



Geriatric Depression Scale Short Form (GDS-SF) to assess depression in elderly with hypertension

Dwi Novitasari^{1*}; Sidik Awaludin²

¹)University of Harapan Bangsa

²University of Jenderal Soedirman Purwokerto

ARTICLE INFO

Article history:

Received January 04, 2020

Accepted March 27, 2020

Published June 05, 2020

Keyword:

Depression
GDS-SF
Elderly

*) corresponding author

Health Faculty, University of Harapan Bangsa, Raden Patah St. No 100, Ledug, Kembaran, Purwokerto, Indonesia. Telp: +62 281 6843493, Fax: +62 281 6843494

Email: dwinovitasari@uhb.ac.id

DOI: <https://doi.org/10.30604/jika.v5i2.276>

ABSTRACT

Depression in the elderly does not receive attention, and the symptoms do not always appear. The assessment on ten older people showed that five older people (50%) were normal, three older people (30%) were suggestive of depression, and two older people (20%) were indicative of depression. The purpose of this study was to assess depression using the Geriatric Depression Scale Short Form (GDS-SF) in older people in Mersi. The design of this study was descriptive. The population consisted of 105 people who were the members of the Hypertension Care Group. The sample size was 84 people and using Simple Random Sampling. The inclusion criteria were being diagnosed with hypertension for more than one year, while the exclusion criteria were having an activity of daily with total care. The data were analyzed using descriptive statistics. The study subjects were predominately female with 58 people (69.0%). Moreover, 49 respondents (58.3%) were categorized normal with several characteristics: 35 people (89.8%) were satisfied with their life, in good spirits most of the time, though it was wonderful to be alive at present and full of energy. Then, 39 people (98.0%) lived with a meaningful life, and 37 respondents (93.9%) felt valuable. Depression is categorized into a mental illness that affects older people but it is challenging to identify. Hence, it is essential to recognize and do research about it to get proper therapy. Nurses can assess the mental aspects of older people using the GDS-SF 15.

This open access article is under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Introduction

An increase in the life expectancy rate leads to the growth of the elderly population proportion. The aging population will become an exciting issue in Indonesia afterward. Data of population census show that in 2023 those whose older people exceed 7 % of the total population. The older people dependency ratio of Indonesia will exceed 10 % in 2023. The structure of population in Indonesia will become ageing in the near future (Heryanah, 2015). It is estimated that the older people population in Banyumas regency will elevate from about 11.12% in 2010 to 15.06% in 2020 (Badan Pusat Statistik, 2015). Mental changes also occur along with physical changes in the elderly. They are frequently neglected, one of them is depression disorder. Knowledge about signs, symptoms, and detection of depression disorders needs to be recognized by the elderly,

families who take care of them, and the community in general (Saxon, Etten, & Perkins, 2014).

Depression is a mental disease that often attacks older people, and it is generally undetected in this age group. It can represent mood, symptoms, or even disease (Cockerham, 2016). Although the incidence is high in older people, depression should not be considered as a normal response to the aging process. Several factors including physical factor such as chronic illness, hormonal change such as estrogen decrease, psychological changes such as loss of life goals, loss of spouse and friends, and social changes such as unemployment and being isolated from the environment, and many other factors will affect the development of depression in the older people (Tabloski, 2014).

It is predicted that 1-2% of the older people experience depression, 1.4% of female older people, and 0.4% of male older people go through the same thing. The symptoms do not always appear clinically in 15% of older people, and it is more common among older people with health problems (Licinio & Wong, 2008). Various factors can cause depression, such as genetics due to a family history of bipolar personality, depression, and schizophrenia. Biochemical factors are like homeostatic disorders, neurotransmitter serotonin, lower norepinephrine and dopamine than non-depressed individuals (Ruda-Kucerova et al., 2015). Examples of environmental factors are high environmental pressure, dense population, noisy and crowded atmosphere, and others. Psychological factors include traumatic cases, death of loved ones such as husband/wife/ children, severe financial conditions, or stress conditions that trigger depression (Hammen, 2015., Djamaludin, D., Qaulia, D., & Kusumaningsih, D. (2020).

Older adults who are depressed will show various changes such as physical changes, including loss of appetite and weight, insomnia, drowsiness, lethargy, and headache. Also, they will experience mind-changes such as difficulty in concentrating and remembering information, fear of disaster, feeling failed and unconfident. Besides, changes in feelings also occur, such as losing interest in doing a fun activity, asexuality, feeling useless, hopeless, and a great sense of guilt. Furthermore, there are also some behavior changes like being alcoholic, withdrawing from the environment, and ignoring daily obligations. A late diagnosis affects the success of treatment (Irawan, 2013).

Based on a preliminary study conducted by researchers in Mersi Village, Purwokerto in April 2018 used interviews with the leader of the hypertension care group. There were 105 elderlies joined in the hypertension care group that was established in 2016. The assessment used GDS-SF of ten people showed that five of them (50 %) did not experience depression. The characteristics of those people are living a meaningful life, being in a good spirit most of the time, feeling happy for most of their lives, having no problems with memory, and feeling valuable. There were three elderlies (30%) who are suggestive of depression. They indicated several characteristics such as loss of interest in things that once pleasurable, lack of energy, staying at home more often rather than going out and doing something new, yet living a meaningful life, feeling valuable and purposeful. Also, the result showed that two elderlies (20%) experienced depression with the characteristics such as feeling unsatisfied with their lives, loss of interest that once enjoyable, feeling empty, bored, and helpless, staying at home more often than going out and doing something new, living unhappy life, lack of energy and feeling hopeless.

Depression in older people is a unique problem for health workers because there is confusion regarding the determination of mental disorders in the older people population between dementia and depression. Older people with psychomotor retardation and cognitive function are often misinterpreted as dementia where older people are depressed. Depression in older people is often characterized by memory and cognitive impairment, this is rare in the adult population (Hammen, 2015). Depression is not a natural part of aging.

Depression is often reversible with prompt recognition and appropriate treatment. However, if left untreated, depression may result in the onset of physical, cognitive, functional, and social impairment, as well as decreased quality of life, delayed recovery from medical illness and surgery, increased health care utilization, and suicide (Greenberg, 2012). Medical workers need to make a comprehensive strategy to deal with depression in older

people. Nurses are no exception. They need to conduct a proper assessment of depression screening in older people so that they can collaborate with other medical teams for appropriate and effective psychological management and pharmacotherapy to prevent the recurrence of depression in older people.

Older people depression can be assessed with the geriatric depression scale (GDS) was developed by Yesavage, initially, there were 100 questions about signs of depression. Item questions about somatic symptoms, cognitive disorders, motivation, past orientation, future orientation, self-image, agitation, obsessive traits, and mood. They were tested on 47 respondents aged over 55 years. There are 30 questions relevant to the older people's depression, with an average validity value of 0.675 and a reliability of 0.51 (Yesavage et al., 1982). In 1987, Yesavage and Sheikh retested the GDS long-form (original) and found 15 questions that were closely correlated with depressive symptoms. This new version is called the short version of GDS (15 items) (Sheikh & Yesavage, 1986). The GDS Long Form is a brief, 30-item questionnaire in which participants are asked to respond by answering yes or no in reference to how they felt over the past week. A Short Form GDS consisting of 15 questions, was developed in 1986.

Questions from the Long Form GDS, which had the highest correlation with depressive symptoms in validation studies, were selected for the short version. Of the 15 items, 10 indicated the presence of depression when answered positively, while the rest (question numbers 1, 5, 7, 11, 13) stated depression when answered negatively. Scores of 0-4 are considered normal, depending on age, education, and complaints; 5-8 indicate mild depression; 9-11 indicate moderate depression; and 12-15 show severe depression. The Short Form is more easily used by physically ill and mildly to moderately demented patients who have short attention spans and/or feel easily fatigued. It takes about 5 to 7 minutes to complete (Greenberg, 2012).

The purpose of this study was to assess depression using the Geriatric Depression Scale Short Form (GDS-SF) in the older people Javanese ethnic in Mersi Village, East Purwokerto.

Method

The study used a descriptive design. The populations were 105 people with hypertension listed as members of the Hypertension Care Group in Mersi Village, Purwokerto. The number of research samples was calculated using the Slovin formula with the result 83.19 and rounded into 84 people. The sampling technique used was Simple Random Sampling by raffling the names of the members. The inclusion criteria for the study sample were aged more than 60 years, Javanese ethnic had been diagnosed with hypertension for more than 1 year, and able to read and write. The exclusion criteria were those being hospitalized and having daily living activity with total care. The research data was taken from May to June 2019.

The variable of this study was the older people depression, which is feeling disturbance with several signs such as feeling overly sad, having a depressed mood, lack of energy, feeling worthless, empty, hopeless, failed, unhappy, pessimistic, even thought of suicide. The data were measured using the Geriatric Depression Scale. Research on the validity of the GDS SF obtained a validity value of 0.89 with high sensitivity to assess depressed patients with high sensitivity to determine depressed patients (Leshner & Berryhill, 1994). The validity test results of the Indonesian version of the GDS-15 questionnaire have r count values of

validity ranging from 0.406 to 0.826 and reliability of 0.895 so that they are declared valid and reliable (Hidayati, Mustikasari, & Putri, 2015). Depression category was measured based on the criteria: a total score of 0-4 is not depressed/average, 5-9 is suggestive of depression, and 10 - 15 is indicative of depression. Data analysis used descriptive statistics.

Results and Discussion

Various physical changes in the older people like a change in the endocrine system cause diabetes mellitus, which may lead to insensitive extrahepatic tissue to insulin and a decrease in the amount of daily insulin production by the pancreas. Changes also occur in the cardiovascular system which causes older people to suffer from hypertension. Examples of the changes are stiffness of the heart valve and the inability of the heart to pump blood by 1% per year over the age of 20. The loss of blood vessels' elasticity, decrease in oxygenation ability of peripheral blood vessels, increase in vascular resistance, and others are

metabolic problems that are commonly suffered by older people (Sunaryo et al., 2016). The table of respondent characteristics is presented as follows:

Table 1
Characteristics of the respondent (n: 84).

Characteristic	Frequency	Percentage (%)
Sex		
a. Male	26	31.0
b. Female	58	69.0
Diabetes mellitus		
a. Patient	64	76.2
b. Non-Patient	20	23.8
Hypertension		
a. Normal	71	84.5
b. Abnormal	13	15.5

Table 2
Analysis of questions of depression scale in older people based on category (n: 84)

GDS-SF Questions	Normal (n: 49)		Suggestive of depression (n: 25)		Indicative of depression (n: 10)	
	F	%	F	%	F	%
1 Feeling Satisfied	5,0	10,2	5,0	20,0	10,0	100,0
Feeling Unsatisfied	35,0	89,8	20,0	80,0	0,0	0,0
2 Not dropping activities	15,0	30,6	13,0	52,0	9,0	90,0
Dropping activities	25,0	69,4	12,0	48,0	1,0	10,0
3 Not feeling empty life	1,0	2,0	12,0	48,0	9,0	90,0
Feeling empty life	39,0	98,0	13,0	52,0	1,0	10,0
4 Not getting bored	17,0	34,7	16,0	64,0	9,0	90,0
Getting bored	23,0	65,3	9,0	36,0	1,0	10,0
5 Good spirit	5,0	10,2	9,0	36,0	8,0	80,0
Bad spirit	35,0	89,8	16,0	64,0	2,0	20,0
6 Feeling not afraid of something bad happen	16,0	32,7	8,0	32,0	8,0	80,0
Feeling afraid of something bad happen	24,0	67,3	17,0	68,0	2,0	20,0
7 Feeling happy	11,0	22,4	10,0	40,0	8,0	80,0
Feeling unhappy	29,0	77,6	15,0	60,0	2,0	20,0
8 Full of energy	10,0	20,4	10,0	40,0	8,0	80,0
Lack of energy	30,0	79,6	15,0	60,0	2,0	20,0
9 Going out and doing something new	19,0	38,8	15,0	60,0	9,0	90,0
Not going out and doing something new	21,0	61,2	10,0	40,0	1,0	10,0
10 Feeling helpful	7,0	14,3	15,0	60,0	7,0	70,0
Feeling helpless	33,0	85,7	10,0	40,0	3,0	30,0
11 Having no memory problem	5,0	10,2	7,0	28,0	7,0	70,0
Having a memory problem	35,0	89,8	18,0	72,0	3,0	30,0
12 Feeling valuable	3,0	6,1	8,0	32,0	8,0	80,0
Feeling worthless	37,0	93,9	17,0	68,0	2,0	20,0
13 Full of energy	5,0	10,2	7,0	28,0	7,0	70,0
Lack of energy	35,0	89,8	18,0	72,0	3,0	30,0
14 Feeling hopeful	6,0	12,2	7,0	28,0	3,0	30,0
Feeling hopeless	34,0	87,8	18,0	72,0	7,0	70,0
15 Not feeling most people are better than oneself	7,0	14,3	11,0	44,0	9,0	90,0
Feeling most people are better than oneself	33,0	85,7	14,0	56,0	1,0	10,0

Based on table 1 it was found out that the majority of the respondents were female with 58 people (69.0%), patients with diabetes mellitus were 64 (76.2%), dan patients with normal blood pressure were 71 (84.5%).

Almost 20% of women and 12 % of men have suffered from depression during their lifetime. Women have the possibility of living with depression twice greater than men. Woman elderly has a higher survival ability than man

elderly. This gender difference is caused by women's ability to get used to taking care of themselves (Girgus, Yang, & Ferri, 2017). Depression diagnosis in diabetes patients is around 13-18%. People with DM commonly do not realize that they are depressed, so they do not receive proper management. Depression conditions in DM will increase the risk of developing DM complications. People with DM often experience depression more often than non-sufferers. This is

associated with dietary restrictions, long-term treatment, and routine invasive blood sugar sampling. Unresolved depressive conditions in this state will cause an increased risk of disease complications (Dipnall et al., 2015; Gemeay et al., 2015).

The aging process throughout the human life cycle is something natural, but each individual can provide a diverse response in its development. It can bring various problems, including physical, biological, social, financial, and mental issues. The presence of physical deterioration and physical disease may decline the biological, economic, and social roles. The old people have developed a dependence on their surrounding people. It can give rise to mental problems. The reduction of social activities and job retirement that they experience will lower the interaction and integration with other people. This also contributes to the life satisfaction and happiness of the older people (Mohit, Maruf, Ahmed, & Alam, 2011; Muhith & Siyoto, 2016). The result of this study is the majority of respondents, 49 people (58.3%), do not experience depression or healthy. The analysis on questions of depression scale in older people based on category is presented at table 2.

Table 2 which presented the characteristics of the older people with normal category indicated that 35 people (89.8%) were satisfied with their lives, 39 people (98.0%) lived a meaningful life, 35 people (89.8%) were in a good spirit most of the time, 33 people (85.7%) had no problems with memory than most, 35 people (89.8%) stated that it was wonderful to be alive now, 37 people (93.9%) said they felt valuable, 35 people (89.8%) felt full of energy, 34 people (87.8%) stated the current situation was hopeful, and 33 people (85.7%) thought they were better off than most people.

The older adults with suggestive of depression presented the following characteristics; 13 people (52.0%) stated they dropped many of their activities and interests, 12 people (48.0%) said they felt their lives were empty, 16 people (64.0%) said they often got bored, 15 people (60.0%) preferred to stay at home rather than going out and doing new things, 15 people (60.0%) had more problems with memory than most, and 11 people (44.0%) thought that most people are better off than they were.

Furthermore, the older people with the indicative of depression showed several characteristics: 10 older people (100%) said they were dissatisfied with their lives, 9 older people (90%) dropped many activities and interests, 9 older people (90%) felt their lives were empty, 9 older people (90%) often got bored, 8 older people (80%) were not in a good spirit most of the time, 8 people (80%) felt afraid something bad was going to happen to them, 8 older people (80%) feel unhappy most of the time, 8 older people (80%) often felt helpless, 9 older people (90%) preferred to stay at home than going out and doing something new, 8 older people (80%) felt worthless, and 9 older people (90%) thought that most people were better off than they were.

Based on the analysis of the answers, 35 older people (89.8%) are satisfied with their lives, 39 older people (98.0%) feel their lives meaningful, 35 older people (89.8%) state they are in good spirit most of the time, 33 older people (85.7%) say they have no more problems than most people. Also, 35 older people (89.8%) feel it is wonderful to be alive now, 37 older people (93.9%) state they felt valuable, 35 older people (89.8%) older people were full of energy, 34 older people (87.8%) feel the current situation is hopeful, and 33 older people (85.7%) states that they are better off than others.

The activity theory of Maslow (1954) states that successful older people are older people who are active and are involved in many social activities. The older people maintain relationships with other people and the

environment and remain stable in their middle age to older people age (Dewi, 2015). The subculture theory of McClelland (1982) in older people emphasizes that the health level and mobility ability affects the status of older people. It is no longer about work, education, or finance that has been achieved. Older people have different norms, expectations, beliefs, and customs, so they are included in their subculture. They can coordinate and share their aspirations with the other elderlies to improve adaptability skills during the older people period (Muhith & Siyoto, 2016).

The period of the older people is referred to as a period of age extension. Older people can enjoy the pleasure of being free from the work routine (honeymoon phase). If they can go through the disenchantment phase due to the reduction of a social activity after retirement, they can develop thoughts and realistic ideas about new life alternatives (reorientation phase). As a result, they can look for exciting new activities, or develop hobbies that they have not done during their youth (Muhith & Siyoto, 2016).

The disengagement theory of Cumming and Henry (1961) suggested the deterioration of the relationship between the older adults and community, breaking relationships. The older people begin to break away from their social lives both in quality and quantity. It makes them lose their role, inhibit their social contact, and reduce commitment to social values (Dewi, 2015). As shown in table 2, there are 25 respondents (29.8%) were suggestive of depression and 10 respondents (11.9%) were indicative of depression. The analysis of depression symptoms using GDS generated some characteristics for suggested depression. They are: 13 older people (52.0%) stated that they drop many activities and interests, 12 older people (48.0%) feel that their lives are empty, 16 older people (64.0%) often get bored, 15 respondents (60.0%) said that they rarely go out of the house and do something new, 15 older people (60.0%) said they have many problems with memory than most, and 11 older people (44.0%) thought that most people are better off than they are.

The characteristics of the older people who are indicative of depression in this study are 10 people (100%) feel dissatisfied with their lives, 9 people (90%) drop of many activities and interests, 9 people (90%) feel their lives are empty, 9 people (90%) often get bored, 8 people (80%) are not in good spirit most of the time, 8 people (80%) are afraid something bad is going to happen to them. Also, 8 people (80%) feel unhappy most of the time, 8 people (80%) often feel helpless, 9 people (90%) prefer to stay at home than going out and doing something new, 8 people (80%) feel worthless, and 9 people (90%) think that other people are better than themselves.

Depression is a general mental disorder. The symptoms include feeling bad, loss of interest, low self-esteem, feeling guilty, sleep disturbance, loss of appetite, lack of energy and concentration (Harista & Lisiswanti, 2015). Depression can occur either acutely or chronically, for the severe case, it can lead to suicide (Irawan, 2013).

Major depression shows symptoms such as persistent sadness, loss of interest in doing things that once pleasurable and doing daily activities, sleep disturbances, feelings of guilt, loss of energy, poor concentration, changes in appetite, retardation or psychomotor agitation, the desire of death, or thought of suicide attempt. While the symptoms of mild depression are loss of short-term memory, irritability, short attention span, thinking of death, sudden storage of drugs for worrying that something bad will happen, transfer of wealth, a sudden interest in weapons, and statements about sadness (Tabloski, 2014).

Depression can last for 6-9 months, yet around 15-20% of the patients can experience it up to two years or more. Several factors associated with the causes of depression are biological, genetic, psychosocial, and environmental factors. Biological factors are like a decrease in neurotransmitter norepinephrine, serotonin, and dopamine (Moret & Briley, 2011; Ruda-Kucerova et al., 2015). In general, these three neurotransmitters play a role in regulating emotions, responding to stress, sleep activities, and appetite. Norepinephrine and serotonin are neurotransmitters that play a major role in the development of mood disorders. Decreased norepinephrine causes a decrease in the regulation of β -adrenergic receptors and antidepressant responses (Moret & Briley, 2011). The high amount of serotonin will also cause aggressiveness and sleep disorders. In contrast, a low amount of serotonin will cause irritability, anxiety, lethargy, and even suicidal thoughts. The role of norepinephrine in an individual with depression will be disrupted in the regulation of the "fight or flight" response. Dopamine serves as an emotion regulator, motor muscle movement, learning processes, thinking, memory, and attention span. Low dopamine will affect the functions so that it develops into depression (Chaudhury et al., 2013; Friedman et al., 2014).

Changes in the brain structure of the older people with depression in the frontostriatal area cause impaired psychomotor function and apathy. Hypersensitivity of subcortical area, cortical atrophy, and subcortical structural abnormalities result in negative emotions and disruption of adaptive coping (Hwang et al., 2010). The structure disorder in various areas of the brain causes depression (Irawan, 2013).

The example of genetic factors associated with depression is the incidence of depression in monozygotic twins is 50%, while that of dizygotic is 10-25%. A meta-analysis study indicates that there is a relationship between polymorphism and genes mutation with depression such as polymorphism in the gene of serotonin transporter promoter region (5-HTTLPR), brain-derived neurotrophic factor (BDNF) with the incidence of depression (Mullins & Lewis, 2017). Also, the polymorphism of the oxytocin receptor gene (rs2254298) affects depression (Thompson, Parker, Hallmayer, Waugh, & Gotlib, 2011). Family history of bipolar personality, depression, and schizophrenia are also associated with the incidence of depression (Ruda-Kucerova et al., 2015)

Psychosocial factors such as life event that is full of tension often cause mood swing, the nature of hiding feelings, helplessness, and isolation. Mourning in the loss of loved ones causes vulnerability, and physiological disorders play a role in the incidence of depression (Taylor, 2014).

Depression diagnosis is based on the Guidelines for Classifying the Diagnosis of Mental Disorders in Indonesia (PPDGJ-III) and Diagnostic and Statistical Manual (DSM-IV). It is stated that someone with depression often experiences depressive moods, loss of interest and excitement, lack of energy, fatigue, and reduced activity (American Psychiatric Association, 2012; Maslim, 2013).

References

- American Psychiatric Association. (2012). American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). In *Springer Reference*. https://doi.org/10.1007/springerreference_179660
- Badan Pusat Statistik. (2015). *Proyeksi Penduduk Kabupaten / Kota Provinsi Jawa Tengah* (Y. A. Jatmiko & T. Agustin, eds.).

Major depressive disorders are characterized by 1) there is at least 5 of the signs of depression, loss of interest, loss of pleasure in all or most activities, weight loss or gain loss (more than 5%), insomnia or hypersomnia, psychomotor retardation or agitation, fatigue, feelings of worthlessness or unclear guilt, decreased concentration ability, thought of death or suicide. 2) there must be one of the main symptoms, depressed mood or loss of interest or loss of pleasure. 3) The symptoms occur at least for two weeks, which causes a malfunction, and is not under the effect of drug use, medical conditions, or loss (death) (American Psychiatric Association, 2012).

Symptoms of minor depression are 1) there must be two symptoms, but fewer than five symptoms of major depressive disorder. 2) The symptoms occur at least for two weeks, which causes disruption of function, and is not under the effect of drug use, medical conditions, or loss (death). 3) This diagnosis is only for patients without a history of major depression, dysthymia, bipolar, or psychotic disorders (American Psychiatric Association, 2012).

A comprehensive assessment helps eliminate the possible underlying causes of depression, such as negative drug reactions, hypothyroidism, and other disorders. Depression must also be distinguished from dementia because both have similar signs and symptoms. The sharp difference is that dementia occurs gradually, progressive events, clear memory loss, mood swings, poor understanding, bad abstraction, confusion at night, psychomotor tremor and rigidity with a very poor prognosis. On the other hand, depressive signs are it occurs suddenly, recurrent events, minor memory decline, sad mood, good understanding, good abstraction, being rarely confused, psychomotor setbacks, and having a good prognosis (Irawan, 2013).

A tool that can be used to detect depression in older people is the Geriatric Depression Scale (GDS). In the beginning, GDS was developed to have 100 questions with yes or no questions to differentiate the older people who are depressed and not. Later, 30 questions were selected with the highest correlation and validated with other depression scale questionnaires such as Zung's depression scale (SDZ) and Hamilton's depression scale (HAMD). Validation results show significant correlation values. The questionnaire of GDS with 30 questions has a sensitivity of 84%. Then GDS Short Form (GDS SF) was developed with 15 questions that can function as well as GDS 30 questions with a sensitivity of 80.5% and specificity of 75% (Njoto, 2014).

Conclusions and Recommendations

Depression is a mental illness that frequently occurs in older adult but it is challenging to identify. Hence, it is essential to recognize and do research about it to get proper therapy. Nurses can assess the mental aspects of older people using GDS-SF with 15 questions.

Retrieved from Indonesia, S. Regency/Municipality Population Projection Jawa Tengah Province 2010-2035. Statistics Indonesia.

Chaudhury, D., Walsh, J. J., Friedman, A. K., Juarez, B., Ku, S. M., Koo, J. W., ... Han, M. H. (2013). Rapid regulation of depression-related behaviours by control of midbrain

- dopamine neurons. *Nature*, 493(7433), 532. <https://doi.org/10.1038/nature11713>
- Cockerham, W. C. (2016). *Sociology of mental disorder*. Oxfordshire UK: Taylor & Francis.
- Dewi, S. R. (2015). *Buku ajar keperawatan gerontik*. Yogyakarta: Deepublish.
- Dipnall, J. F., Pasco, J. A., Meyer, D., Berk, M., Williams, L. J., Dodd, S., & Jacka, F. N. (2015). The association between dietary patterns, diabetes and depression. *Journal of Affective Disorders*, 174, 215–224. <https://doi.org/10.1016/j.jad.2014.11.030>
- Djamiludin, D., Qaulia, D., & Kusumaningsih, D. (2020). Penyuluhan Tentang Manfaat Jus Tomat Untuk Menurunkan Tekanan Darah pada Klien Hipertensi di Desa Talang Lebar Tanggamus Lampung. *Indonesia Berdaya*, 1(2), 95 - 100. Retrieved from <https://ukinstitute.org/journals/ib/article/view/v1i214>
- Friedman, A. K., Walsh, J. J., Juarez, B., Ku, S. M., Chaudhury, D., Wang, J., ... Han, M. H. (2014). Enhancing depression mechanisms in midbrain dopamine neurons achieves homeostatic resilience. *Science*, 344(6181), 313–319. <https://doi.org/10.1126/science.1249240>
- Gemeay, E. M., Moawed, S. A., Mansour, E. A., Ebrahiem, N. E., Moussa, I. M., & Nadrah, W. O. (2015). The association between diabetes and depression. *Saudi Medical Journal*, 36(10), 1210. <https://doi.org/10.15537/smj.2015.10.11944>
- Girgus, J., Yang, K., & Ferri, C. (2017). The Gender Difference in Depression: Are Elderly Women at Greater Risk for Depression Than Elderly Men? *Geriatrics*, 2(4), 35. <https://doi.org/10.3390/geriatrics2040035>
- Greenberg, S. A. (2012). The geriatric depression scale (GDS). *Best Practices in Nursing Care to Older Adults*, 4(1), 1–2.
- Hammen, C. L. (2015). Stress and depression: Old questions, new approaches. *Current Opinion in Psychology*, 4, 80–85. <https://doi.org/10.1016/j.copsyc.2014.12.024>
- Harista, R. A., & Lisiswanti, R. (2015). Depresi pada Penderita Diabetes Mellitus Tipe 2 Depression in Patients with Type 2 Diabetes Mellitus. *Majority*, 4(9), 73–77.
- Heryanah. (2015). Agieng population dan bonus demografi kedua di Indonesia. *Populasi*, 23(2), 1–16.
- Hidayati, L. N., Mustikasari, & Putri, Y. S. E. (2015). Individual Reminiscence Therapy can Decrease Depression Level on Elderly at Social Homes. *Jurnal Ners*, 10(2), 222–232.
- Hwang, J. P., Lee, T. W., Tsai, S. J., Chen, T. J., Yang, C. H., Lirng, J. F., & Tsai, C. F. (2010). Cortical and subcortical abnormalities in late-onset depression with history of suicide attempts investigated with MRI and voxel-based morphometry. *Journal of Geriatric Psychiatry and Neurology*, 23(3), 171–184. <https://doi.org/10.1177/0891988710363713>
- Irawan, H. (2013). Gangguan Depresi pada Lanjut Usia. *Cermin Dunia Kedokteran*, 40(11), 815–819.
- Leshner, E. L., & Berryhill, J. S. (1994). Validation of the geriatric depression scale-short form among inpatients. *Journal of Clinical Psychology*, 50(2), 256–260. [https://doi.org/10.1002/1097-4679\(199403\)50:2<256::AID-JCLP2270500218>3.0.CO;2-E](https://doi.org/10.1002/1097-4679(199403)50:2<256::AID-JCLP2270500218>3.0.CO;2-E)
- Licinio, J., & Wong, M. L. (2008). *Biology of depression: From novel insights to therapeutic strategies*. New York, USA: John Wiley and Sons.
- Maslim, R. (2013). *Diagnosis gangguan jiwa rujukan ringkas dari PPDGJ - III dan DSM - 5*. Jakarta: Penerbit Buku Kedokteran (EGC).
- Mohit, M., Maruf, M., Ahmed, H., & Alam, M. (2011). Depression and Physical Illnesses: an Update. *Bangladesh Medical Journal*, 40(1), 53–57. <https://doi.org/10.3329/bmj.v40i1.9966>
- Moret, C., & Briley, M. (2011). The importance of norepinephrine in depression. *Neuropsychiatric Disease and Treatment*, 7(Suppl 1), 9–13. <https://doi.org/10.2147/NDT.S19619>
- Muhith, A., & Siyoto, S. (2016). *Pendidikan keperawatan gerontik*. Yogyakarta: Penerbit Andi.
- Mullins, N., & Lewis, C. M. (2017). Genetics of Depression: Progress at Last. *Current Psychiatry Reports*, 19(8), 43. <https://doi.org/10.1007/s11920-017-0803-9>
- Njoto, E. N. (2014). Mengenali Depresi pada Usia Lanjut Penggunaan Geriatric Depression Scale (GDS) untuk Menunjang Diagnosis. *Cermin Dunia Kedokteran*, 41(6), 472–474.
- Ruda-Kucerova, J., Amchova, P., Havlickova, T., Jerabek, P., Babinska, Z., Kacer, P., ... Sustkova-Fiserova, M. (2015). Reward related neurotransmitter changes in a model of depression: An in vivo microdialysis study. *World Journal of Biological Psychiatry*, 16(7), 521–535. <https://doi.org/10.3109/15622975.2015.1077991>
- Saxon, S. V., Etten, M. J., & Perkins, E. A. (2014). *Physical change and aging: A guide for the helping professions*. New York: Springer Publishing Company.
- Sheikh, J. I., & Yesavage, J. A. (1986). Geriatric depression scale (GDS): recent evidence and development of a shorter version. *Clinical Gerontologist*. https://doi.org/10.1300/J018v05n01_09
- Sunaryo, Wijayanti, R., Kuhu, M. M., Sumedi, T., Widayanti, E. D., Sukrilah, U. A., ... Kuswati, A. (2016). Asuhan Keperawatan Gerontik. In *Penerbit Andi*. Yogyakarta: Penerbit Andi.
- Tabloski, P. A. (2014). *Gerontological nursing*. New York, NY, USA: Pearson Education, Inc.
- Taylor, W. D. (2014). Depression in the elderly. *New England Journal of Medicine*, 371(13), 1228–1236. <https://doi.org/10.1056/NEJMc1402180>
- Thompson, R. J., Parker, K. J., Hallmayer, J. F., Waugh, C. E., & Gotlib, I. H. (2011). Oxytocin receptor gene polymorphism (rs2254298) interacts with familial risk for psychopathology to predict symptoms of depression and anxiety in adolescent girls. *Psychoneuroendocrinology*, 36(1), 144–147. <https://doi.org/10.1016/j.psyneuen.2010.07.003>
- Yesavage, J. A., Brink, T. L., Rose, T. L., Lum, O., Huang, V., Adey, M., & Leirer, V. O. (1982). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17(1), 37–49. [https://doi.org/10.1016/0022-3956\(82\)90033-4](https://doi.org/10.1016/0022-3956(82)90033-4)