# STUDY CORRELATION BETWEEN BURDEN AND QUALITY OF LIFE OF DEPENDENT ELDERLY CAREGIVERS IN KLITREN, YOGYAKARTA

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# ABSTRACT

**Introduction:** Elderly with disabilities need caregiver's assistance in their activities of daily living. The caregiver can experience a burden during caring for dependent elderly. The burden can affect the caregiver's quality of life.

**Purpose:** To measure and test the correlation between dependent elderly's caregiver burden and quality of life in Klitren Kampong, Gondokusuman District, Yogyakarta Municipality.

**Method:** The subjects were primary informal caregivers aged  $\geq 18$  years with an excellent cognitive function caring for the elders with an ADL score <12. Respondents were selected using the consecutive sampling technique. This is quantitative research with a cross-sectional study design. Zarit Burden Interview and Caregiver Reaction Assessment were used to assessing the caregiver's burden. WHO Quality of Life-BREF was used to assess caregiver's quality of life. Data were analyzed using spearman's rank correlation.

**Results:** There were 21 female study subjects. The caregivers ' burden tended to be low in each of the CRA and ZBI domains (mean= $8.63\pm10.730-72.42\pm10.983$ ). Caregivers' quality of life tended to be low (mean= $49.76\pm11.962-60.76\pm11.726$ ). There was a strong and statistically significant correlation between the impact on finance (p=0.000, p=-0.678) and the impact on health (p=0.002, p=-0.602) on CRA with the environmental domain of WHOQoL-BREF. There was a strong and statistically significant correlation between the impact or relation between the impact of the schedule domain on CRA with the psychological domain of WHOQoL-BREF (p=0,000, p=-0.683).

**Conclusion:** There are significant correlations between caregivers' burden and quality of life, especially in specific domains. Caregivers with a higher burden have a lower quality of life.

Keywords: caregiver, dependent elderly, burden, quality of life.

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# **INTRODUCTION**

Life expectancy in Yogyakarta City increases each year causing an increase in the elderly population. The increase in the elderly population also causes an increase in elderly dependence. The dependency rate of the elderly on the productive population in 2018 reached 14.49% <sup>1</sup>. The care provided by the caregiver increases when the health condition of the elderly declines <sup>2</sup>.

A previous study has revealed the relationship between caregiver burden and quality of life <sup>3</sup>. This relationship has a negative or inverse correlation meaning that family caregivers who have an increase in burden will generally experience a decrease in quality of life <sup>4</sup>.

This present study aims to examine the correlation between caregiver burden and quality of life of dependent elderly caregivers in Kelurahan Klitren, Yogyakarta City.

# METHOD

# **Participants**

This study used a cross-sectional design, and it was conducted in Klitren, Gondokusuman, Yogyakarta, from December 2019 to January 2020. The respondents consisted of 21 informal caregivers who are taking care of dependent elderly. They were selected using a consecutive sampling technique. The inclusion criteria are caring for elderly aged  $\geq 60$  years, caring for elderly with ADL < 12, have a good cognitive function (if the caregiver is  $\geq 60$  years old), informal primary caregivers, aged  $\geq 18$  years, and the exclusion criterion is not willing to participate in the study.

# **Data collection**

This study used primary data with the Caregiver Reaction Assessment questionnaire and the Zarit Burden Interview to assess the caregiver burden and the WHO Quality of Life-BREF to assess the caregiver's quality of life. Before data collection, the elderly who were treated were screened first with the ADL, IADL, AD8, and MMSE questionnaires.

#### **Statistical Analysis**

Data analysis used the Spearman correlation analysis method. Then, it also used Bonferroni correction to see the correlation between the caregiver's burden and quality of life. Confounding factor analysis used Spearman's rho analysis method and the Kruskal Wallis Test. However, the confounding factor analysis was not continued to the multivariate analysis.

### RESULTS

This study involved 21 caregivers of dependent elderly. The mean age of

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caregivers was  $51.24 \pm 10.867$  years. The mean age of the elderly was  $78.43 \pm 9.217$ . All caregivers were female (100%), of which most of them were daughters, daughters-in-law, and nieces of the elderly who were treated (76.2%). Most caregivers do not work (71.4%) and take care of the elderly for more than 19 hours a day (52.4%).

Based on the ADL score, most of the dependent elderly experienced severe dependence (57.1%). Based on the IADL score, most of the dependent elderly need help. Further, most of the dependent elderly experienced severe cognitive impairment (66.7%).

Most of the caregivers who cared for the dependent elderly had a poor quality of life in the domains of physical health (81.0%), psychological (71.4%), social relationships (52.4%), and environmental (57.1%). The description of the caregiver's burden and quality of life for the dependent elderly is presented in Table 1.

Variable	n	Mean $\pm$ SD	Median (IQR)	Min-Max
ZBI				
Burden in the relationship	21	39.29±13.855	37.50 (22.92)	13-67
Emotional well-being	21	27.04±13.390	28.57 (21.42)	4-57
Social and family life	21	8.63±10.730	6.25 (18.75)	0-31
Finances	21	22.62±29.480	0.00 (50.00)	0-100
Loss of control over one's life	21	19.94±12.596	25.00 (15.62)	0-38
Total	21	25.54±10.168	27.27 (14.78)	8-48
CRA				
Self-esteem	21	72.42±10.983	75.00 (14.59)	50-88
Lack of family support	21	39.29±23.521	35.00 (35.00)	5-85
Impact on finance	21	34.13±18.616	25.00 (12.50)	17-100
Impact on schedule	21	45.95±16.630	45.00 (20.00)	25-95
Impact on health	21	38.10±13.837	33.33 (25.00)	25-67
WHOQOL-BREF				
Physical health	21	49.76±11.962	56.00 (15.00)	31-69
Psychological	21	51.10±12.668	50.00 (19.00)	19-69
Social relationships	21	60.76±11.726	56.00 (22.00)	44-75
Environment	21	57.24±12.565	56.00 (16.00)	31-75

Table 1. Description of burden and quality of life of caregivers

The Shapiro-Wilk test was used in the normality test for sample sizes of < 505. Based on the normality test results, the total ZBI and WHOQoL environmental domain have a p-value of > 0.2. Thus, the data were considered normally distributed. However, other data showed non-normal distribution (p-value <0.2). Therefore, the

#### Online-ISSN 2565-1409

parametric test could not be carried out. The data were analyzed using nonparametric analysis with the Spearman test.

The correlation between caregiver burden and quality of life showed that the higher caregiver burden correlates with, the lower quality of life. However, some extreme values or outliers do not much deviate from the hypothesis. It is indicated by one respondent who has a low burden and low quality of life on the scatter plot graph.



Figure 1. Scatter plot graph between caregiver burden and general quality of life

The results of the analysis of the burden variable covering the CRA and ZBI questionnaires and caregiver quality of life covering the WHOQoL-BREF questionnaire are presented in Table 2. Bonferroni correction was used to reduce the possibility of type I errors. Type I errors can arise if the null hypothesis is rejected, even though the null hypothesis should be accepted. Bonferroni correction changes the significance limit value of 0.05 by dividing 0.05 by the number of statistical tests performed 6. This study performed 24 statistical tests, and it obtained the significance limit value of 0.002 using the Bonferroni correction.

WHOQoL-	Physical	health	Psycholo	gical	Social	relation	Environr	nent
BREF	domain		domain		domain		domain	
Burden	ρ	р	ρ	р	Р	р	ρ	Р
CRA								
Pride domain	0.374	0.048	0.083	0.361	0.406	0.034	0.138	0.275
Lack of family support domain	-0.043	0.426	-0.197	0.195	-0.444	0.022	-0.414	0.031
Impact on finance domain	-0.321	0.078	-0.280	0.110	-0.284	0.106	-0.678	0.000
Impact on schedule domain	-0.296	0.096	-0.683	0.000	-0.467	0.016	-0.347	0.061
Impact on health domain	-0.260	0.127	-0.572	0.003	-0.391	0.040	-0.602	0.002
ZBI								
Total	-0.278	0.111	-0.383	0.043	-0.520	0.008	-0.396	0.038

 Table 2 Correlation between CRA and ZBI scores with WHOQoL-BREF scores using

 Spearman's rho test

The analysis of confounding factors used the Spearman's rho test. It showed that the caregiver age only had a significant correlation with the social relation domain on quality of life (p = 0.020,  $\rho = -0.453$ ). The analysis of confounding factors and quality of life using the Kruskal Wallis test is presented in Table 3.

Table 3. Relationship of Confounding Factors and WHOQoL-BREF Score Using the Kruska
Wallis Test

<u></u>					
WHOQoL-	Physical health	Psychological	Social relation	Environment	
BREF	domain	health domain	domain	domain	
Con-		7 44	F.(2)	<b>F</b> <i>M</i>	
founding factors	Effect size	Effect size	Effect size	Effect size	
Previous caring	0.075	0 385	0 320	0 546	
experience	0.070	0.000	0.520	0.010	
Length of caring in	0 179	0 147	0.212	0 228	
a day	0.179	0.147	0.212	0.220	
Duration of caring	0.096	0 325	0.340	0.497	
in a year	0.090	0.525	0.549	0.497	
Caregiver					
relationship with	0.133	0.262	0.342	0.343	
the elderly					
ADL	0.166	0.323	0.165	0.250	
IADL	0.300	-	0.213	-	
MMSE	0.101	0.184	0.228	0.295	
AD8	0.199	0.121	0.068	0.151	

Journal of Widya Medika Junior Vol 3. No. 3 July 2021

#### DISCUSSION

This study measures and tests the correlation between burden and quality of life of caregivers for dependent elderly. In this study, caregiver burden correlates with caregiver quality of life only in specific domains. The caregiver's quality of life tends to be poor, and so does the burden.

The low burden can be because most caregivers (76.2%) are daughters, daughters-in-law, and nieces of the elderly cared for, while siblings and spouses have a high risk of experiencing a high burden compared to children and grandchildren 7. Spouses have a higher risk of experiencing a higher burden as they feel a greater responsibility in caring compared to children 8.

In this study, it appears that the quality of life of caregivers who care for the dependent elderly is lower than the quality of life of families with elderly people in general 9. In this study, the quality of life of caregivers who care for dependent elderly is similar to the previous studies. Almost all quality of life of caregivers has a mean of lower than 60 indicating poor quality of life 10. This difference can be due to the increasing dependence of the elderly over time associated with the lower quality of life of the caregiver 11. It is caused by the elderly with a higher level of dependence will require longer treatment and assistance

time 12. The longer the time spent caring for the elderly in a day is associated with, the lower quality of life of the caregiver 13,14.

The confounding factor of caregiver age has a significant negative correlation with social relationships on quality of life. It indicates that the older the caregiver, the lower the quality of life in social relationships. It can be due to the caregiver's time and energy spent caring for the elderly, leading to reduced network and social interaction of caregivers 15,16. Therefore, loneliness can harm the quality of life of the elderly 17.

Previous nursing experience is a confounding factor with the highest effect on the quality of life, although it is not statistically significant. Previous caring experiences have a moderate effect on the environmental domain of quality of life. It is because caregivers who have no previous caring experience are not ready to care for the elderly as they have not sure of their knowledge and ability to provide care 18.

Meanwhile, confounding factors cannot be involved in the correlation analysis between caregiver burden and quality of life as it uses Spearman's rank correlation analysis.

In this study, the burden in the domain of impact on schedule significantly correlates with the psychological domain Study Correlation between Burden...

of quality of life. Besides, the burden on the impact on finance and the impact on health significantly correlate with the environmental domain of quality of life. However, previous studies that the burden measured by ZBI had a significant correlation with all domains of quality of life using WHOQoL-BREF on caregivers who cared for patients with dementia 19. Dementia patients experience decreased cognitive function and psychological and behavioral problems that can affect the caregiver's burden and quality of life 7,19– 21. Meanwhile, in this study, not all elderly experience cognitive impairment.

The impact of the schedule domain on CRA has a significant negative correlation with the psychological domain on quality of life ( $\rho = -0.683$ , p = 0.000), indicating that the higher burden on the schedule domain's impact correlates with the increasingly lower burden quality of life on the psychological domain. It is consistent with previous studies in which the more significant impact on daily schedules is associated with worsening caregiver depression 22. It is because the elderly with a higher level of dependence will require longer treatment and assistance time 12, in which caring relates to depression in the caregiver 23.

The impact on the finance domain on CRA has a significant negative correlation with the environmental domain Kristina H, Widagdo TMM, Perdamaian TK

on quality of life ( $\rho = -0.678$ , p = 0.000), indicating that the higher the burden on the impact on finance domain correlates with the lower quality of life in the environmental domain. The environmental domain in quality of life involves many things, including financial resources 24. It is consistent with previous studies in which economic burdens are associated with lower quality of life of caregivers 25. It is because the caregiver spends time and energy to provide care so that they lose or lack time to work, which will result in a loss of income 15,25. Therefore, financial support can help reduce the caregiver's financial burden 26.

The impact on the health domain on CRA has a significant negative correlation with the environmental domain on quality of life ( $\rho = -0.602$ , p = 0.002). It indicates that the higher burden in the impact on the health domain correlates with the lower quality of life in the environmental domain. It is consistent with previous studies where health problems significantly relate to the environmental domain of quality of life 27,28. It can be due to health problems related to lack of access to good quality health services 27. Lack of knowledge about accessing and health utilizing services can make caregivers neglect their health needs 29.

Further, there is also a possibility that the caregiver burden is not a major

factor affecting the caregiver's quality of life. It is consistent with previous studies in which there is no significant correlation between burden and quality of life of caregivers 30. This lack of correlation can be influenced by adaptation to new routines through fast-forming habits, effective problem-solving skills, and beliefs that are not difficult to change 31.

This study investigates deeper into the dependence aspects of the elderly, while previous studies used the general elderly population. The cross-sectional design provides an overview of current conditions, but the number of samples is difficult to meet. Therefore, this study has a low power of 35% - 44%. It means that the study has a 35% - 44% chance of obtaining a P value of less than 0.05 in a statistical test 32.

In this study, the analytical approach has adjusted to the conditions of multiple comparisons using Bonferroni reduce correction to errors during interpretation. However, the role of confounding factors has not been optimally explored.

#### ACKNOWLEDGEMENT

- Research respondents in Klitren, Gondokusuman, Yogyakarta City, Special Region of Yogyakarta.
- 2. Klitren Sub-District Head.

3. Kusumaning Jati Elderly Commission.

# CONCLUSION

The caregiver burden of the dependent elderly tends to be low. The quality of life of the caregiver tends to be poor. This study reveals a strong and statistically significant correlation between the impact on the finance domain and the impact on the health domain on CRA with the environmental domain on quality of life and between the impact on schedule domain on CRA and the psychological domain on WHOQoL-BREF. There is a possibility that the burden is not a dominant factor for the caregiver's quality of life.

Researchers can deal with sample sizes by conducting multicenter studies or expanding the geographic scope of the study. Researchers can analyze the effect of confounding factors on the correlation between caregiver burden and quality of life by carrying out linear regression.

#### REFERENCES

- Badan Pusat Statistik. Statistik Penduduk Lanjut Usia 2018. Jakarta: Badan Pusat Statistik; 2018. 28 p.
- Brinda EM, Rajkumar AP, Enemark
   U, Attermann J, Jacob KS. Cost and
   burden of informal caregiving of

dependent older people in a rural Indian community. 2014;14(1):1–9.

- Zacharopoulou G, Zacharopoulou V, Lazakidou A. Quality of Life for Caregivers of Elderly Patients with Dementia and Measurement Tools : A Review. 2015;3(1):49–64.
- 4. Kumalasari DN. Hubungan antara Burden Family Caregiver dengan Kualitas Hidup Family Caregiver dalam Merawat Pasien Demensia di RSUP Dr. Sardjito Yogyakarta [Internet]. Universitas Gadjah 2017. Mada; Available from: http://etd.repository.ugm.ac.id/index .php?mod=penelitian detail&sub=P enelitianDetail&act=view&typ=htm 1&buku id=131817&obyek id=4
- Das KR, Imon AHMR. A Brief Review of Tests for Normality. Am J Theor Appl Stat. 2016;5(1):5–12.
- Sedgwick P. Multiple significance tests: The Bonferroni correction. BMJ. 2012;344(7841):1–2.
- 7. Watanabe О. J. Chompikul Kawamori M, Pimpisan N, Visanuyothin S. Predictors of Family Caregiver Burden in Caring for Older People in the Urban District of Nakhon Ratchasima Province , Thailand. J Int Heal. 2019;34(4):217-28.
- 8. Friedemann M-L, Buckwalter KC. Family Caregiver Role and Burden

Related to Gender and Family Relationships. 2015;20(3).

- Perdamaian TK, Manus WC, Periska SD, Steffiasih NNPA. The Impact of Bina Keluarga Lansia program on the Quality of Life of Elderly in Sleman, Yogyakarta. KEMAS. 2020;15(3):324–30.
- Anjos KF dos, Boery RNS de O, Pereira R, Pedreira LC, Vilela ABA, Santos VC, et al. Association between social support and quality of life of relative caregivers of elderly dependents. Cien Saude Colet. 2015;20(5):1321–30.
- Oldenkamp M, Hagedoorn M, Wittek R, Stolk R, Smidt N. The impact of older person 's frailty on the care-related quality of life of their informal caregiver over time : results from the TOPICS-MDS project. 2017;2705–16.
- Nurjannah S, Sumarso M. Determinan beban pengasuh pasien stroke pasca perawatan di rumah sakit di RSUD dr . Soediran. 2017;143–8.
- Mclennon SM, Habermann B, Rice M. Aging & Mental Health Finding meaning as a mediator of burden on the health of caregivers of spouses with dementia. 2011;(December 2014):37–41.
- 14. Yang X, Hao Y, George SM, Wang

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L. Factors associated with healthrelated quality of life among Chinese caregivers of the older adults living in the community: a cross-sectional study. Health Qual Life Outcomes [Internet]. 2012;10(1):1. Available from: Health and Quality of Life Outcomes

- Otis-Green S, Juarez G. Enhancing the Social Well-Being of Family Caregivers Shirley. Semin Oncol Nurs. 2012;28(4):246–55.
- Swain SP, Behura SS, Dash MK. A comparative study of family burden and quality of life between caregivers of schizophrenia and dementia patients. 2017;4(6):2021–6.
- Arslantaş H, Adana F, Abacigİl Ergİn F, Kayar D, Acar G. Loneliness in elderly people, associated factors and its correlation with quality of life: A field study from Western Turkey. Iran J Public Health. 2015;44(1):43–50.
- Palma E, Simonetti V, Franchelli P, 18. Pavone D. Cicolini G. An Observational Study of Family Caregivers Quality of Life Caring for Patients With Stoma. а Gastroenterol Nurs. 2012;35(2):99-104.
- 19. Dawood S. Caregiver Burden ,

Quality of Life and Vulnerability Towards Psychopathology in Caregivers of Patients with Dementia / Alzheimer 's Disease. 2016;26(11):892–5.

- 20. Liu S, Li C, Shi Z, Wang X, Zhou Y, Liu S, et al. Caregiver Burden and Prevalence of Depression, Anxiety and Sleep Disturbances in Alzheimer's Disease Caregivers in China. 2016;
- Labiano-fontcuberta A, Mitchell AJ, Moreno-garcía S, Benito-león J. Cognitive impairment in patients with multiple sclerosis predicts worse caregiver 's health- related quality of life. 2014;1769–80.
- 22. Ohrnberger J, Fichera E, Sutton M. The relationship between physical and mental health: A mediation analysis. Soc Sci Med [Internet]. 2017;195(October):42–9. Available from: https://doi.org/10.1016/j.socscimed.

2017.11.008

- Kurtz ME, Kurtz JC, Given CW, Given BA. Depression and physical health among family caregivers of geriatric patients with cancer – a longitudinal view. 2004;10(8):447– 57.
- 24. Beattie S, Lebel S. The experience of caregivers of hematological cancer patients undergoing a

hematopoietic stem cell transplant: A comprehensive literature review. Psychooncology. 2011;20(11):1137–50.

- 25. WHO. Whoqol-Bref: Introduction , Administration , Scoring and Generic Version of the Assessment Field Trial Version December 1996 Programme on Mental Health World Health Organization. 1996;(December):5.
- 26. Yun YH, Rhee YS, Kang IO, Lee JS, Bang SM, Kim WSL, et al. Economic Burdens and Quality of Life of Family Caregivers of Cancer Patients. 2005;107–14.
- Lai DWL. Effect of financial costs on caregiving burden of family caregivers of older adults. SAGE Open. 2012;2(4):1–14.
- 28. Onunkwor OF, Al-dubai SAR, George PP, Arokiasamy J, Yadav H, Barua A, et al. A cross-sectional study on quality of life among the elderly in non-governmental organizations ' elderly homes in Kuala Lumpur. Health Qual Life Outcomes [Internet]. 2016;1–10. Available from: http://dx.doi.org/10.1186/s12955-016-0408-8
- Gholami A, Jahromi LM, Zarei E, Dehghan A. Application of WHOQOL-BREF in Measuring

Quality of Life in Health-Care Staff. Int J Prev Med [Internet]. 2013;4(7):809–817. Available from: https://www.ncbi.nlm.nih.gov/pmc/a rticles/PMC3775221/

- 30. Reinhard SC, Given B, Petlick NH, Bemis A. Supporting Family Caregivers in Providing Care. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville: Agency for Healthcare Research and Quality; 2008.
- 31. Caro CC, Costa JD, Da Cruz DMC. Burden and Quality of Life of Family Caregivers of Stroke Patients. Occup Ther Heal Care [Internet]. 2018;32(2):154–71. Available from: https://doi.org/10.1080/07380577.20 18.1449046
- 32. Bandolier. Statistical power [Internet]. 2007 [cited 2020 Apr 14]. Available from: http://www.bandolier.org.uk/booth/g lossary/statpow.html