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ARTIKEL PENELITIAN

THE INFLUENCE OF SOCIAL SUPPORT AND DEMOGRAPHICS ON DEPRESSION AND MILD COGNITIVE DECLINE IN DEVOUT ELDERLY INDIVIDUALS

PENGARUH DUKUNGAN SOSIAL DAN DEMOGRAFI TERHADAP DEPRESI DAN PENURUNAN KOGNITIF RINGAN PADA PARA LANJUT USIA YANG TAAT BERIBADAH

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ABSTRACT
Introduction: Elderly individuals often experience psychosocial vulnerabilities that increase their risk for psychological disorders and are linked to cognitive impairments. This study explored how social support and demographic variables relate to the incidence of depression and cognitive decline among devout older adults.
Methods: This cross-sectional observational study involved 125 senior participants from the Javanese Christian Church in Ambarrukma District of Yogyakarta. The research utilized demographic questionnaires, social support evaluations, surveys on religious attitudes, the Geriatric Depression Scale, and the MOCA-Ina tests. Data will undergo univariate and bivariate analyses and binary linear regression to evaluate odds ratios (OR), 95% confidence intervals (CI), and Pearson correlations between variables.
Results: Elderly devout respondents (99.2%) who received good social support were more likely to experience no depression (47.9%) than those with poor social support (40.3%) (p=0.025; OR 0.182; 95% CI 0.038-0.873). The female gender suffered more from mild depression (p=0.021; OR 0.176; 95% CI 0.037-0.841) compared to men. Older adults with an education level of 7 years or more showed less mild cognitive impairment (p=0.044; OR 4.500; 95% CI 0.929-21.802).
Conclusion: This study revealed that social support plays a role in modifying the incidence of depression in devout elderly individuals. The female gender suffered more from mild depression. Additionally, lower education levels were correlated with mild cognitive impairment. Further research with a more robust analysis with a larger sample size and consideration of other factors is necessary to confirm the causal relationships between social support and gender and depression.
Key Words: cognitive function, demographics, depression, elderly, religious attitudes, social support

ABSTRAK
Pendahuluan: Lanjut usia sering mengalami kerentanan psikososial, yang meningkatkan risiko mengalami gangguan psikologis dan berkaitan dengan gangguan fungsi kognitif. Penelitian ini bertujuan untuk mengetahui hubungan dukungan sosial dan beberapa variabel demografi dengan terjadinya depresi dan penurunan fungsi kognitif pada lanjut usia yang taat beribadah.
Metode: Studi observasional dengan desain potong lintang pada 125 responden komunitas lansia Gereja Kristen Jawa Kecamatan Ambarrukma Yogyakarta. Instrumen penelitiannya adalah angket untuk mengetahui data demografi, angket dukungan sosial, angket Skala Depresi Geriatri, angket Sikap Beragama, dan angket MOCA-Ina. Data akan dianalisis secara univariat dengan menggambarkan karakteristik responden, bivariat untuk mengetahui signifikansi hubungan antara variabel bebas dan variabel terikat, regresi linier biner untuk mengevaluasi odds ratios (OR), 95% confidence intervals (CI) dan korelasi untuk mengetahui kekuatan korelasi antar variabel.
Hasil: Responden lanjut usia taat beribadah (99,2%) yang mendapat dukungan sosial baik lebih banyak tidak depresi (47,9%) dibandingkan dengan dukungan sosial buruk (40,3%) (p=0,025; OR 0,182; 95% CI 0,038-0,873). Lanjut usia berjenis kelamin perempuan lebih banyak mengalami depresi ringan (p=0,021; OR 0,176;

95% CI 0,037-0,841) dibandingkan laki-laki. Lansia dengan tingkat pendidikan 7 tahun atau lebih menunjukkan gangguan kognitif ringan lebih rendah (p=0,044, OR 4,500, 95% CI 0,929-21,802).
Simpulan: Studi menunjukkan bahwa dukungan sosial yang baik berperan dalam memodifikasi insiden depresi lanjut usia yang taat beribadah. Status perkawinan mempunyai dampak penting terhadap kejadian depresi ringan pada wanita lanjut usia. Rendahnya tingkat pendidikan berhubungan dengan gangguan fungsi kognitif ringan. Penelitian lebih lanjut diperlukan untuk mengetahui hubungan kausalitas antara dukungan sosial dan jenis kelamin dengan depresi.
Kata Kunci: demografi, depresi, dukungan sosial, fungsi kognitif, lanjut usia, sikap keagamaan

INTRODUCTION

The results of the March 2023 National Social Economy Survey (Survei Sosial Ekonomi Nasional/Susenas) in Indonesia show that 18 provinces have a percentage of elderly individuals exceeding 10 percent; therefore, they are categorized as provinces with an elderly population structure. The Special Region of Yogyakarta Province occupies the top position, with 16.02 percent of elderly people.[1] Depression and mild cognitive decline are significant health concerns among the elderly population, with social support and demographic factors playing crucial roles in their development and progression. Research has shown that social connectivity and support can have protective effects against depression and cognitive impairment in the elderly. For instance, frequent phone contact with friends and family has been associated with lower odds of mild cognitive impairment (MCI) and dementia.[2] Informal social support provided by spouses as well as family and close relatives and the availability and quality of formal social support provided by an institution lower the risk of depression and impaired cognitive function. Depression results from divorce and contributes to impaired cognitive function.[3] Interestingly, the relationship between social support, depression, and cognitive function is complex and can vary based on demographic factors. Studies have found that low educational and occupational levels are related to anxiety and depression in older adults, with differences observed between men and women.[4] Factors related to social support in elderly individuals still require further investigation because the prevalence of the problem is increasing, its negative impact on physical and mental health, limited understanding of the role of informal social support concerning marital status, and impaired cognitive function.[5]

Religiosity/religious attitudes (R/RA) have a complex relationship with depression, which is influenced by many factors, namely gender, individual characteristics, personal beliefs and practices, social and cultural backgrounds, and social support. Social support in religious communities continues to be explored and can contribute to the understanding of the complex interconnectedness between religion, social support, and mental health in older people.[6] As individuals experience cognitive impairment, there tends to be a shift in their religiosity from being more extrinsic to more intrinsic. Extrinsic religiosity is defined as participation in religious services primarily for socializing and community affiliation, and may diminish in significance as cognitive functions deteriorate. Conversely, intrinsic religiosity, in which individuals derive per-

sonal meaning and comfort from faith, may become more pronounced. This internalization of faith can provide comfort and a sense of purpose, helping individuals cope with the challenges posed by cognitive decline. Thus, it is important to recognize how spiritual beliefs and practices can evolve in response to changes in cognitive health, potentially offering emotional support during difficult times.[7,8]

Social support typically has a beneficial impact on the mental health and cognitive abilities of elderly individuals. However, the effects may differ based on various demographic factors and the specific type of support received. Understanding these nuances is crucial for developing targeted interventions to improve the well-being of the elderly. Further research is needed to explore the intricate relationships among social support, demographics, depression, and mild cognitive decline in this population, particularly considering the role of spirituality and religious practices.[9] We engaged in research within the elderly community of the Javanese Christian Church, also known as Gereja Kristen Jawa (GKJ) of the Ambarrukma District Yogyakarta. This is a pioneering study in the GKJ.

METHODS

This was an observational analysis with a cross-sectional design involving 125 elderly respondents aged 60 years or older from the elderly community of the Javanese Christian Church (GKJ) of the Ambarrukma District Yogyakarta. The independent variables were social support, demographic characteristics, and religious attitudes. Depression and cognitive function were dependent variables. Elderly people with moderate-to-severe cognitive impairment were excluded from this study. This study used five questionnaires: a questionnaire to collect demographic data, a Social Support questionnaire, a Geriatric Depression Scale (GDS) questionnaire, a Religious Attitude questionnaire, and the Indonesian version of the Montreal Cognitive Assessment questionnaire (MoCA-Ina). This research was approved by the Health Research Ethics Commission, Faculty of Medicine, Duta Wacana Christian University (No. 1601/C.16/FK/2-24). Data collection began in June 2023 and continued until August 2023. Elderly individuals who have received pertinent information and express willingness to participate in the research will complete the questionnaire independently and individually during their attendance at senior meetings and services within the church. Furthermore, we visited the residences of elderly respondents who were unable to attend services and meetings.

The Social Support Questionnaire was taken from the Medical Outcome Study: Social Support Survey Instrument (MOS SSS), which was adjusted to align with the social support framework from Sarafino's work theory.[10,11] The Social Support Questionnaire has been translated into Indonesian, validated (r count– 0.361-0.780) and tested for reliability (Cronbach's alpha showed a value of 0.815).[12] The level of social support was assessed as 1 for poor social support and 2 for good social support.

The long version of the GDS questionnaire includes 30 questions in the Indonesian

version. The GDS questionnaire contains 30 questions with a yes or no response.[13] The Indonesian version of the GDS-30 has been validated and is widely used in Indonesian research.[13] The assessment was divided into 1-9 normal, 10-19 mild depression, and 20-30 major depression. The GDS-30 has been validated in studies with Indonesian elderly participants, which reported a Cronbach's alpha reliability coefficient ranging between 0.877 and 0.930, and the level of depression based on the GDS was assessed as 1 mild-severe depression and 2 normal (no depression).[14]

The Religious Attitudes questionnaire assesses the understanding of religion, Christian spirituality, and existence in religious communities.[15,16] The questionnaire consists of 24 questions in two parts: 1. How do I understand my religion and Christian spirituality during and after the COVID-19 pandemic? The first part was found in questions number 1-6; 2. How do I currently understand a community or a group? The second part was in question number 7-24. The answer ranged from strongly disagree with a value of 1 to strongly agree with a value of 5. Questionnaires numbers 1 to 6 are adapted and taken from questionnaires about the philosophy of religious education goals.[15] Questionnaire number 7-24 are adapted from the questionnaire about the sense of community.[16] The lowest score is 24 and the highest is 120, divided into three levels of religious attitudes, namely a value of 1 (≤ 33.3%: score 24-40); 2 (33.4%-66.6%: score 40-80); and 3 (≥66.6%: score 81-120). The Religious Attitudes questionnaire has not been validated or tested for reliability.

The MoCA-Ina was validated by Lestari, *et al*.[17] The MoCA-Ina exhibited robust reliability and validity, as evidenced by a Cronbach's alpha of 0.976, signifying exceptional internal consistency.[17] The level of cognitive function was assessed as 1 mild cognitive function impairment and 2 normal cognitive functions.

Descriptive analysis was conducted to explain the demographic characteristics, level of social support received, level of depression, level of religious attitude, and level of cognitive function of the elderly respondents. Bivariate analysis employed the chi-square test to ascertain the relationship between levels of social support and demographic factors with depression and minor cognitive decline among the devout elderly. Variables with a significance level of $p<0.25$. were included in the multivariate analysis. A binary logistic regression test was used to determine the odds ratio and 95% confidence interval (95% CI) of the level of social support with these variables. Correlation analysis between variables was performed using Spearman's method to determine the correlation coefficients between the research variables.

RESULTS

The respondents of this study (Table 1) were 119 elderly individuals, and six respondents' data showed moderate to severe cognitive impairment; therefore, the data were excluded from the data analysis. The average age of the respondents was 69.2 years, and

the oldest was 90 years. The oldest male was 90 years old and the oldest female was 83 years old.

Elderly female participants represented 57% of the sample; individuals who were educated within the age range of 7 to 12 years and those aged 13 years and above accounted for 44.5% and 46.2%, respectively. Furthermore, 59.7% and 37% were non-working and informal workers, respectively. A significant majority (91.6%) of respondents cohabitate with their primary family. Elderly respondents exhibited a notably high level of religious commitment, with 99.2% demonstrating this characteristic.

Table 1. Sociodemographic Descriptive Data Based on Marital Status

Demographic Characteristics	n (%)	Divorced/ Widowed	Unmarried	Married	p-Value
Age					
Old senior (> 70)	57 (47,9)	34(28,6%)	2(1,7%)	21(17,6%)	0,000
Young senior (60- 70)	62 (52,1)	11(9,2%)	2(1,7%)	49(41,2%)	
Gender					
Man	51 (41,9)	7(5,9%)	3(2,5%)	41(34,5%)	0,000
Woman	68 (57,1)	38(31,9%)	1(0,8%)	29(24,4%)	
Education					
0-3 years	1 (8)	0	0	1(0,8%)	0,001
4-6 years	10 (8,4)	8(6,7%)	1(0,8%)	1(0,8%)	
7-12 years	53 (44,5)	27(22,7%)	1(0,8%)	25(21%)	
≥ 13 years	55 (46,2)	10(8,4%)	2(1,7%)	43(36,1%)	
Family					
Alone	10 (8,4)	8(6,7%)	2(1,7%)	0	0,000
With the main family	109 (91,6)	37(31,1%)	2(4%)	70(58,8%)	
Employment Status					
Not working	71 (59,7)	31(26,2%)	1(0,8%)	39(32,8%)	0,267
Informal	44 (37)	12(10,1%)	3(2,5%)	29(24,4%)	
Formal	4 (3,4)	2(1,7%)	0	2(1,7%)	
Religious Attitudes					
Low-medium	1 (0.8)				
High	118 (99.2)				

Elderly people with married status accounted for 58.8% of respondents, many were 60-70 years old (41.2%), many were male (34.5%), educated ≥13 years old (36.1%), and lived with a main family (58.8%). Descriptive data on social support, gender, and education level will be analyzed concerning depression rates and cognitive function in older adults, as shown in Table 2.

A larger number of elderly respondents who received good social support did not experience depression (47.9%) than those who received poor social support (40.3%). Elderly respondents who received good social support exhibited mild depression (10.1%), while those who received poor social support showed lower levels (1.7%) (p=0.025; OR 0.182; 95% CI 0.038-0.873). While the data suggests an association between social support and depression, they do not establish

Table 2. The Relationship between Sociodemographic Characteristics, Depression Levels, and Cognitive Function Based on Social Support, Gender, and Education Level

Demographic Characteristics	n (%)	Social Support		Gender		Education Level	
		Poor	Good	Man	Woman	4-6 years	7-12 years
Age		0.446		0.204* OR 0.622 (CI 95% 0.299-1.295)		0.273	
>70 years	57 (47.9)	26 (21.8%)	31 (26.1%)	21 (17.6)	36 (3 0.3%)	7 (5.8%)	50 (42%)
60- 70 years	62 (52.1)	24 (2 0.2%)	38 (31.9%)	30 (25.2%)	32 (26.9%)	4 (3.4%)	58 (48,8%)
Marital status		0.594		0.000** OR 0.181 (CI 95% 0.078-0.421)		0.004** OR 7.650 (CI 95% 1.574-37.184)	
Divorced/Widowed/Unmarried	49 (41.2)	22 (18.4%)	27 (22.7%)	10 (7.1%)	39 (32.7%)	9 (7.5%)	40 (33.6%)
Married	70 (58.8)	28 (23.5%)	42 (35.3%)	41 (34.5%)	29 (24.4%)	2 (1.8%)	68 (57.1%)
Family		0.229* OR 2.216 (CI 95% 0.591-8.310)		0.633		0.018** OR 5.411 (CI 95% 1.169-25.041)	
Alone	10 (8.4)	6 (5%)	4 (3.4%)	5 (4.2%)	5 (4.2%)	3 (2.5%)	7 (5.8%)
With the nuclear family	109 (91.6)	44 (37%)	65 (54.6%)	46 (38.7%)	63 (52.9%)	8 (6.7%)	101 (84.9%)
Employment Status		0.919		0.694		0.706	
Not working	71 (59.7)	29 (24.4%)	42 (35.2%)	32 (26.9%)	39 (32.8%)	6 (5%)	65 (54.6%)
Informal/ Formal	48 (40.4)	21 (17.7%)	27 (22.7%)	19 (15.9%)	29 (24.3%)	5 (4.2%)	43 (36.2%)
Depression rate		0.025** OR 0.182 (CI95% 0.038-0.873)		0.021** OR 0.176 (CI95% 0.037-0.841)		0.488	
Mild depression	14 (11.8)	2 (1.7%)	12 (1 0.1%)	2 (1.7%)	12 (1 0.1%)	2 (1.7%)	12 (1 0.1%)
Normal	105 (88.2)	48 (4 0.3%)	57 (47.9%)	49 (41.2%)	56 (47.1%)	9 (7.5%)	96 (8 0.7%)
Cognitive function		0.844		0.711		0.044** OR 4.500 (CI 95% 0.929-21.802)	
Minor disturbances	63 (52.9)	27 (22.7%)	36 (3 0.3%)	25 (21%)	31 (26.1%)	9 (7.5%)	54 (45.4%)
Normal	56 (47.1)	23 (19.3%)	33 (27.7%)	26 (21.8%)	37 (31.1%)	2 (1.7%)	54 (45.4%)

* Statistical variables that were not meaningful (p>0.05) were analyzed using multivariate analysis.
**Statistically significant variables (p≤0.05) will be analyzed in multivariate analysis.

Table 3. Correlation Matrix of Research Variables

Variables	Pearson Correlation									
	Age	Sex	Education	Family	Marriage	Working	Social sup	Depression	Religion	Cog Fun
Age	1									
Sex	- 0.117	1								
Education	0.101	- 0.101	1							
Family	0.134	0.044	**0.217***	1						
Marriage	**0.428***	**- 0.380***	**0.264***	**0.362***	1					
Working	0.137	0.054	- 0.033	- 0.121	0.096	1				
Social sup	0.07	- 0.015	0.140	0.110	0.049	- 0.029	1			
Depression	0.068	**- 0.211***	0.064	- 0.111	0.065	0.141	**- 0.205***	1		
Religion	- 0.088	- 0.080	- 0.029	- 0.028	- 0.077	0.076	- 0.078	- 0.034	1	
Cog Fun	0.095	- 0.034	**0.185***	0.104	0.105	- 0.020	0.018	0.083	- 0.098	1

*Correlation was significant at p≤0.05

a causal relationship. Elderly individuals residing with their close relatives reported receiving good social support more frequently; however, this finding was not statistically significant (p=0.229, OR 2.216, 95% CI 0.591-8.310). Female respondents experienced mild depression more frequently than male respondents (p=0.021; OR 0.176; 95% CI 0.037-0.841). Regarding marital status, older women tended to be single or divorced more often, while older men exhibited a greater propensity for being married. (p=0.000; OR 0.376; 95% CI 0.239-0.591). The correlation coefficient values are listed in Table 3. Elderly female respondents demonstrated a stronger association with divorce (correlation coefficient -0.380) and education level (≥7 years) than their male counterparts (correlation coefficient -0.101). While slightly more women than men received good social support (-0.015), they experienced higher levels of mild depression (correlation coefficient -0.205). This suggests that marital status significantly influences the occurrence of mild depression in elderly women.

Elderly individuals who have completed 7 or more years of education are generally still married (p=0.001; OR 7.650; CI95% 1.574-37.184) and reside within a nuclear family (p=0.018; OR 5.411; 95% CI 1.169-25.041). This group demonstrated a decrease in mild cognitive function impairment (p=0.044; OR, 4.500; 95% CI 0.929-21.802). Among individuals aged 60–70 years, 26.9% demonstrated normal cognitive function; on the other hand, the frequency of mild cognitive impairment among those over 70 years was observed at a rate of 27.7%, although this difference was not statistically significant (p=0.299). Among elderly individuals who have received over 7 years of education, 58.8% of the population were aged 60–70 years, with no notable frequency differences observed between the two age groups (p=0.273). The correlation coefficients are presented in Table 3. As the level of education increased among the elderly, there was a corresponding increase in the number of individuals who remained married (correlation coefficient 0.264), lived with nuclear families (correlation coefficient 0.217), and exhibited normal cognitive function (correlation coefficient 0.185).

The correlation values observed included age, marital status (p=0.000), gender and marital status (p=0.000), gender and depression rate (p=0.021), education regarding living with family or alone (p=0.018), education and marital status (p=0.000), education and cognitive function (p=0.044), living arrangements (with family or alone), marital status (p=0.000), and social support along with depression levels (p=0.025).

DISCUSSION

The research findings provide valuable insights into the influence of social support and demographics on depression and mild cognitive decline in devout elderly individuals, and social support and spirituality play important roles in mental health outcomes in older adults. Research in Indonesia, data taken from Basic Health Research (Riskesdas), in 28,570 elderly respondents in urban areas who filled out the depression questionnaire. In the Mini-

International Neuropsychiatric Interview (MINI) in 2018, the depression rate reached 11.2%.[18] In another study in Indonesia using data from the 5th Indonesia Family Life Survey (IFLS-5) from 2014 to early 2015, in 4236 respondents who were assessed using The Center for Epidemiologic Studies Depression Scale (CES-D 10) questionnaire, the depression rate reached 16.3%.[19] In this study, the rate of mild depression among the elderly who had a good religious attitude in the religious community of the Javanese Christian Church, which was assessed based on the Geriatric Depression Scale questionnaire, was 11.8%. Decreased social interaction and instrumental social support predicted cognitive decline[20], while spirituality/religiousness was inversely related to depression, and social support was positively associated with life satisfaction among the rural elderly.[9] Daily spiritual experiences were found to be inversely related to depression among elderly Korean immigrants, with social support mediating this relationship.[21]

Recognition of risk factors for depression in the elderly is essential because depression in the elderly is often undiagnosed and untreated. Risk factors for depression include a history of depression and chronic diseases, being female, and being unmarried.[22] In this study, older women were more likely to experience mild depression, and their marital status was no longer married. A meta-analysis of 85 empirical studies from various countries examined differences in depression between elderly women and men. It identified several contributing factors, including variations in causes of stress, coping responses, levels of social support, marital status, living alone, reduced cognitive function, and overall health. Further research is needed to better understand the role of these factors in the incidence of depression in women and men.[4,23] Marital status can also affect the occurrence of depression in elderly women. An elderly woman whose spouse dies and does not remarry divorces, separates, or never marries is associated with a high rate of depression compared to marriage. A mutually supportive and satisfying marital relationship that provides emotional support and a feeling of belonging can protect against depression.[24]

Contradictory findings have emerged regarding the relationship between depression, anxiety, and cognitive decline. While some studies have found that depressive symptoms are associated with decreased cognitive function, others have suggested that subjective cognitive decline is more strongly related to depression than objective cognitive performance.[25,26] Additionally, mild anxiety symptoms were found to potentially predict future decline in executive functioning in cognitively healthy older men.[27] A meta-analysis study that examined the relationship between education level and changes in six domains of cognitive performance assessed by psychometric tests. The six domains were episodic memory, processing speed, global cognitive ability, crystallized intelligence, verbal fluency, and fluid intelligence. Education is an important factor in aging, because it is related to cognitive performance. However, there is no consistent and essential relationship between education level and changes in the cognitive

performance of the elderly in the general population. Some theories of cognitive aging should be updated based on these findings because of the complex link between education, cognitive performance, and changes in cognitive function in the elderly.[28]

In this study, the proportion of elderly individuals with impairment was 52.9%, which is related to a lower level of education. Mild cognitive function impairment is a risk factor for dementia and falling, therefore, risk factors for mild cognitive dysfunction also need to be recognized, namely birth characteristics and early life factors, health disorders, and social status, and it is necessary to seek a cognitive improvement intervention.[3,29,30]

The weakness of this research is the control of potential biases introduced by the sampling method and the choice of instruments, especially the unvalidated Religious Attitude questionnaire, which raises concerns about the accuracy of the measures.

CONCLUSION

This study revealed that social support plays a role in modifying the incidence of depression in elderly individuals. Older women show mild depression and unmarried marital status more than older men. Marital status has a significant impact on the incidence of mild depression in older women. Low levels of education are associated with mild cognitive impairment. Additional research involving more comprehensive analysis and larger sample sizes, in conjunction with other elements, is essential to establish causal links between social support, gender, and depression. This study offers practitioners valuable data to elucidate the connections between social support, demographics, depression, and cognitive function in religious elderly populations. Policymakers should implement regulations that screen for social support and religiosity to predict and mitigate depression and dementia.

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CONFLICT OF INTEREST

There is no conflict of interest in the study.

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