

Quality of life of dengue patients in Panembahan Senopati regional general hospital

Ariska Wigatiningtyas*, Dyah Aryani Perwitasari, Imaniar Noor Faridah,
Haafizah Dania, Woro Supadmi

Faculty of Pharmacy, Universitas Ahmad Dahlan, Yogyakarta, Indonesia
*corresponding author: e-mail: ariska.wigatiningtyas@gmail.com

ARTICLE INFO

Article history

Received: 17-12-2021

Revised: 14-03-2022

Accepted: 11-08-2022

Keywords

Dengue

Quality of Life

Indonesia

ABSTRACT

Yogyakarta is one of the top 10 cities with the highest number of dengue cases in Indonesia. One of the reasons for this is the lack of knowledge about the dengue virus in the community. To find out the quality of life of dengue patients in the Panembahan Senopati regional general hospital. This research uses the descriptive method with a cross-sectional design. The sampling technique was the purposive sampling method. In total 18 research subjects were chosen as the sample with an inclusion criteria of patients undergoing inpatient treatment and aged > 4 years of age. This study used the EQ-5D-5L and EQ-5D-Y. The quality of life of 70% of the adult patients experienced pain of EQ-VAS 67 ± 17.191 , while all child patients experienced pain of EQ-VAS 54.375 ± 11.783 . The quality of life of dengue patients was measured with the EQ-5D-5L for adults and EQ-5D-Y for children and obtained a poor score due to a decrease in the dimension of pain felt and the usual activities done such as working, studying, and playing.

This is an open access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



1. Introduction

Dengue is a disease caused by a RNA virus from the Flaviviridae family and is transmitted by the Aedes mosquito (Hasan et al., 2016). Dengue can infect all age groups and can occur all year round (Khormi & Kumar, 2012). Indonesia has seen an increase in dengue cases every year and 2019 data has shown that Special Region of Yogyakarta is one of 10 cities with the highest number of dengue cases (85.9 cases per 100,000 population) (Harapan et al., 2019). Dengue may lead to a decrease in the quality of life of patients due to clinical manifestations such as fever, and a decrease in platelet count and hematocrit levels. The platelet count of dengue patients influences nutrition status and may also affect the quality of life (Hartiono & Wande, 2019).

The tools to measure the quality of life of patients were EQ-5D-5L and EQ-5D-Y (EuroQol Research Foundation, 2020). EQ-5D is a standardized measure of health status developed by the EuroQol Group to provide a simple, generic measure of health for clinical (EuroQol Research Foundation, 2020). The European Quality of Life-5 Dimensions Questionnaire (EQ-5D) is the most common instrument to value health outcomes under the patient's perspective. EQ-5D self-report is the descriptive system produced in a standard layout that enables the respondent to classify his/her health according to five dimensions (EQ-5D self-classifier) (Rabin & De Charro, 2001). It is a multiattribute instrument, which considers five dimensions including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression (Emrani et al., 2020).

The EQ-5D-5L dan EQ-5D-Y questionnaires are instruments with strong validity and high reliability (Conner-Spady et al., 2015; Ravens-Sieberer et al., 2010). These questionnaires are already available in Indonesian (EuroQol Research Foundation, 2019, 2020) and their validity and reliability have been tested in Indonesia, with results that indicated that these two instruments have strong validity and adequate reliability (Fitriana et al., 2021; Tondok et al., 2021). Therefore, this research seeks to examine the quality of life of dengue patients in Panembahan Senopati regional general



hospital so that it can serve as an early intervention to emphasize the importance of an optimal quality of life for dengue patients.

2. Materials and Method

This research used the descriptive analytic method with a cross sectional design. Samples were collected using the purposive sampling method. The data collected included full information on the subjects, patients' clinical data, measurement of patients' quality of life by using the EuroQOL-5 Dimension EQ-5D-5L questionnaire for adults and the EQ-5D-Y for children.

This research used the patient demography data collection sheet, informed consent sheet, as well as the EQ-5D-5L dan EQ-5D-Y questionnaires which are instruments to measure quality of life which has been proven to have strong validity and high reliability (Conner-Spady et al., 2015; Ravens-Sieberer et al., 2010). The EQ-5D-5L quality of life questionnaire is available in more than 150 languages including Indonesian and has been validated (Sari et al., 2015), while the EQ-5D-Y quality of life questionnaire is available in more than 90 languages including Indonesian, and has also undergone validation (Fitriana et al., 2021).

2.1. Research Method

Population data were collected from hospitalized patients that were being treated at Bantul Panembahan Senopati Public Hospital who were diagnosed with dengue fever by the doctor in charge of patient services and fulfilled the criteria of the research. Data collection was carried out through knowledge and quality of life questionnaires which were given during the second or third day of hospitalization. The patients/guardians signed the informed consent form and then filled out the prepared questionnaires.

2.2. Data Analysis

The data characteristics were in the form of numeric variables and presented as mean and SD, and the normality of the data characteristics was tested using the Shapiro-Wilk test because the data obtained was small.

3. Results and Discussion

Subjects were obtained from three wards of the Panembahan Senopati regional general hospital, namely the Anggrek, Cempaka, and Bakung Wards from the period of March 2021- November 2022. In total 18 patients who had complete data and fulfilled the inclusion criteria were included in this research.

3.1. Characteristic of dengue patients

Based on Table 1, the subjects obtained from Panembahan Senopati regional general hospital were mostly male at 66.67%, while females made up 33.33%. Those >16 years of age made up 55.56%, while patients aged 8 -15 years measured 44.44%. Meanwhile, the last education characteristics of the patients showed that most were high school graduates or below, while university graduates only made up 5.56%. 61.11% of patients had a history of dengue, which included themselves and their families; while 38.89% did not. Patients with an income < IDR.250.000 numbered to 16.67%; IDR.200.000 – IDR.500.000 33.33%; Rp.1 – 3 million 44.44% and >Rp.5 million totaled 5.56%.

Based on Table 2, 90% of adult patients did not have difficulty walking, while 10% did. 60% of patients did not have any difficulty taking care of themselves, 30% had slight difficulty, and 10% had moderate difficulty. 30% of patients did not have any problems doing their usual activities, 30% had slight problems, 20% experienced moderate problems, 10% had severe problems, and 10% experienced extreme problems. In regards to pain, 30% did not experience any pain, 10% had slight pain, 30% had moderate pain, and 30% had severe pain. Moreover, 40% of patients did not have anxiety, 40% felt slight anxiety, and 20% of patients had severe anxiety. The EQ VAS of the adult patients in this study was 67 ± 17.191 and recorded the current health of all respondents on a vertical visual analog scale where the endpoints were labeled 'the best health that you can imagine' and 'the worst health that you can imagine'.

A study conducted in Mexico found that dengue has a significant effect on quality of life during the fever phase (Schulte et al., 2020). Research on the effect on the quality of life of adult dengue

patients was also conducted in Brazil where results showed that the majority of respondents considered that their general health was good/very good before being infected by dengue; this finding is in line with the fact that dengue is an acute infectious disease that affects people regardless of their health before infection (Martelli et al., 2011).

Table 1. Characteristics of dengue patients in Penembahan Senopati regional general hospital (n=18)

Characteristics	Total	Percentage (%)
Gender		
Male	12	66.67
Female	6	33.33
Total	18	100
Age		
4 – 7 Years	0	0
8 – 15 Years	8	44.44%
≥ 16 Years	10	55.56
Total	18	100
Last Education		
≤ High School	17	94.44
>High School	1	5.56
Total	18	100
History of Dengue		
Themselves	4	22.22
Family	7	38.89
Neighbours	0	0
None	7	38.89
Total	18	100
Patients Income		
< Rp.250,000	3	16.67
Rp.200,000 – Rp.500,000	6	33.33
Rp.1 – 3 million	8	44.44
>Rp.5 million	1	5.56
Total	18	100

Table 2. Percentage of reported any problem in 5 dimensions of EQ-5D-5L and visual analogue (VAS) scores. (n=10)

Health State	Level 1 (No Problem)	Level 2 (Slight Problems)	Level 3 (Moderate Problems)	Level 4 (Severe Problems)	Level 5 (Extreme Problems/ Unable To Do)
Walking Ability	90%	10%	0%	0%	0%
Self Care	60%	30%	10%	0%	0%
Usual Activities	30%	30%	20%	10%	10%
Pain	30%	10%	30%	30%	0%
Anxiety	40%	40%	0%	20%	0%
Questionnaire Dimension EQ-5D-5L			Mean		SD
Utility Score			0.572		0.237
EQ-VAS			67		17.191

According to Table 3, the quality of life of child patients relating to walking ability showed that 37.5% did not have any difficulties, 37.5% experienced slight difficulty, and 25% had difficulties. When asked if they had any problems in taking care of themselves, 25% did not have any problems, 62.5% had slight problems, and 12.5% experienced problems. For usual activities such as studying and playing, 37.5% of the child patients did not have any problems, 37.5% encountered slight problems, while 25% had problems doing their usual activities. Moreover, 62.5% of the child dengue patients experienced moderate pain, while 37.5% felt severe pain. As for anxiety, 37.5% of child dengue patients did not experience anxiety, 12.5% had slight anxiety and 50% had severe anxiety.

Table 3. Percentage of reported any problem in 5 dimensions of EQ-5D-Y and visual analogue (VAS) scores. (n=10)

Health State	Level 1 (No Problem)	Level 2 (Some Problems)	Level 3 (Many Problems)
Walking Ability	37.5%	37.5%	25%
Taking Care of Themselves	25%	62,5%	12.5%
Regular Activities	37.5%	37.5%	25%
Pain	0%	62.5%	37.5%
Anxiety	37.5%	12.5%	50%
EQ –VAS	Mean	SD	
	54.375	11.783	

The EQ VAS of the children in this study was 54.375 ± 11.783 which gives a quantitative measurement of the respondents' perception of their overall health (EuroQol Research Foundation, 2020). Other studies have reported an average EQ-VAS score of 7% for children aged 0-14 years who were in perfect health in Cambodia (Suaya et al., 2010), and in Brazil the score was found to be 10 for inpatients and 20 for outpatients, while the EQ-VAS score in Panama was 35.2 for children and 31.9 for adults (Schulte et al., 2020).

4. Conclusion

The quality of life of dengue patients that were measured with the EQ-5D-5L for adults and EQ-5D-Y for children obtained poor results due to the decrease of pain felt and the dimension of activities carried out such as working, studying, or playing.

Author Contributions: Conceptualization, Ariska Imaniar, Dyah, Woro, ; Formal analysis, Ariska; Resources, Dyah, Imaniar ; Data Curation, Ariska, Dania ; Writing—Original Draft Preparation, Ariska; Writing—Review and Editing, Ariska, Woro, Imaniar ; Supervision, Woro, Dyah; Funding acquisition, Dyah. All authors have read and agreed to the published version of the manuscript.

Funding

This research was supported by grants from the Institute for Research and Community Service of Universitas of Ahmad Dahlan (LPPM UAD): PD-095/SP3/LPPM-UAD/VI/2021, Research Team of Bigdata, Bioinformatic and Personalized Medicine in Pharmaceutical Care (MABIF) in Faculty of Pharmacy Universitas Ahmad Dahlan.

Acknowledgment

The researchers would like to thank the Institute for Research and Community Service of Universitas of Ahmad Dahlan (LPPM UAD), Bantul Panembahan Senopati Public Hospital, EuroQol Research Foundation, and other parties for their assistance during the research process.

References

- Conner-Spady, B. L., Marshall, D. A., Bohm, E., Dunbar, M. J., Loucks, L., Khudairy, A. Al, & Noseworthy, T. W. (2015). Reliability and validity of the EQ-5D-5L compared to the EQ-5D-3L in patients with osteoarthritis referred for hip and knee replacement. *Quality of Life Research*, 24(7), 1775–1784. <https://doi.org/10.1007/s11136-014-0910-6>
- Emrani, Z., Akbari Sari, A., Zeraati, H., Olyaeemanesh, A., & Daroudi, R. (2020). Health-related quality of life measured using the EQ-5D-5 L: Population norms for the capital of Iran. *Health and Quality of Life Outcomes*, 18(1), 1–9. <https://doi.org/10.1186/s12955-020-01365-5>
- EuroQol Research Foundation. (2019). EQ-5D User Guide. In *EueoQol Research Foundation*.
- EuroQol Research Foundation. (2020). EQ-5D-Y User Guide. *EuroQol Research Foundation 2020, September*, 1–20. www.impact-test.co.uk

- Fitriana, T. S., Purba, F. D., Rahmatika, R., Muhaimin, R., Sari, N. M., Bonsel, G., Stolk, E., & Busschbach, J. J. V. (2021). Comparing measurement properties of EQ-5D-Y-3L and EQ-5D-Y-5L in paediatric patients. *Health and Quality of Life Outcomes*, 19(1), 1–12. <https://doi.org/10.1186/s12955-021-01889-4>
- Harapan, H., Michie, A., Mudatsir, M., Sasmono, R. T., & Imrie, A. (2019). Epidemiology of dengue hemorrhagic fever in Indonesia: Analysis of five decades data from the National Disease Surveillance. *BMC Research Notes*, 12(1), 4–9. <https://doi.org/10.1186/s13104-019-4379-9>
- Hartiono, E. J., & Wandu, I. N. (2019). Hubungan antara status gizi dengan penurunan kadar trombosit pada anak yang menderita demam berdarah dengue di RSUP Sanglah Denpasar periode Maret - Desember 2015. *Jurnal Medika Udayana*, 8(8), 1–10.
- Hasan, S., Jamdar, S., Alalowi, M., & Al Ageel Al Beaiji, S. (2016). Dengue virus: A global human threat: Review of literature. *Journal of International Society of Preventive and Community Dentistry*, 6(1), 1. <https://doi.org/10.4103/2231-0762.175416>
- Khormi, H. M., & Kumar, L. (2012). The importance of appropriate temporal and spatial scales for dengue fever control and management. *Science of the Total Environment*, 430, 144–149. <https://doi.org/10.1016/j.scitotenv.2012.05.001>
- Martelli, C. M. T., Nascimento, N. E., Suaya, J. A., Siqueira, J. B., Souza, W. V., Turchi, M. D., Guilarde, A. O., Peres, J. B., & Shepard, D. S. (2011). Quality of life among adults with confirmed dengue in Brazil. *American Journal of Tropical Medicine and Hygiene*, 85(4), 732–738. <https://doi.org/10.4269/ajtmh.2011.11-0067>
- Rabin, R., & De Charro, F. (2001). EQ-5D: A measure of health status from the EuroQol Group. *Annals of Medicine*, 33(5), 337–343. <https://doi.org/10.3109/07853890109002087>
- Ravens-Sieberer, U., Wille, N., Badia, X., Bonsel, G., Burström, K., Cavrini, G., Devlin, N., Egmar, A. C., Gusi, N., Herdman, M., Jelsma, J., Kind, P., Olivares, P. R., Scalone, L., & Greiner, W. (2010). Feasibility, reliability, and validity of the EQ-5D-Y: Results from a multinational study. *Quality of Life Research*, 19(6), 887–897. <https://doi.org/10.1007/s11136-010-9649-x>
- Sari, A., Yuni Lestari, N., & Aryani Perwitasari, D. (2015). Validasi ST European Quality OF Life-5 Dimensions (EQ-5D) Versi Indonesia Pada Pasien Hipertensi Di Puskesmas Kotagede II Yogyakarta. *Pharmaciana*, 5(2), 131–137. <https://doi.org/10.12928/pharmaciana.v5i2.2483>
- Schulte, A., Weber, I., Tiga-Loza, D. C., Amaya Larios, I. Y., Shepard, D. S., Tschampl, C. A., Undurraga, E. A., Martínez-Vega, R. A., Fischer, F., Chihu, L., & Ramos-Castañeda, J. (2020). Health-related quality of life after dengue fever, Morelos, Mexico, 2016–2017. *Emerging Infectious Diseases*, 26(4), 751–755. <https://doi.org/10.3201/eid2604.190729>
- Suaya, J. A., Chantha, N., Huy, R., Sah, B. K., Changc, M., Socheat, D., Buchy, P., Vantha, T., Sivuth, O., Haileselassie, E., & Shepard, D. S. (2010). Clinical characterization, diagnosis and socioeconomic impact of hospitalized dengue in Cambodia. *Special Issue: Cost and Burden of Dengue and Chikungunya from the Americas to Asia.*, 34(Schneider Institutes for Health Policy, Heller School, Brandeis University, Waltham, Massachusetts, USA.), 89–103.
- Tondok, S. B., Watu, E., & Wahyuni, W. (2021). Validitas instrumen European Quality of Life (EQ-5D-5L) Versi Indonesia untuk menilai kualitas hidup penderita tuberkulosis. *Holistik Jurnal Kesehatan*, 15(2), 267–273. <https://doi.org/10.33024/hjk.v15i2.4759>