activities increase with the support from friends, both directly and indirectly.

Domain 4, environment, showed no significant difference between groups, indicating that LBP complaints do not significantly influence environmental aspects. Support from the environment, such as family, finances, and children's independence makes the impact on quality of life less significant.[19] Another study stated that LBP patients were not significantly affected by environmental aspects (safety and cleanliness) due to the patients' high level of education.[12]

The SF-36 results showed significant differences in four domains. The physical functioning domains were significantly different, indicating the influence of LBP on the quality of life of geriatric patients. Previous research also stated that there was a correlation between LBP complaints and physical function ($p < 0.001$).[20] Other research on the elderly also found that musculoskeletal problems such as LBP affect their physical function, especially among women.[21] Limitations in some

strenuous activities, such as lifting heavy objects or strenuous exercise, are experienced by LBP patients. Patients who walk regularly have better endurance than patients who rarely walk.[8] Difficulty when bending, stooping, and/or prostrating is experienced by many patients.[22]

The domain of role limitations due to physical health was significantly different between groups. Other studies mention similar things, which indicate the influence of LBP on physical limitations.[20] Physical limitations include spending very little time doing work or activities due to discomfort or restricted mobility. However, patients may adapt their routines by focusing on tasks that align with their physical capabilities and energy levels. These adaptations enable them to maintain productivity, albeit at a reduced capacity.

The social functioning domain shows significantly different results, LBP influenced social functioning in geriatric people. This is in line with previous research, which states that LBP patients experience major impacts on social life.[18] However, other studies suggest equally good social functioning between patients with and without LBP.[4] Other research also reveals that LBP complaints do not correlate with changes in social function.[20] Patients with LBP tend to experience difficulties in activities or social activities because the pain reduces the patient's motivation to attend social gatherings, recitations, or other activities.

The general health domain showed a significant difference between geriatric patients with and without LBP, indicating that LBP has a large effect on general health. Other research supports these results with a correlation between LBP complaints and general health aspects ($p < 0.001$).[20] But another study found no correlation between LBP patients' emotions and quality of life.[4] Patients show little impact of emotional changes on work or other activities. Emotional changes only affect some patients.

No significant difference in role limitations due to the emotional problems domain. This is similar to Domain 2 (psychological), which is supported by research showing LBP patients at older ages tend to avoid anxiety, depression, and affective stress.[16] Other studies also support the absence of a correlation between LBP patients' emotions and quality of life.[20] In general, patients show little impact of emotional changes on work or other activities.

The fatigue domain showed no significantly different results. This result is in contrast to research that describes the influence of LBP on vitality ($p < 0.01$).[20] These results are also in contrast to other studies.[21] Despite the reality that their bodies are less capable, most patients remain enthusiastic about their everyday activities. This is supported by studies that found patients are still enthusiastic and energetic, even though they often feel tired.[4]

The emotional well-being domain showed no significant difference between groups. LBP does not affect aspects of mental health. This is in accordance with research stating the influence of LBP on mental health.[20] Patients generally still carry out their daily lives as usual, only a few patients feel depressed or sad; patients also try to do other things to reduce these feelings.

The pain domain showed no significant difference between groups. As in Domain 1 (Physical Health), these results are in accordance with previous findings.[12,16] But other studies found musculoskeletal complaints such as LBP had an influence on elderly people.[21] Patients with very mild to mild pain can still tolerate the pain; moderate to very severe pain generally interferes with activities. However, medical solutions such as analgesics can reduce pain and maintain activities. Studies also show that patients tend to be able to tolerate pain because it only felt during heavy activity.[4]

Differences in results between domains can also be influenced by sample characteristics. The average age was 70 years; increasing age is said to decrease quality of life.[22] Variations in BMI can be a consideration of the load received by the back. Being overweight, especially in those with LBP, can worsen complaints and reduce quality of life up to five times.[23] However, data on body weight and height were not complete, making these results not representative of the entire sample.

Gender also affects quality of life as menopause increases the risk of osteoporosis and the fact that women's muscle capability is lower than men.[24] The type of work can also affect the LBP risk. Workers with more than 5 or even 10 years of service tend to complain of LBP. Workers over 30 years of age tend to experience LBP.[25] History of illnesses that can worsen quality of life is dominated by a history of major or minor trauma.[23]

Society or family involvement in improving the quality of life of geriatric patients with LBP can be implemented through increasing awareness and responsibility for overcoming physical and spiritual problems in the elderly. It can be elderly exercise, accompanying elderly people for mobility outside the home, providing supplements or vitamins, or being a conversation partner.

CONCLUSION

In geriatric patients at Ulin General Hospital Banjarmasin, LBP affects their quality of life in the domains of physical function, role limitations due to physical health, social function, and general health. This study is limited by the small sample size, leading to potential bias in the assessment of each domain. The authors recommend conducting further research with a larger sample size to reduce selective bias in the study and targeting issues in each domain to demonstrate effective clinical interventions for quality of life improvement.

Ethics

Ethics Committee Approval: The study was conducted in accordance with the guidelines in the Declaration of Helsinki. This study was approved by the Ethical Committee of the Faculty of Medicine, Universitas Lambung Mangkurat (No: 130/KEPK-FK ULM/EC/VI/2023).

Informed Consent: Oral and written informed consent form was obtained from all participants.

Conflict of Interest: The authors declare that there is no conflict of interest.

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