Depression Among Elderly living in Nursing Homes

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Article Info

Abstract

Background: Depression that occurs in older people can interfere the psychomotor activities such as slowing body movements and verbal responses. The elderly who have depression will ignore themselves and their appearance and lose interest in interacting with other people which has an impact on decreasing their quality of life.

Methods: This is a descriptive-analytic study using a cross-sectional approach to find depression among older people living in nursing homes. The sample size was measured by the Lemeshow formula 95% confidence interval with purposive technical sampling. A total of 103 elderly (those aged ≥60 years) lived in Padu Wau nursing home and Budi Agung nursing home, Kupang East Nusa Tenggara. Questionnaires were distributed to study participants consisting of sociodemographic characteristics, geriatric depression scale, sleep quality, and generalized anxiety disorder. Statistical analysis used descriptive and logistic regression analysis.

Results: the average age of study participants is 74.51 years old (SD ± 7.73; min-max=61-90 years old). Multivariable logistic regression model showed that female (OR = 6.75; 95% CI = 1.89 to 24.12), sleep quality (OR = 12.08; 95% CI = 1.46 to 99.65), and anxiety (OR = 3.52; 95% CI = 1.04 to 11.94) is significantly associated with depression among older people who lived in nursing homes.

Conclusions: female elderly, poor sleep quality, and anxiety contribute to the risk of depression in older adults.

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INTRODUCTION

Aging is a physiological process that happens to every human being. This process is not an illness, but unfortunately dealing with declining functional ability. The functional ability has a dramatic impact that will determine the value of life expectancy. In 2019, the life expectancy for Indonesia was 71.7 years. It increased from 52.6 years in 1970 to 71.7 years in 2019 with an annual average growth of 0.64%, but the Healthy Life Expectancy (HALE) for Indonesia in that year was only around 62.8 years (Knoema, 2020). The elderly population in Indonesia has increased from 23.66 million people (9.03%) in 2017 and is predicted to increase again by 27.08 million people in 2020, by 33.69 million people in 2025, and by 40.95 million people in 2020. 2030 and 48.19 million people in 2035 (Kementerian Kesehatan RI, 2017).

Older people are a high-risk group who get depressed because of the aging process. Depression is a common mental disorder characterized by several symptoms such as depressed mood, loss of pleasure, continuous sadness, loss of interest in activities that are usually liked, and unable to carry out activities for at least 2 weeks (Fatimah et al., 2019). These symptoms could disturbance in daily activities, which are associated with feelings of sadness and accompanying symptoms, including changes in sleep patterns and appetite, psychomotor, concentration, fatigue, hopelessness, helplessness, and loneliness which have an impact on suicide. Depression is underdiagnosed and symptoms are often ignored and untreated because depression co-occurs with other problems faced by the elderly (Solikhah, 2020). The loneliness that occurs in the elderly triggers the emergence of various unpleasant feelings in the elderly which can develop into depression.

According to the Regional Basic Health Research report, the Province of East Nusa Tenggara, Indonesia is in the third-highest position for the prevalence of depression after the Provinces of Central Sulawesi and Gorontalo, which is 9.7%, far above Indonesia's figure of only 6.1% (Riskesdas, 2018). 65 older people at Padu Wau Nursing Home, Waipare Maumere have a low level of loneliness (43.1%), moderate,

and severe loneliness respectively (55.4%; 1.5%). In addition, the prevalence of depression in the elderly was found to the mild depression (58.5%), moderate depression (38.5%), and severe depression (1.5%) (Bani, 2019). Sleep disturbance is one of a symptom of elderly depression. The older adults at the Budi Agung Nursing Home, Kupang have sleep disorders in their daily life and are uncommunicative. Based on Maria Lotu's research at the Budi Agung Nursing Home, Kupang on 60 elderly people, it was found that the elderly have poor sleep quality (46.7%) (Lotu, 2019). It shows that the problem of depression in the older adults at the Padu Wau Nursing Home, Waipare Maumere, and Budi Agung Nursing Home, Kupang have a critical public health problem and needs to get attention. This study aims to analyze the factors which affect depression among older people living in a nursing home.

METHODS

Design and Participants

We used a descriptive-analytic quantitative research type with cross-sectional approach. 103 samples have been collected by purposive sampling technique with inclusion criteria consisting of elderly people aged 60 years and clearly to communicate in Nursing Homes, East Nusa Tenggara Province, Indonesia which is located in two places, Kupang City and Maumere City. The study was conducted from February until September 2021.

Instruments

The instruments were distributed to the older people after study participants signed informed consent and received a brief study explanation from the researcher. The instrument consists of sociodemographic characteristics, including age, gender, marital status, educational background, chronic disease, and living arrangement. The variable of depression in the elderly as measured using the Geriatric Depression Scale-Short Form (GDS-SF) instrument consists of 15 items, containing life satisfaction, hopelessness, boredom, fear, enthusiasm & social isolation. 10 items showed symptoms of depression if the selected answer was 'yes' on the statement number (2, 3, 4, 6, 8, 9, 10, 12, 14, and 15) and if the answer 'no' was

on the statement number (1, 5, 7, 11, and 13), according to the statement, a score of 1 is given for answers that lead to depression and a score of 0 for those who do not, then all statements are added up to get the total score from 0 to 15 for the 0-4 (normal) category; categories 5-8 (mild depression); categories 9-11 (moderate depression), and categories 12-15 (severe depression) (J.Mitchell, Alex, Vicky Bird, Maria Rizzo, n.d.). Sleep quality was assessed with a Pittsburgh Sleep Quality Index- (PSQI) with 7 components in assessing sleep quality (Daniel J. Buysse, Charles F. Reynolds III, Timothy H. Monk, Susan R. Berman, 1988) consisting of: (1) Subjective sleep quality; (2) Sleep latency; (3) Sleep duration; (4) Efficiency of Sleep Habits; (5) Sleep disturbance; (6) Use of sleeping pills; and (7) Sleep Dysfunction during the day. The total scores of the 7 components of the PSQI were then summed and interpreted into two categories (≤5 means good sleep quality and >5 means poor sleep quality) (Buysse et al., 1989). Anxiety variables were measured using the Generalized Anxiety Disorder-7 (GAD-7) questionnaire by exploring the psychological condition of the elderly by asking them the conditions experienced during the last two weeks, such as (1) feeling nervous, anxious, or on edge; (2) not being able to stop worrying; (3) worrying too much about different things; (4) trouble relaxing; (5) being so restless that it is hard to sit still; (6) becoming easily irritable; (7) feeling afraid, as if something awful might happen. The GAD-7 score is counted by assigning scores of 0, 1, 2, and 3, with the response categories of 'not at all, 'several days', 'more than half the days', and 'nearly every day, and then add up all scores from seven questions (Spitzer RL, Kroenke K, 2006). All of the instruments are valid and reliable to use. We analyzed descriptive, bivariate, and multivariate methods including age, gender, marital status, education, number of chronic diseases, sleep quality, anxiety, and living arrangement.

Data Analysis

Statistical analysis consists of descriptive-analytic to explore sociodemographic characteristics, sleep quality, and anxiety. Chi-square analysis assessed the dependent variable and outcome variables. Furthermore, a logistic regression analysis was conducted to identify factors contributing to depression among older people.

Ethical consideration

The study participants have obtained written informed consent to publish this paper approved by the Institutional Review Board of the University of Respati Indonesia with ethical approval number:139/SK/KEPK/UNR/VI/2021

RESULTS AND DISCUSSIONS

As shown in (Table 1), the average scores of depression are 5.62 from 15 (mild depression; 36.9%). The average age of study participants is 74.51 years old (SD ± 7.73; min-max=61-90 years old), more than half of study participants are female, three-quarters of study participants no longer have a partner, more than 90% of participants have a non-college degree, 81.6% older adults be in good health and have one of chronic disease, the average scores from sleep quality of study participants is 5.71 (SD ± 3.613, min-max=2-12 total scores), more than half of respondents had good sleep quality (60.2%), had mild anxiety (41.7%) and living arrangements before admissive to the nursing homes is dominated by the elderly who only live with their partner (34.0%).

Table 1. Sociodemographic characteristic, Anxiety, Sleep Quality, and Elderly Depression of the participants (N=103)

Variable	n	%
Elderly Depression		
Severe depression (score 12-15)	1	1.0
Moderate depression (score 9-11)	16	15.5
Mild depression (score 5-8)	38	36.9
Not depressed (score 0-4)	48	46.6
Age		
Old elderly (≥80 years)	28	27.2
Middle aged (70-79 years)	46	44.7
Young elderly (60-69 years)	29	28.2
Gender		
Woman	62	60.2
Man	41	39.8
Marital Status		
Not married	32	31.1
Widow/widower	53	51.5
Married	18	17.5
Education		
No school	26	25.2
Basic education (SD,SMP)	61	59.2
Middle education (SMA)	11	10.7
Higher education (University)	5	4.9
Number of chronic disease		
> 1 chronic disease	19	18.4
≤ 1 chronic disease (healthy & 1 chronic disease)	84	81.6
Sleep Quality		
Poor sleep quality (score >5)	41	39.8
Good sleep quality (score ≤5)	62	60.2
Anxiety		
Severe anxiety (score ≥15)	3	2.9
Moderate anxiety (score 10-14)	14	13.6
Mild anxiety (score 5-9)	43	41.7
No anxiety (score 0-4)	43	41.7
Living arrangement		
Live alone	28	27.2
Live with spouse	35	34.0
Live with children	25	24.3
Live with others	15	14.6

Geriatric Anxiety Disorder (GAD)

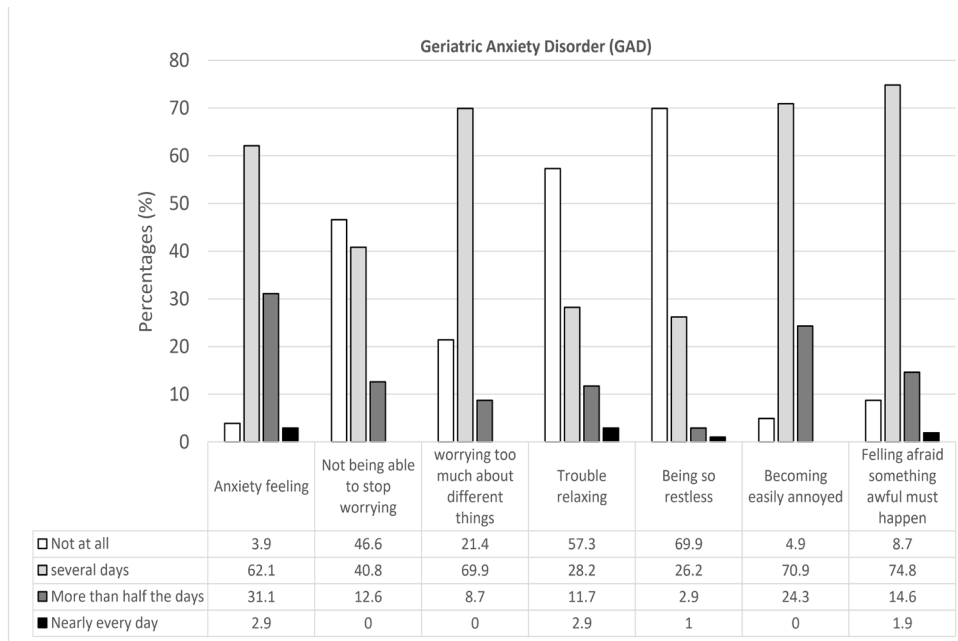|	Anxiety feeling	Not being able to stop worrying	worrying too much about different things	Trouble relaxing	Being so restless	Becoming easily annoyed	Felling afraid something awful must happen
☐ Not at all	3.9	46.6	21.4	57.3	69.9	4.9	8.7
☐ several days	62.1	40.8	69.9	28.2	26.2	70.9	74.8
▨ More than half the days	31.1	12.6	8.7	11.7	2.9	24.3	14.6
■ Nearly every day	2.9	0	0	2.9	1	0	1.9

Figure 1. Geriatric Anxiety Disorder (GAD) subscale among Elderly Living in a Nursing Home

Positive items Geriatric Depression Scale (GDS)

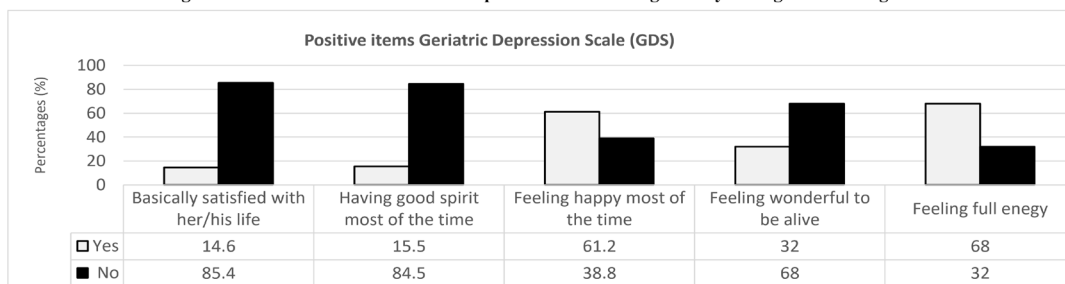|	Basically satisfied with her/his life	Having good spirit most of the time	Feeling happy most of the time	Feeling wonderful to be alive	Feeling full enegy
☐ Yes	14.6	15.5	61.2	32	68
■ No	85.4	84.5	38.8	68	32

Figure 3. Negative Items of Geriatric Depression Scale among Elderly Living in a Nursing Home

Negative items Geriatric Depression Scale (GDS)

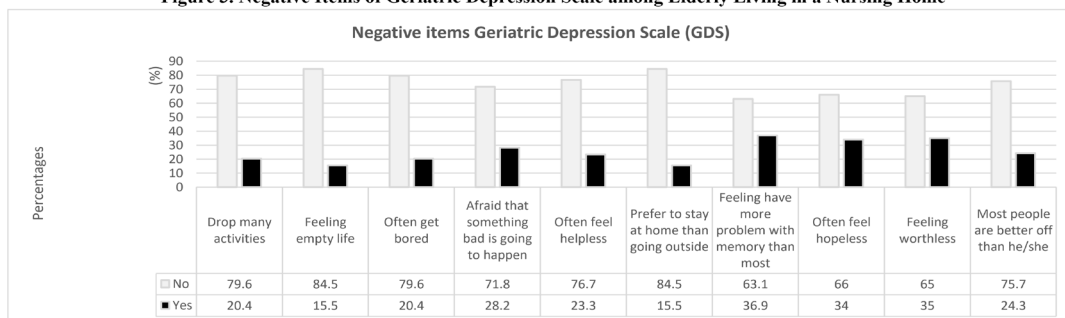|	Drop many activities	Feeling empty life	Often get bored	Afraid that something bad is going to happen	Often feel helpless	Prefer to stay at home than going outside	Feeling have more problem with memory than most	Often feel hopeless	Feeling worthless	Most people are better off than he/she
☐ No	79.6	84.5	79.6	71.8	76.7	84.5	63.1	66	65	75.7
■ Yes	20.4	15.5	20.4	28.2	23.3	15.5	36.9	34	35	24.3

Figure 2. Positive Items of Geriatric Depression Scale among Elderly Living in a Nursing Home

Table 2. The Association of Sociodemographic characteristic, Anxiety, Sleep Quality and Depression among the older adults (N=103)

Variable	Elderly Depression				Total		p-value	OR (95% CI)
	Depressed		No depression					
	n	%	n	%	n	%		
Age								
≥74.51 years	37	74.0	13	26.0	50	100.0	<0.0001	5.53 (2.37-12.95)
<74.51 years	18	34.0	35	66.0	53	100.0		
Gender								
Woman	43	69.4	19	30.6	62	100.0	<0.0001	5.47 (2.31-12.96)
Man	12	29.3	29	70.7	41	100.0		
Marital status								
Single (Not married, widow/widower)	53	62.4	32	37.6	85	100.0	<0.0001	13.25 (2.86-61.44)
Have partner (married)	2	11.1	16	88.9	18	100.0		
Education								
Non higher education (no school, SD, SMP)	51	58.6	36	41.4	87	100.0	0.027	4.25 (1.27-14.24)
Higher education (SMA, University)	4	25.0	12	75.0	16	100.0		
Number of chronic disease								
>1 chronic disease	16	84.2	3	15.8	19	100.0	0.006	6.15 (1.67-22.71)
≤1 chronic disease (healthy & only have 1 chronic disease)	39	46.4	45	53.6	84	100.0		
Sleep quality								
Poor sleep quality (score >5)	37	90.2	4	9.8	41	100.0	<0.0001	22.61 (7.03-72.73)
Good sleep quality (score ≤5)	18	29.0	44	71.0	62	100.0		
Anxiety								
Have anxiety (score ≥5)	44	73.3	16	26.7	60	100.0	<0.0001	8.00 (3.28-19.53)
No anxiety (score <5)	11	25.6	32	74.4	43	100.0		
Living arrangement								
Live alone	20	71.4	8	28.6	28	100.0	0.043	2.86 (1.12-7.29)
Not live alone (with spouse, children and others)	35	46.7	40	53.3	75	100.0		

This study (Table 2), describes the bivariate analysis of risk factors for elderly depression. it was found that the older people who are over 74.5 were more depressed (74.0%) than the younger (p-value <0.0001) the elderly women were more depressed (69.4%) than older men (p-value <0.0001), elderly who lived without a partner experienced more depression (62.4%) than the elderly with a partner (p-value <0.0001), elderly who have non-higher education were more depressed (58.6%) than higher education elderly (p-value 0.027). Furthermore, we found that elderly people with >1 chronic disease were more depressed (84.2%) than elderly people with 1 chronic disease (p-value 0.006). elderly with poor sleep quality were more depressed (90.2%) than the elderly with good sleep quality (p-value <0.0001) and they had anxiety symptoms more depressed (73.3%) than the elderly who did not have anxiety (p-value <0.0001).

Tabel 3. Multivariable logistic regression model examining the depression in older people (N=103)

Variable	B	p-value	OR 95%CI
Gender			
Female	1.91	0.004	6.05 (1.89 – 24.12)
Male	1	1	1
Sleep quality			
Poor quality	2.49	0.021	12.08 (1.46 – 99.65)
Good quality	1	1	1
Number of chronic disease			
>1 chronic disease	-0.57	0.470	0.57 (0.12 – 2.64)
≤1 chronic disease	1	1	1
Living arrangement			
Lived alone	-0.53	0.58	0.59 (0.09 – 3.77)
Not living alone	1	1	1
Age			
≥74.51 years	0.80	0.021	2.23 (0.58 – 8.55)
<74.51 years	1	1	1
Marital status			
Single (Not married, widow/widower)	1.26	0.32	3.51 (0.29 – 42.16)
Have partner (married)	1	1	1
Anxiety			
Have anxiety (score ≥5)	1.26	0.04	3.52 (1.04 – 11.94)
No anxiety (score <5)	1	1	1

In the analysis process, we will only enter variables into multivariate modelling if they have a p-value <0.25 where the variables consist of 8 variables (age, gender, marital status, education, number of chronic diseases, sleep quality, anxiety, and living arrangement). Our further analysis excludes the education variable because this variable causes a change in the OR value of >10% which will invalidate the research results. The multivariable logistic regression model showed (table 3) that depression among older people is associated with gender (OR = 6.75; 95% CI = 1.89 to 24.12), sleep quality (OR = 12.08; 95% CI = 1.46 to 99.65), and anxiety (OR = 3.52; 95% CI = 1.04 to 11.94).

The incidence of depression in East Nusa Tenggara Province according to Basic Health Research Data in 2018 is quite high (9.7%) and increased compared to 2013 which was only 7.8% (Riskesdas, 2018). This puts East Nusa Tenggara Province in the 3rd highest depression incidence in Indonesia after Central Sulawesi and Gorontalo Provinces. In addition, the coverage of depression treatment in East Nusa Tenggara Province is still very low (55.5%) compared to the Indonesian number (85%) (Riskesdas, 2018). The elderly in nursing homes were more prone to suffer from depression than the elderly living in the community because they live in nursing homes and do not have the closest person or place to share the problems they face. This is following the results of research conducted by Novayanti, Adi & Widyastuti in 2020 on 135 elderly people at the Tresna Werdha Social Institution Yogyakarta found that the majority of the elderly living in the nursing homes experienced mild depression as many as 55 people with a proportion (40.7%) (Novayanti et al., 2020). In addition, another study conducted by Kumar, Joseph, and Abraham in 2021 at a nursing home in Mangalore City, measured

the level of depression in the elderly using the GDS (Geriatric Depression Scale) and found a depression rate (47.8%) where the elderly lacked social interaction closely related to the incidence of depression (Kumar et al., 2021).

Elderly depression is triggered by many factors, the dominant factor is sleep quality. All elderly who have poor sleep quality are almost entirely depressed. The elderly who had difficulty sleeping admitted that they could only sleep for about a few hours after which they woke up and could not sleep again. Sleep difficulties experienced by the elderly are caused by various factors. We found that elderly people who have difficulty sleeping experience excessive anxiety and restlessness, and some of them complain of difficulty sleeping due to pain in the body due to their illness. The elderly who suffer from diabetes mellitus often wake up in the middle of the night to urinate several times, thus disturbing the sleep quality of the elderly (Jumiati Lelu Sanga, 2021). The elderly with poor sleep quality said they could not fall asleep for>30 minutes since lying down. Some seniors say that they have difficulty sleeping because the elderly in their room is too noisy, making other older people feel disturbed and find it difficult to sleep (Desaulniers et al., 2018). Poor sleep quality increases the chances of depression in the elderly. This is following research conducted by Hu, Zhao, et al in an elderly home in Hunan Province, China, which found that the elderly with poor sleep quality had a 5.19 times greater risk of depression than the elderly with good sleep quality with a p-value. of <0.001 (Hu et al., 2020). Changes in sleep patterns experienced by the elderly include not being able to fall asleep > 30 minutes since lying down, waking up early in the morning, and having more naps than usual. Normal sleep needs in the elderly range from 6-7 hours, but the quality of sleep begins to deteriorate as the elderly get older as a result of the aging process experienced in the form of physical, psychological, and social changes (Landry et al., 2015). Poor sleep quality in the elderly causes an emotional imbalance that triggers the elderly to become irritable, more sensitive, and easily feel sad (Tsigos et al., 2020). Depressed elderly also interfere with the quality of their sleep because the elderly think about a problem in their life that makes them unable to sleep (Gildner et al., 2014). Sleep is important for every group of age, but especially old age need a good quality of sleep to maintain optimal quality of life and protect their body and mental function(Alhola & Polo-Kantola, 2007). Sleep takes up about one-third of human life. It was found in this study that 88,3% had a sleep problem, which means that age is an important role in sleep quality(Stone & Xiao, 2018). The prevalence of sleep problems increases during old age(Thichumpa et al., 2018). Another study found that 50% of old age that live in a nursing home experience sleep disturbance(Dağlar et al., 2014). There are many factors affecting this sleep disturbance in old age due to declining function ability, which by definition is meant to result in many diseases such as respiratory problems, nocturia, pain, and allergies. Many studies found that old age experiences changes in physical (Stepnowsky & Ancoli-Israel, 2008), social aspects as social isolation, and mental change as loneliness and depression(Donovan & Blazer, 2020).

Depressed symptoms are caused by the gender factor. Elderly women are more prone to depression because women use feelings more in dealing with problems and also the influence of hormonal imbalances when entering the menopausal period (the production of the hormone estrogen decreases and stops so that it reduces the amount of the neurotransmitter serotonin in the brain, making brain cells work more slowly which affects a person's depression). We found that all the elderly in this study had experienced. Based on field qualitative data, it was found that elderly women who often visit friends at different guesthouses make other elderly women feel disturbed. This can make the elderly feel stressed and trigger depression. Several other seniors, both male and female, who did not interact well with their fellow seniors at the same guesthouse were forced to be separated into an isolation room to prevent unwanted things from happening. Research by Alini found a p-value of <0.0001 indicating a significant relationship between gender and the incidence of depression in the elderly (Alini, 2017). Besides that, Pramesona & Taneepanichskul also found a significant relationship between gender and depression in the elderly with a p-value of 0.043 with the

proportion of depression in elderly women (31.5%) being higher than in elderly men (11.0%) and elderly women. risk of experiencing depression 1.93 times greater than male elderly (Pramesona & Taneepanichskul, 2018).

Another study confirmed this finding also(Thichumpa et al., 2018). This may happen due to the differences between men and women concerning their biological and physiological responses to stress (Stone & Xiao, 2018). Several studies reported that woman experience higher levels of anxiety and stress(Verma et al., 2011). It was found that stress affects the endocrine system resulting in releasing corticotropin-releasing hormone from the hypothalamus which stimulates the pituitary and adrenal glands to produce stress hormones then brings about sleep problems another study found that gender affects the anatomic, biological and fuction brain(Tsigos et al., 2020).

Older people who feel anxiety have a risk of depression. Anxiety experienced by the elderly makes the elderly irritable, restless, feeling tense, and often feeling afraid as if something bad might happen which can develop into depression. Based on qualitative field data, the anxiety experienced by the elderly at the Nursing Home in East Nusa Tenggara Province in 2021 was caused by complaints of illness, lack of harmonious social relations with fellow elderly friends at the nursing homes and anxiety at any time they were sick with COVID-19. The elderly complained that they were afraid of being disturbed by other friends at any time. The deteriorating social relationship of the elderly increases their sense of anxiety in the elderly. Anxiety can also occur when the elderly expect themselves to always act perfectly without the slightest flaw and if not, the elderly consider themselves to have failed, look down on themselves and feel excessive anxiety in the elderly themselves. This is following the results of research conducted by Manungkalit & Sari at the Surabaya nursing homes which found a significant relationship between anxiety and depression experienced by the elderly, indicated by a p-value of <0.0001 (Manungkalit et al., 2020). Anxiety experienced by the elderly is closely related to thoughts of death and the death of their partner which makes the elderly more prone to depression.

CONCLUSION

The incidence of depression in the elderly in Nursing Home, East Nusa Tenggara Province was at a mild-moderate level and all independent variables were significantly related to the incidence of depression in the elderly (p-value <0.05) with sleep quality being the most influential factor in causing elderly depression. The results of this study suggest that further research be carried out in other places such as the Elderly Posyandu, Posbindu, Puskesmas or communities with larger sample size, adding other variables such as length of stay in the nursing homes, communication with family members and factors of elderly satisfaction with services at the nursing homes if the research is conducted at nursing homes to find out more about the incidence of depression in the elderly in East Nusa Tenggara Province, Indonesia. We also suggest to the nursing homes to be willing to direct the elderly in implementing the 12 healthy sleep rules suggested by the World Health Organization/WHO.

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