

Factors Associated with Anxiety among the Elderly Involved in the Chronic Disease Prevention Program

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Abstract Chronic diseases are one of the leading causes of mortality worldwide. People with chronic diseases are at high risk of experiencing psychological problems. The Indonesian government created a chronic disease management program called Prolanis (Chronic Disease Management Program). Prolanis, which is currently implemented, has not provided efforts to overcome anxiety problems in its participants. This study aimed to determine the prevalence of anxiety in the Prolanis participants. This study was a cross-sectional study involving 384 participants. The research instrument used the Zung Self-Rating Anxiety Scale questionnaire to measure the patient's anxiety level. Data collected through surveys were analysed bivariate with the chi-square test and multivariate with the ordinal logistic regression test. The study found that most elderly participants experienced mild anxiety. Based on the bivariate analysis, factors that influence the anxiety level of the participants are gender and education attainment. From multivariate analysis, education attainment was significantly associated with anxiety. Patients with chronic diseases are prone to anxiety, which impacts efforts to adopt a healthy lifestyle. Female prolanis participants and participants with low education are more likely to experience anxiety. These findings can be used as recommendations for developing mental health programs in prolanis programs.

Keywords Anxiety, Chronic disease, Elderly, Prevention Program

1. Introduction

WHO stated that chronic diseases kill 41 million people yearly, equivalent to 74% of all mortality worldwide [1]. The data shows that of all deaths caused by chronic diseases, 77% occur in low- and middle-income countries. The Basic Health Research conducted by the Ministry of Indonesia in 2018 found the prevalence of chronic diseases, including hypertension at 34.11%, diabetes mellitus at 8.5%, cancer at 1.8%, stroke at 10.9% and chronic kidney failure at 3.8% [2].

Chronic diseases are diseases that can rarely be cured and require treatment for a long time [3]. This disease reduces a person's quality of life, which can cause disability, motor movement limitations and mental disorders [4]. Furthermore, a study conducted in Klang Valley City, Malaysia, found that 2508 patients with Type 2 Diabetes Mellitus (T2DM) showed a prevalence of 11.5% depression, 30.5% anxiety, and 12.5% distress [5]. Several studies have also found an association between anxiety and hypertension [6,7]. Many mental disorders in people with

chronic diseases are anxiety, depression, and dementia because they are influenced by old age [8]. Anxiety is one of the mental disorders, such as feeling insecure and threatened by something or a situation [9]. Anxious feelings that are very strong and last long may harm the physical and psychological systems. Long-term effects on the body due to anxiety are sleep disorders, decreased immune system and disruption of social life [10,11]. A study also found that age influences anxiety, where older people have a higher risk of experiencing anxiety than younger people [12]. Other sociodemographic factors such as gender, ethnicity, education level, income, marital status, and employment status are predictors of anxiety [13]. It has been suggested that mental disorders in people with chronic diseases can increase the cost of treatment incurred by patients and their families and, if covered by social health insurance, will cause cost overruns borne by the government [14].

In Indonesia, the government created a chronic disease management program known as Prolanis (Chronic Disease Management Program) to reduce the swelling of healthcare costs due to chronic diseases. Prolanis is a prevention program that aims to improve the quality of life of people with chronic illnesses. Prolanis is an integrated activity that requires a solid cooperation between chronic disease participants, primary health facilities, and health insurance bodies. It is carried out in primary care centres [15]. Prolanis activities still focus on efforts to deal with physical problems, such as gymnastics, health education, and health check-ups [16]. Prolanis currently does not provide efforts to overcome anxiety problems in its participants. People with chronic diseases are at high risk of experiencing psychological problems, such as denial of their condition, which causes them to be non-compliant in implementing a healthy lifestyle; irritability and frustration caused by the many restrictions that must be followed from various therapies; fear of complications and the risk of death; boredom taking medication; and even experiencing depression [16,17]. Due to the high risk of anxiety experienced by people with chronic diseases, this study aims to determine the prevalence of anxiety in Prolanis participants in primary health services. The findings of this study can be used as a basis for developing mental health programs in Prolanis programs.

2. Research Materials and Methods

2.1. Study Design and Setting

The study is a cross-sectional study. Data was collected from August to October 2021 in all Denpasar City Health Center Prolanis clubs. Data were collected using self-administered questionnaires. The sample in this study was the entire population who joined the Prolanis club in Denpasar City. Consecutive sampling was used to select samples from all participants who joined the Prolanis club

at the community health centre. The total sample in this study was 384 people. Eligibility criteria were set: registered residents of Denpasar City, members of the Prolanis club at one of the health centres in Denpasar City, can communicate well, and be willing to participate.

2.2. Study Variable

In this study, the dependent variable is the level of anxiety measured using the Zung Self-Rating Anxiety Scale (ZSAS) anxiety questionnaire [18]. This questionnaire is widely used to measure the anxiety level of patients when they show anxiety-related symptoms [19]. The ZSAS is a well-validated instrument used with patients suffering from chronic diseases [20,21]. The ZSAS consists of 20 statements, with a scale from 0 to 4 used to rate each statement (never, sometimes, often, or t always).

The questionnaire has fifteen statements assessing increasing anxiety levels and five statements assessing decreasing anxiety levels. Four categories of anxiety severity were determined using ZSAS scores:

- (i) Within normal limits or no significant psychopathology (20-44 points);
- (ii) Presence of mild to moderate levels of anxiety (45-59 points);
- (iii) Presence of severe levels of anxiety (60-74 points) and;
- (iv) Presence of major depression (75-80 points).

The independent variables in this study were demographic characteristics, namely age group, gender, education attainment and employment status.

2.3. Statistical Analysis

All data were edited and cleaned for analysis. Data collected through surveys were analysed in bivariate and multivariate. Bivariate analysis was conducted for the variables of age group, gender, education and employment status with anxiety and using the chi-square test to see the association between the independent and dependent variables. The multivariate test used was ordinal logistic regression to determine the joint effect of independent variables on the dependent variable. P-values less than 0.05 were considered significant. Descriptive and inferential analyses were conducted using SPSS version 16.0.

2.4. Ethical Approval

This study obtained approval from the Institute for Research and Community Service at Dhyana Pura University with letter number 165/UNDHIRA-LPPM/VIII/2021. Before conducting interviews, participants filled out an informed consent to approve participation in the study. Researchers maintain the confidentiality of participants by not including the names of participants. Respondents who participate will be given a gift as a thank you.

3. Results

We initially received 401 survey responses, but only 384 (95.8%) were analyzed because of incomplete answers. Table 1 shows the sociodemographic characteristics of Prolanis participants. Participants were predominantly 50-59 years old (54.2%) and mostly women (60.7%). Furthermore, the majority were high school graduates (34.1%) and unemployed (56.5%). The anxiety level calculation found that most elderly participants experienced mild anxiety (63.5%).

The proportions of answer per item distribution of anxiety as measured by the Zung Self-Rating can be seen in Table 2. As shown, most participants' answers ranged from never to sometimes.

Table 3 shows the results of both the bivariate and

multiple regression analyses. The bivariate analysis showed that most of the elderly Prolanis participants in Denpasar City experienced mild anxiety. Mild anxiety was mostly experienced by middle-aged (70-79) years old by 76.9%, male gender by 66.2%, college education level by 76.7%, and unemployment by 66.4%. Moderate anxiety was mostly experienced by the pre-elderly group (38%), female gender (66.2%), college education level (76.7%), and unemployment (66.4%). Not many older adults experience severe anxiety. Furthermore, bivariate analysis showed that gender and education attainment were statistically associated with anxiety among the elderly, with a p-value of 0.016 and 0.037, respectively. From multivariate analysis, only education attainment was statistically associated with anxiety.

Table 1. Sociodemographic characteristics of the study participants

Variable	N	Percentage
Age		
Pre-elderly (50-59) years old	208	54,2%
Young Elderly (60-69) years old	150	39,1%
Middle Elderly (70-79) years old	26	6,8%
Gender		
Male	151	39,3%
Female	233	60,7%
Education Attainment		
Elementary school	71	18,5%
Junior high school	109	28,4%
Senior high school	131	34,1%
College	73	19,0%
Employment Status		
Retired (not working)	217	56,5%
Working	167	43,5%
Anxiety Level		
Severe Anxiety	4	1,0%
Moderate Anxiety	136	35,4%
Mild Anxiety	244	63,5%
Total	384	100%

Table 2. Distribution of Zung Self-Rating Anxiety Scale (ZSAS)

Statement	Frequency (n=384)	Percentage (%)
I feel more nervous and anxious than usual		
- Never	122	31,8
- Sometimes	210	54,7
- Often	50	13,0
- Always	2	0,5
I feel afraid for no reason at all		
- Never	246	64,1
- Sometimes	107	27,9
- Often	29	7,6
- Always	2	0,5
I feel like I am falling apart and going to pieces		
- Never	271	70,6
- Sometimes	106	27,6
- Often	5	1,3
- Always	2	0,5
I get upset easily or feel panicky		
- Never	183	47,7
- Sometimes	113	29,4
- Often	17	20,1
- Always	11	2,9
I have trouble getting things done		
- Never	179	46,6
- Sometimes	161	41,9
- Often	42	10,9
- Always	2	0,5
My arms and legs shake and tremble		
- Never	206	53,6
- Sometimes	143	37,2
- Often	33	8,6
- Always	2	0,5
I am bothered by headaches, neck and back pain		
- Never	122	31,8
- Sometimes	216	56,3
- Often	36	9,4
- Always	10	2,6
I feel weak and get tired easily		
- Never	128	33,3
- Sometimes	146	38
- Often	94	24,5
- Always	16	4,2
I am not able to rest or sit quietly		
- Never	151	39,3
- Sometimes	154	40,1
- Often	77	20,1
- Always	2	0,5
I can feel my heart beating fast		
- Never	192	50
- Sometimes	186	48,4
- Often	4	1
- Always	2	0,5

Table 2 continued

I am bothered by dizzy spells		
- Never	167	43,5
- Sometimes	194	50,5
- Often	19	4,9
- Always	4	1,0
I have fainting spells or feel like it		
- Never	328	85,4
- Sometimes	38	9,9
- Often	16	4,2
- Always	2	0,5
I can breathe in and out easily		
- Never	217	56,5
- Sometimes	153	39,8
- Often	0	0
- Always	14	3,6
I get numbness and tingling in my fingers and toes		
- Never	151	39,3
- Sometimes	188	49,0
- Often	42	10,9
- Always	3	0,8
I am bothered by stomach aches or indigestion		
- Never	171	44,5
- Sometimes	185	48,2
- Often	24	6,3
- Always	4	1,0
I have to empty my bladder often		
- Never	218	56,8
- Sometimes	126	32,8
- Often	38	9,9
- Always	2	0,5
My hands are cold and soaked with sweat		
- Never	194	50,5
- Sometimes	124	32,3
- Often	43	11,2
- Always	23	6,0
My face gets hot and blushes		
- Never	301	78,4
- Sometimes	32	8,3
- Often	38	9,9
- Always	13	3,4
I get sleeplessness or inability to get a good night's rest		
- Never	126	32,8
- Sometimes	233	60,7
- Often	23	6,0
- Always	2	0,5
I have nightmares		
- Never	182	47,4
- Sometimes	198	51,6
- Often	2	0,5
- Always	2	0,5

Table 3 Factors affecting anxiety among elderly

Variable	Bivariate analysis						Multivariate analysis				
	Severe Anxiety		Moderate Anxiety		Mild Anxiety		p-value	Estimate	p-value	95% CI	
	f	%	f	%	f	%				Lower	Upper
Age											
Pre-elderly (50-59) y.o	2	1,0%	79	38,0%	127	61,1%	0,566				
Young Elderly (60-69) y.o	2	1,3%	51	34,0%	97	64,7%		-0,749	0.145	-0,259	1,757
Middle Elderly (70-79) y.o	0	0,0%	6	23,1%	20	76,9%		-0,137	0.595	-0,369	0,643
Gender											
Male	4	2,6%	47	31,1%	100	66,2%	0,016	-0,080	0.723	-0,364	0,525
Female	0	0,0%	89	38,2%	144	61,8%					
Education Attainment											
Elementary school	1	1,4%	33	46,5%	37	52,1%	0,037	1,465	0.000	-2,243	-0,686
Junior high school	0	0,0%	40	36,7%	69	63,3%		0,848	0.018	-1,553	-0,143
Senior high school	3	2,3%	46	35,1%	82	62,6%		0,771	0.022	-1,429	-0,113
College	0	0,0%	17	23,3%	56	76,7%					
Employment Status											
Retired (not working)	4	1,8%	69	31,8%	144	66,4%	0,062	-0,446	0.085	-0,061	0,953
Working	0	0,0%	67	40,1%	100	59,9%					

4. Discussion

This study aims to determine the prevalence of anxiety in Prolanis participants at the Denpasar City Health Center. Our study found that most elderly who participate in Prolanis are in the mild anxiety category. The results of the bivariate test showed that the gender factor was associated with the anxiety of Prolanis participants. This study found that women experienced more stress, ranging from low to moderate. This finding is similar to the result. In a study comparing women who have polycystic ovary syndrome (PCOS) with women without polycystic ovary syndrome (PCOS), it was found that women who have polycystic ovary syndrome (PCOS) have a 6.88 times greater risk of experiencing anxiety compared to women without polycystic ovary syndrome (PCOS) [22]. Another study on Australian women diagnosed with breast cancer showed increased anxiety symptoms after discovering they were diagnosed with breast cancer [23].

Women are more likely to experience anxiety disorders and report greater clinical severity [23]. Female gender is a significant predictor of all anxiety measures, with women having higher levels of anxiety than men [24,25]. Anxiety is felt more in women than men due to an excessive autonomic nervous reaction response with an increase in the sympathetic system, norepinephrine causing an increase in catecholamine release [26]. Anxiety will increase in older women with chronic diseases, so the support of the closest people, such as children, family or friends, is important and influential in women's mental

health [27]. Furthermore, a study found that anxiety in women with acute myocardial infarction is associated with increased morbidity and mortality and decreased quality of life parameters [28]. The increased prevalence and severity of anxiety in women are related to sex hormones, especially estradiol and progesterone. These influence sex differences in anxiety disorders and increase vulnerability factors related to anxiety disorders [29].

This study also found a relationship between education attainment and the prevalence of anxiety in Prolanis participants in Denpasar City. The multivariate analysis reinforced findings from the bivariate analysis that the education attainment of Prolanis participants was the variable that had the greatest influence on anxiety. The results of this study are supported by a survey that measured anxiety in Obstructive Sleep Apnea (OSA) patients, and a lower level of education ($p < 0.05$) was identified as an independent factor in predicting the presence of anxiety in OSA patients [30]. Another study measuring the prevalence of anxiety in cancer patients in China showed that education level affects anxiety [31]. A European survey of older people shows that higher education significantly reduces the likelihood of anxiety and depression [32].

According to the theory of Kaplan and Sadock, the ability of an individual to think is influenced by the level of education. The level of education is related to the level of individual knowledge. Good knowledge will certainly reduce the level of anxiety experienced. Studies on providing information to patients receiving colonoscopies

show that providing information to patients can reduce anxiety and pain [33]. Providing health information can also reduce anxiety experienced by chronic renal failure patients undergoing hemodialysis [34].

4.1. Implications

Our study found that the prevalence of anxiety symptoms in the population of Prolanis participants with chronic diseases is relatively high. Middle-aged (70-79 years old) Prolanis participants were more likely to exhibit anxiety symptoms than pre-elderly (50-59 years old) participants. The findings from this study will be very useful for the government in developing and improving the Prolanis program, where the main focus of mental health education can be centred on female participants with low education.

4.2. Limitations of the Study

We used an adequate number of participants in this study, which is one of its strengths. This study, however, has several limitations. Firstly, due to the cross-sectional methodology, we could not establish a causal relationship between anxiety symptoms. Secondly, some participants were likely miscategorised since anxiety was measured using a self-report tool.

5. Conclusions

Chronic disease sufferers are prone to anxiety, which impacts efforts to adopt a healthy lifestyle. In Prolanis participants, it is known that women are more likely to experience anxiety, as well as participants with low education. These findings can be used as recommendations for developing mental health programs in Prolanis programs.

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