

The Correlation Between the Level of Anxiety According to the Hospital Anxiety and Depression Scale-Anxiety Subscale with the Duration of Illness, the Age of the Caregiver, and the Age of First Illness in the Biological Mother Who Takes Care of Boys with Schizophrenia

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Abstract

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Keywords: Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A); Caregiver; Care of boys with schizophrenia

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BACKGROUND: Caregivers are often described as forgotten patients, and adverse effects are often reported by family caregivers, including anxiety in treating schizophrenic patients. In most cases, it is the mother who takes almost all responsibilities for caring for the patient with schizophrenia. From another study, Mothers showed the highest-burden, followed by fathers and other caregivers.

AIM: To find out the correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the duration of illness, the age of the caregiver, and the age of first illness in the biological mother who take care of boys with schizophrenia

METHODS: This study is an Observational Analytical study with a cross-sectional approach. By interviewing 68 mothers who take care of boys with schizophrenia at the Prof Ildrem Mental Hospital Medan using the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A).

RESULTS: This study found a significant association between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) and the age of caregivers in biological mothers who care for boys with schizophrenia ($p = 0.019$), odds ratio (OR) 12,073 (95 %CI 2.252-64.715). This study also found no association between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) and the duration of illness in the biological mother who cared for boys with schizophrenia ($p = 0.736$). There was no association between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with age of first illness schizophrenia in the biological mother who cared for boys with schizophrenia ($p = 0.068$).

CONCLUSION: Possibility (odds) is found that the age of caregiver < 45 years old is more likely to have anxiety level according to the Hospital Anxiety and Depression Scale - Anxiety subscale (HADS-A) 12,073 worse compared to the age of caregiver \geq 45 years old.

Introduction

Schizophrenia is a chronic psychosis in which the patient loses contact with reality. It is a devastating illness, often resulting in a loss of social functioning in affected individuals. The family remains the major source of care for the patient with schizophrenia and has a profound effect on their illness. Having a patient with schizophrenia in a family also affects the roles and interactions within the family. Burden refers to the negative impact of the individual's mental illness on the entire family [1].

According to data from the World Health Organization (WHO) in 2016, there are around 21 million people with schizophrenia. In Indonesia, data from Riset Kesehatan Dasar (Riskesdas) in 2013, the prevalence of severe mental disorders such as schizophrenia reached around 400,000 people or as many as 1.7 per 1000 residents [6]. The symptoms of schizophrenia are divided into five subcategories, namely: positive symptoms, negative symptoms, cognitive symptoms, aggressive symptoms, and affective symptoms [7]. Caregivers are people who take care of other adults, often parents or spouses, or children with special medical needs or disability. They

are usually unpaid family members or friend of the person with a disability or illness. Caring for such patients may lead to emotional distress among caregivers. Emotional distress among caregivers has been defined as mood disturbances like anxiety, depression, feelings of loneliness, isolation, fearfulness, and being easily bothered arising from providing care for a sick relative. Family caregivers have often been described as forgotten patients, and it was suggested that caregiver's symptoms such as mood swing, fatigue, headaches, joint and muscle pains, marital and family conflicts, and financial problems might be a reflection of caregiver stress in looking after a sick relative. However, it is contrary to the findings of similar studies in the developed countries where parents, especially mothers, were the primary caregivers [2], fear and anxiety and related behavioural disturbances. Fear is the emotional response to a real or perceived imminent threat, whereas anxiety is the anticipation of future threat [9]. The results of community studies in adults reveal that compared to men, women have higher rates of almost all of the anxiety disorders [4]. From study Rachana et al., Hundred caregivers, 50 each of schizophrenia and bipolar affective disorder were enrolled. Seventy-two per cent of caregivers were found to have a higher level of stress. Twenty-five per cent had depression and 29% anxiety-related problems [3]. This study aimed to know the correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the duration of illness, the age of the caregiver, and the age of first illness in the biological mother who take care of boys with schizophrenia.

Methods

This study was an observational analytical study with a cross-sectional approach. In terms of diagnosis of the study, this study was a Multivariate Analytical study with a predictive concept framework. The respondents were the mother of patients with schizophrenia attending the outpatient of the Prof. DR. M. Ildrem mental hospital who meets the criteria that come in sequence from April 2018 until Jun 2018. In selecting subjects, this study used consecutive sampling. The number of subjects in this study was obtained from a preliminary study, namely as many as 68 subjects. Inclusion criteria for the caregiver are Ages between 30-60 years old, Minimum nine years education, living at home with patients, already treating patients for at least one year, spending a minimum of 7 hours/week to treat patients (Minimum time spent 1 hour/day), Having a whole family. The husband was still alive and has not divorced), the number of children is five people. Exclusion criteria for caregiver had a history of mental disorders and chronic medical illnesses before, physical

weaknesses such as blindness, deafness, speech disorders, only had one child male child, and caregivers who work. Inclusion criteria for the patient were meet the criteria for schizophrenia diagnosis according to PPDGJ III [8], minimum of six years education [13], [14], PANSS score ranges from 60-80, BJPS financing, unmarried. Exclusion criteria for the patient were comorbid with other psychiatric disorders, history of previous physical disorders, age of first illness more than 45 years. Having a family history (2 degrees) of mental disorders. In this study, the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) consist of 7 questions, and minimal value is 0, maximal value is 3 (0-7 = Normal, 8-10 = Mild Case, 11-15 = Moderate Case, 16-21 = Severe Case) [10], [12]. The Hospital Anxiety and Depression Scale (HADS) was developed for use in medical interests. First developed by Zigmond and Snaith in 1983 [11].

Statistical Analyses

We used ordinal regression, Mann Whitney U test, to test for correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the duration of illness, the age of the caregiver, and the age of first illness in the biological mother who take care of boys with schizophrenia. Analyses were conducted using SPSS version 24. We used the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) as the dependent variable. Duration of illness, the age of the caregiver, and the age of first illness as an independent variable [15, [16], [17], [18].

Results

We obtained 68 mothers who cared for their sons with schizophrenia and fulfilled inclusion and exclusion criteria. This study used the Hospital Anxiety and Depression Scale Measure-Anxiety subscale (HADS-D). HADS-A itself has a sensitivity and specificity of 0.8. The reliability test for this gauge also shows that this measuring instrument has a good agreement value. This scale is used not to make a diagnosis of a psychiatric disorder, but to identify patients in the hospital general, which requires further evaluation and treatment by the clinician. The characteristics of the subject of this study can be seen from table 1; it can be seen that numerical variables are presented in the mean because of the value of $p > 0.05$ (normal distribution) and median with min-max because of the value of $p < 0.05$ (abnormal distribution).

Table 1: Demographic characteristics of caregiver and patient with schizophrenia

	Med (Min-Max)/Mean ± SD	n (%)
CAREGIVER		
Age		
< 45 years old		6 (8.8%)
≥ 45 years old		62 (91.2%)
Family Income per Month (million)**	2 (1 – 4.5)	
Length of Care for Patients (year)	4 (2 – 20)	
Time spent caring for patients (per weeks) **	14 (14 – 28)	
Number of children	3 (2- 5)	
Duration of education (year) **	10.5 (9 – 16)	
PATIENT		
Age (year)		
Duration of illness	27.63 (± 5.163)	
≤ 5 year		39 (57.4%)
> 5 year		29 (42.6%)
Age of first illness **		
< 20 year		26 (38.2%)
≥ 20 year		42 (61.8%)
PANSS (score) **	64.50 (60 – 76)	
Duration of education (year) **	12 (6 -16)	
Hospitalization	2 (1 - 5)	

*Mean; **Median.

In Table 2, shows the correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the duration of illness in biological mothers who care for boys with schizophrenia can be seen that the duration of illness is ≤ 5 years with as many mild cases 11 people 27.5%, moderate cases 8 people (20%), severe cases 3 people (7.5%). Viewed from the duration of illness > 5 years mild cases, nine people (32.1%), moderate cases 6 people (21.4%), severe cases 2 people (7.1%). There was no association between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) and the duration of illness in the biological mother who cared for boys with schizophrenia (p = 0.736).

Table 2: Results of correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the duration of illness

Variable	Normal N (%)	Mild N (%)	Moderate N (%)	Severe N (%)	p-value
Duration of illness					
≤ 5 Year	18 (45%)	11 (27.5%)	8 (20%)	3 (7.5%)	0.736*
> 5 Year	11 (39.3%)	9 (32.1%)	6 (21.4%)	2 (7.1%)	
Total	29 (42.6%)	20 (29.4%)	14 (20.6%)	5 (7.4%)	

*Mann-Whitney U test; Mean Duration of illness ≤ 5 Year 35.14; > 5 Year 33.59.

In Table 3 the correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the age of first illness in biological mothers who care for boys with schizophrenia can be seen that, the age of first illness < 20 years who have mild cases there were 9 people (36%), cases were 6 people (24%), cases were heavy 3 people (12%) — viewed from the age of first illness ≥ 20 years mild cases, 11 people (25.6%), moderate cases 8 people (18.6%), severe cases 2 people (4.7%). There was no association between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the age of first illness in biological mothers who cared for boys with schizophrenia (p = 0.068).

Table 3: Results of correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the age of first illness

Variable	Normal N (%)	Mild N (%)	Moderate N (%)	Severe N (%)	p-value
Age of first illness					
< 20 Year	7 (28%)	9 (36%)	6 (24%)	3 (12%)	0.068*
≥ 20 Year	22 (51.2%)	11 (25.6%)	8 (18.6%)	2 (4.7%)	
Total	29 (42.6%)	20 (29.4%)	14 (20.6%)	5 (7.4%)	

*Mann-Whitney U test; Mean Age of first illness < 20 Year 29.10; ≥ 20 Year 37.

Table 4 shows the correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with caregiver age in biological mothers who care for boys with schizophrenia. Mild case 1 person (16.7%), moderate case 1 person (16.7%), severe case 3 people (50%). Viewed from the age of caregivers ≥ 45 years mild cases, 19 people (30.6%), moderate cases, 13 people (21%), severe cases, five people (7.4%). The caregiver age variable was significantly associated with the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with caregiver age in biological mothers who cared for boys with schizophrenia (p = 0.019).

Table 4: Results of correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with caregiver age

Variable	Normal N (%)	Mild N (%)	Moderate n (%)	Severe N (%)	p-value
Age of the caregiver					
< 45 y.o	1 (16.7%)	1 (16.7%)	1 (16.7%)	3 (50%)	0.019*
≥ 45 y.o	28 (45.2%)	19 (30.6%)	13 (21%)	2 (3.2%)	
Total	29 (42.6%)	20 (29.4%)	14 (20.6%)	5 (7.4%)	

*Mann-Whitney U test; Mean age of the caregiver < 45 y.o 17.50; ≥ 45 y.o 36.15.

In Figure 1, Interpretation can also be made by looking at the confidence interval from the odds ratio (OR). We do not find the OR value in the table above, but it can be calculated using the formula $OR = \exp(\text{coefficient})$. Thus, the OR is $\exp(2.491)$, which is equal to 12.073. In this figure, there is also no information on the value of the confidence interval of OR, even though we can calculate it because there is information from the confidence interval of the coefficient, the minimum value of the coefficient is 0.812, so the minimum value of OR is $\exp(0.812)$ which is 2.252. The maximum value of the coefficient is 4.170 so that the maximum value of OR is $\exp(4.170)$, which is 64,715 (95 % CI 2.252-64.715). Thus, the value of the caregiver's age OR is 12.073 (95% CI 2.252-64.715). Because the confidence interval range is not one, it can be concluded that the caregiver age variable is significantly associated with the level of anxiety according to HADS-A. Possible (odds) age of caregiver < 45 years to experience the level of anxiety according to more severe HADS-D is 12.073 times the age of caregiver ≥ 45 years.

Anxiety disorders are the most prevalent psychiatric syndromes in the US population. Nearly one-fifth (17 percent) of adults report a lifetime history of one of the major anxiety disorders, and 1 in 10 suffer from a current anxiety disorder. Anxiety

disorders are associated with intense subjective distress [4]. Whether an event is perceived as stressful depends on the nature of the event and the person's resources, psychological defences, and coping mechanisms. All involve the ego, a collective abstraction for the process by which a person perceives, thinks, and acts on external events or internal drives. A person whose ego is functioning properly is in adaptive balance with both external and internal worlds; if the ego is not functioning properly and the resulting imbalance continues sufficiently long, the person experiences chronic anxiety [5]. In this study, there was no association between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with the age of first illness in biological mothers who cared for boys with schizophrenia. ($p = 0.068$), This is because the longer duration of illness provides a greater opportunity for the biological mother who cares for patients to adapt to the patient's illness and provides an opportunity for the biological mother to learn how to cope with the problems encountered in everyday life [20]. This study is limited to being assessed only in biological mothers where biological mothers usually have closer kinship relations than other family members, and it turns out when in this study it was controlled only to be assessed in samples that had close kinship relations, the age of first illness in patient did not affect anxiety level [22].

		Parameter Estimates					95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Level Of Anxiety = 0]	-2.957	.534	30.630	1	.000	-4.004	-1.910
	[Level Of Anxiety = 1]	-1.140	.294	15.022	1	.000	-1.717	-.564
	[Level Of Anxiety = 2]	.171	.254	.454	1	.501	-.327	.669
Location	[Age Of Caregiver=1]	-2.491	.857	8.455	1	.004	-4.170	-.812
	[Age Of Caregiver=2]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Figure 1: Results of correlation between the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with caregiver age, which was analysed with ordinal regression analysis

Based on a study conducted by Kao et al., in 2010 in Taiwan that examined the relationship between PANSS scores and age of first illness found that there was a relationship between the age of first illness on the younger-onset and the cognitive component of the PANSS score. Also, the study found that the early onset of schizophrenia was associated with more severe cognitive impairment and impulsivity and higher scores on negative scale components, cognitive scale, general psychopathology scale, and total PANSS score. When in this study, PANSS scores were controlled in a restriction, it was seen that there was no correlation between the level of anxiety according to HADS-A and age of first illness [19]. This study also found that caregiver age variable was significantly associated with the level of anxiety according to the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) with caregiver age

in biological mothers who cared for boys with schizophrenia ($p = 0.019$), this might be because older caregivers tend to have a lower burden of care, because older caregivers are usually more able to tolerate caregiving and have better-coping strategies [21].

The strength of this research is that as far as reference livelihoods have been done, research with similar methods and measuring instruments has never been done in Indonesia. This study also managed to control confounding factors, such as caregiver sociodemographic factors, patient sociodemographic factors, kinship relationships, and clinical future of patients. This study has limitations, this study was not conducted in multicentre because of limited resources.

In conclusion, possibility (odds) is found that the age of caregiver < 45 years old is more likely to have anxiety level according to the Hospital Anxiety and Depression Scale - Anxiety subscale (HADS-A) 12,073 worse compared to the age of caregiver \geq 45 years old.

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