

## CHRONIC LIVER DISEASE LOWERING PHYSICAL AND MENTAL HEALTH DIMENSIONS

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### Abstract

The most prevalent diseases within the world related to major illness and mortality are chronic liver diseases. The developing pervasiveness of chronic liver disease has resulted in increased interest in health-related quality of life, which incorporates the physical well-being of a patient and his emotional and social well-being. This study aimed to define the quality of life of patients with chronic liver disease. This study used the Quality-of-Life Short Form 36 Indonesian version to examine 102 patients with chronic liver disease from two hospitals with a descriptive design. The quality of life of the patients was comparatively low ( $M \pm SD$ : physical,  $42.4 \pm 18.33$ ; mental,  $48.44 \pm 17.19$ ). On both the physical and mental health dimensions of quality of life, the patients in this study scored less than 50 on a scale of 0 to 100, with low scores indicating the low quality of life both physically and mentally. Improving quality of life necessitates a multidisciplinary strategy that combines physical and mental health screening and management. Surrounding support will encourage adaptive coping mechanisms to manage the illness for improving quality of life.

**Keywords:** chronic liver disease, cirrhosis, Indonesia, quality of life

### Abstrak

**Penyakit Hati Kronis Menurunkan Dimensi Kesehatan Fisik dan Mental.** Penyakit yang paling umum di dunia yang berhubungan dengan penyakit utama dan kematian adalah penyakit hati kronis. Penyebaran penyakit hati kronis yang berkembang telah menghasilkan peningkatan minat pada kualitas hidup yang berhubungan dengan kesehatan, yang mencakup kesejahteraan fisik pasien dan kesejahteraan emosional dan sosialnya. Tujuan dari penelitian ini adalah untuk menjabarkan kualitas hidup pasien penyakit hati kronis. Penelitian ini menggunakan Quality-of-Life Short Form 36 versi Bahasa Indonesia untuk mengumpulkan data dari 102 pasien dari dua rumah sakit melalui desain deskriptif. Penelitian ini menunjukkan bahwa kualitas hidup pasien relatif rendah ( $M \pm SD$ : fisik,  $42,4 \pm 18,33$ ; mental,  $48,44 \pm 17,19$ ). Pada kedua dimensi kualitas hidup yaitu kesehatan fisik dan mental, pasien dalam penelitian ini mendapat nilai kurang dari 50 pada skala 0 hingga 100, dengan nilai rendah menunjukkan kualitas hidup rendah baik fisik maupun mental. Peningkatan kualitas hidup pasien memerlukan strategi multidisiplin yang menggabungkan skrining dan manajemen kesehatan fisik dan mental. Dukungan lingkungan akan mendorong mekanisme coping yang adaptif untuk mengelola penyakit dalam meningkatkan kualitas hidup.

**Kata Kunci:** Indonesia, kualitas hidup, penyakit hati kronis, sirosis

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## Introduction

A disease that causes permanent alteration in the physical and mental function of a person is classified as a chronic disease or Non-Communicable Disease (NCD). The majority of deaths and disabilities worldwide are caused by chronic disease. Globally, chronic diseases have reached epidemic proportions, with the number

of people suffering from it about 41 million each year, equivalent to 71% of all deaths in the world. In low and middle-income countries, 85% of premature deaths are due to chronic disease among those aged 30 to 69 years (World Health Organization, 2021). The risk of dying from chronic diseases was increased by tobacco use, lack of exercise, harmful alcohol consumption and an unhealthy diet. Chronic liver disease

(CLD) is the progressive destruction of the parenchyma over a period greater than six months, which includes synthesis of clotting factors, other proteins, detoxification of harmful products of metabolism, and excretion of bile, and it may produce varied symptoms and complications (Sharma & Nagalli, 2021). It tends to be hereditary or due to various factors that damage the liver, such as viral infections, toxins, or autoimmune processes (Sharma & John, 2021). The result of all CLDs is cirrhosis, an architectural distortion of the liver caused by the fibrous formation of regenerative nodules. Liver cirrhosis was responsible for over one million deaths in 2010, which equated to approximately 2% of all deaths around the world. In 2016, liver disease ranked 10th among the causes of death worldwide with 1.26 million that died of cirrhosis, CLDs, and their complications (Naghavi et al., 2017).

CLD, especially liver cancer, is a major health problem in developing and well-developed countries. East Asia and sub-Saharan Africa have recorded the highest age-adjusted incidence rates for CLD with over 20 per 100,000, according to a study by Zhu and colleagues. In particular, China reported 55% of all global hepatocellular carcinoma cases (Zhu et al., 2016). The rate of liver disease in Indonesia is relatively high. Studies have documented the increasing rate of liver cirrhosis in Indonesia. Liver disease in Indonesia is due to acute viral hepatitis, cirrhosis, liver cancer, and liver abscess. According to the Ministry of Health (Ministry of Health Republic of Indonesia, 2018), the number of patients with hepatitis was approximately 1.2% of the total population. These data showed that cirrhosis is the second most common liver disease after hepatitis (Sariani, 2010). Patients with cirrhosis comprise an average of 47.7% of all liver disease patients treated (Perhimpunan Peneliti Hati Indonesia, 2013).

CLD can frustrate autonomy and deplete the strength of individuals with disabilities, as it may create severe limitations on activity, contributing to lower quality of life. In patients with

ceaseless liver infection, well-being-related personal satisfaction has become a significant measure (Polis & Fernandez, 2015). Even though physical well-being has long been the essential objective of restorative care, the emotional and social well-being of patients has become more central as chronic diseases become more common in developed countries (Saffari et al., 2016). Emotional, social, and physical well-being are referred to as health-related quality of life. In patients with CLD, the significant impairment of health-related quality of life has become an essential outcome measure (Younossi & Henry, 2015). A study that investigated the impact of a variety of chronic diseases on QoL in primary health care patients in the low-middle countries (Cambodia, Myanmar, and Vietnam) reported that the highest summative QoL score was found among patients having dyslipidemia (63.2), followed by digestive diseases (57.7), liver disease (57.5), hypertension (57.4) and diabetes mellitus (57.1) (Pengpid & Peltzer, 2018). It is needed specifically to investigate QoL of patients having liver disease

## Methods

A descriptive study design was used in this study to determine the quality of life of patients with CLD in North Sumatra, Indonesia. The researcher utilized a quantitative approach to recognize the demographics and quality of life of the patients from two hospitals. For the study population, descriptive statistics were calculated. Consecutive sampling was applied to recruit patients with CLD according to the following criteria inpatients or outpatients with CLD older than 18 years old, who was able to answer the questions on the questionnaire (compos mentis), and able to be examined in Indonesian (they demonstrated their capacity when inquired to fill out the demographic information on the questionnaire). They had to complete an informed consent form to participate in the study.

A total of 102 patients were recruited from two general hospitals in North Sumatra, which were from an urban and rural areas. Quality of life

was measured using the Quality-of-Life Short Form 36 (SF 36) from the Medical Outcomes Study developed by RAND. The Indonesian version has been translated and back-translated by “Salim, Yamin, Alwi, and Setiati” (Salim et al., 2017). This instrument divides quality of life into two categories: physical and mental health. The internal consistency reliability of the Indonesian version of the questionnaire, as measured by Cronbach’s alpha, was adequate, with a value of  $> 0.70$ . Its validity score was good ( $r = 0.626$ ;  $p = 0.003$ ). In this study of patients with CLD, the quality-of-life questionnaire had a Cronbach’s alpha of 0.92.

This study was examined and approved by the institutional review boards of the National Taipei University of Nursing and Health Sciences, the Universitas Sumatera Utara, and each of the hospitals utilized as research sites with ethics number 1517/VI/SP/2018. Once the researcher received the Institutional Review Board (IRB) from each of the institutions, data were collected from the respondents.

## Results

Table 1 shows the demographic of the respondents. The mean age of the respondents was 46.04 years old, with the youngest being 18 years old and the oldest being 88 years old. The age group of 41–60 years old had the most respondents ( $n = 48$ , 47.1%). Males ( $n = 54$ ) comprised 52.9% of the total population. In terms of education, 82.4% of respondents ( $n = 84$ ) were classed as having a poor level of education. The majority of the respondents were self-employed with a total of 86.3% ( $n = 88$ ). Married respondents accounted for 83.3% ( $n = 85$ ) of the total. For half of the respondents (50%,  $n = 51$ ), the duration of CLD since determination was less than 1 year (more than 6 months). Concerning religion, the majority of the respondents were Christians, with 62.7% ( $n = 64$ ) of the total. Notably, the highest ethnicity among the respondents was Batak, accounting for 72.5%. A slim majority of respondents (54.9%) had monthly

salaries less than 1.500K IDR. The youngest age group showed better quality of life in the physical and mental health dimensions than the other age groups. In terms of physical health, married respondents had a better quality of life than single people; however, interestingly, in terms of mental health, married people had lower quality of life than single respondents.

Quality of life was tested using SF 36, which separates health into two parts: physical and mental. In the SF 36 Questionnaire, scores range from 0 to 100, with higher scores demonstrating the better quality of life. Quality of life was divided into physical and mental health (Table 2). The mean mental health score was relatively low at 48.44 ( $SD = 17.19$ ). Mental health included four subscales. The lowest score on the mental health subscales was for an emotional role, with a mean score of 24.85. The highest mean score at 60.98 was for emotional well-being. The mean physical health score was 42.41 ( $SD = 18.33$ ), with the highest score on the bodily pain subscale ( $M = 54.17$ ) and the lowest score on the physical role subscale ( $M = 20.10$ ). The mean mental health score was higher than the mean physical health score in this study population.

## Discussion

The mean age of the respondents in this study was 47 years old, which was comparable with the average age of 72 cirrhosis patients studied by Alavinejad et al. (2019) in Iran. The outcomes of this study and another study showed that patients over 40 years old were more likely to have CLD than those in the other age groups. In terms of physical and mental health, the younger age group had a higher quality of life than the older age groups. Stepanova and colleagues (Stepanova et al., 2018) likewise found that age significantly affects the QoL. Most elderly adults suffer from chronic conditions, which pose a negative impact on their QoL because of physical inability and concerns (Somrongthong et al., 2016).

Table 1. Quality of Life with Physical and Mental Health Subscales

Variable	n (%)	Physical Health ( $M \pm SD$ )	Mental Health ( $M \pm SD$ )
Age (years old)			
20 – 40	39 (38.2)	51.69 ± 17.58	54.59 ± 17.39
41 – 60	48 (47.1)	37.86 ± 17.09	46.14 ± 17.14
>61	15 (14.7)	32.83 ± 13.93	39.78 ± 10.95
Gender			
Male	54 (52.9)	40.87 ± 18.46	48.45 ± 16.40
Female	48 (47.1)	44.15 ± 18.21	48.42 ± 18.21
Educational background			
Lower education	84 (82.4)	40.40 ± 17.45	47.96 ± 17.12
Higher education	18 (17.6)	51.18 ± 20.33	48.60 ± 16.07
Occupation			
Self employed	88 (86.3)	42.19 ± 17.65	48.43 ± 16.99
Civil employer	14 (13.7)	43.84 ± 22.85	19.08 ± 5.09
Marital status			
Single	17 (16.7)	39.77 ± 16.96	46.64 ± 17.04
Married	85 (83.3)	55.62 ± 19.69	15.46 ± 3.75
Duration since diagnosis			
<1 year	51 (50)	43.28 ± 17.19	50.73 ± 17.77
>1-2 year	33(32.4)	40.96 ± 17.66	16.88 ± 16.88
>2 years	18 (17.6)	42.60 ± 23.07	43.74 ± 15.78
Religion			
Muslim	33 (32.4)	39.34 ± 22.00	45.80 ± 19.44
Christian	64 (62.7)	43.78 ± 15.45	49.52 ± 15.97
Others	5 (4.9)	45.25 ± 26.97	51.86 ± 18.20
Ethnicity			
Javanese	23 (22.5)	39.76 ± 21.59	46.87 ± 19.82
Batak	74 (72.5)	42.55 ± 17.46	49.27 ± 16.49
Others	5 (5)	52.63 ± 13.59	43.22 ± 16.57
Monthly income			
< IDR 1.500K	56 (54.9)	40.55 ± 14.31	46.25 ± 14.70
IDR 1.600K – 3.000K	30 (29.4)	41.31 ± 22.52	54.95 ± 20.25
> IDR3.000K	16 (15.7)	51.02 ± 20.88	54.96 ± 54.96

Table 2. The Subscales of the Quality-of-Life Short Form 36

Variable	$M$	$SD$
<i>Quality of Life</i>		
Physical Health	<b>42.41</b>	18.33
Physical functioning	50.25	28.99
Role-physical	20.10	30.27
Bodily pain	54.17	24.66
General health	45.15	15.13
Mental Health	<b>48.44</b>	17.19
Vitality	52.16	18.30
Social functioning	55.76	22.50
Role-emotional	24.85	35.31
Emotional wellbeing	60.98	17.40

A study in South Korea (Kim et al., 2018) found that respondents had similar demographic features to those in this study. Males made up the majority of the respondents (62.6%) according to Kim et al. (2018), possibly because alcohol consumption was higher among males than females. Batak's males are known for drinking *tuak* or palm wine, the traditional liquor in the region, at an early age. In North Tapanuli, usually, men who finish their work gather in the traditional shop in the afternoon. They chat, sing, play cards, chest and watch television while drinking *tuak*. Men, both young and old drinking in a shop, but rarely do women drink *tuak*. Osna et al. (2017) stated that chronic and excessive alcohol consumption produces a wide spectrum of hepatic lesions, the most characteristic of which are steatosis, hepatitis, and fibrosis/cirrhosis.

Quality of life is defined by the WHO as a person's perception of their status in life with the way of life and value frameworks in which they live, as well as their goals, ambitions, guidelines, and worries (Vahedi, 2010). It is an overwhelming idea that is intricately influenced by physical well-being, mental state, personal beliefs, social ties, and connectedness to significant aspects of their condition (Vahedi, 2010). Health-related quality of life is an idea that identifies with a person's view of well-being status comparable to the way of life and worth frameworks in which they live, notwithstanding their desires, objectives, concerns, and expectations for everyday comforts (Tehrani et al., 2015). The general or worldwide significance of personal satisfaction and a general feeling of prosperity might be moored to a person's social and financial conditions, living plans, and network condition, similar to culture, individual qualities, joy, life fulfillment, and profound prosperity (Larsen, 2016).

In terms of marital status, married respondents had a greater QoL than single people in physical health. However, surprisingly, married people had a lower quality of life than unmarried people in terms of mental health. Married respon-

dents are likely to eat at home, and their spouses may encourage better self-care compared with their counterparts. Having a spouse might mean having someone to help assist with physical limitations (Alavinejad et al., 2019; Pengpid & Peltzer, 2018). Mental health might be worse among married respondents because they have a greater responsibility than single respondents. Married respondents have to provide not only for their children but also other family members, raise children, pay bills, and deal with great expectations from the community, especially in the Batak culture (Silitonga, 2012). Kim and colleagues likewise demonstrated that marital status affects QoL, with married people scoring higher than single people (Kim et al., 2018).

In the physical dimension, the respondents who had higher education (college and master's degrees) had a better quality of life than respondents with lower education (those who completed junior high school and senior high school). In China (Gao et al., 2013), a study reported that education level did not contribute significantly to QoL. Better-instructed individuals normally have better well-being status, lower joblessness, and increasingly social associations, with overall life satisfaction (Powdthavee et al., 2015).

From this study, the QoL in patients with CLD decreased due to disease situations. The result of this study showed that the QoL in the physical health dimension was 42.41 and that in mental health was 48.44. The scoring system indicated that the higher the score, the greater the quality of life or better personal satisfaction. The quality of life score using SF 36 ranged from 0 to 100. The mental health score was better than physical health in this study. Several studies in the USA, China, Egypt, and Taiwan found that QoL among patients with CLD was diminished due to disease conditions (Abd El-Wahab, 2016; Chen et al., 2017; Derck et al., 2015; Gao et al., 2013). This result was quite similar to the findings of this study. In a study conducted in a different country with the same results, researchers explained that the impact of CLD was personal; human suffering, hospital costs, and

lost productivity all affected the quality of life (Saffari et al., 2016). Different findings are shown in a study in Iran that found that score of the QoL of liver disease patients in the physical health dimension and that in mental health were above 55 (Pengpid & Peltzer, 2018)

Several limitations were found during the implementation of this study. One of the limitations was that the respondents were only recruited from Adam Malik Hospital and Sidikalang Hospital from North Sumatra. This province is one of 34 provinces in Indonesia. Thus, the sample was not representative of adult CLD in Indonesia. Another limitation was the short data collection time, which limited the number of respondents involved. The distance between Adam Malik Hospital was also quite far from Sidikalang Hospital, which created difficulties for the researcher. The same study should be conducted in another area. Given that Indonesia is a large country with a big population, the results must be compared with another island of Indonesia with different backgrounds. Comparing the quality of life with the healthy population will also provide strong findings to increase the quality of life in patients with CLD and to stress the importance of quality of life.

## Conclusion

Quality of life is generally low in patients with CLDs. A better understanding of patients with CLD can assist patients living with the disease to increase their quality of life. In this study, the physical and mental health dimensions of quality of life of the Indonesian patients with CLD scored less than 50 on a scale from 0 to 100, with low scores illustrating the low quality of life in physical and mental health. This finding needs to continue to the next studies that investigate other factors that contribute to the QoL of CLD patients and seek the proper strategy to encourage the patient to apply positive coping mechanisms in managing the disease to increase the QoL in all dimensions. Multidisciplinary health care providers need to pay attention to QoL patients with chronic diseases, including CLD.

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