



Disability and Depression among Population Aged 18-59 Years in Central Sulawesi Province: Analysis of Riskesdas 2018

Disabilitas dan Depresi pada Usia 18-59 Tahun di Provinsi Sulawesi Tengah: Analisis Data Riskesdas 2018

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ABSTRACT

The prevalence of depression among the general population in Central Sulawesi was the highest in Indonesia (12.3%). Scholars revealed that disability was one of the main contributing factors of depression and in Central Sulawesi almost half of population was reported having disability (42.1%). This study was intended to identify the association of disability and depression in Central Sulawesi. Cross sectional design study was conducted with utilization of secondary data collection from *Riskesdas* 2018. Depression, as the main outcome, was assessed by the Mini International Neuropsychiatric Interview (MINI), meanwhile, disability was assessed by the WHODAS instrument. The relationship between these two variables was adjusted by several confounders, namely age, gender, marital status, educational status, and employment status. A 11,9% of 11,926 respondent aged 18-59 years old, was depressed and almost half of them reporting disability (42.1%) and among those who were disabled, one-fifth were depressed. The risk of depression among respondents with disabilities was 3.25 times higher ($p=0.000$; 95% CI 2.9-3.6) compared to respondents without disability after controlled by confounders (gender, marital status, educational status, and employment status). It is recommended that routine mental health screening needs to be done at *Posyandu*, *Posbindu* and among patients at Primary Health Care. Besides, health promotion focused on physical activity in a community such as community gymnastics during the weekend.

ABSTRAK

Provinsi Sulawesi Tengah merupakan provinsi dengan penderita depresi terbanyak di Indonesia (12,3%). Salah satu faktor penyebab depresi adalah disabilitas, yang mana prevalensi disabilitas di Sulawesi Tengah mencapai 42,1%. Tujuan penelitian ialah mengetahui pengaruh disabilitas terhadap kejadian depresi di Sulawesi Tengah. Penelitian dilakukan dengan menggunakan desain studi potong lintang dengan menggunakan data sekunder *Riskesdas* 2018 pada 11.926 responden. Variabel depresi diukur dengan instrumen Mini International Neuropsychiatric Interview (MINI) sedangkan variabel disabilitas diukur dengan WHODAS. Adapun yang menjadi variabel *confounding* adalah umur, jenis kelamin, status pernikahan, tingkat pendidikan dan pekerjaan. Analisis data dilakukan hingga tahapan multivariat dengan menggunakan analisis *cox regression*. Sebanyak 11,9% dari 11.926 responden berusia 18-59 tahun mengalami depresi. Sementara itu disabilitas secara umum dialami oleh hampir sebagian responden, yaitu 42,1% dan dari jumlah tersebut sebanyak 20,30% mengalami depresi. Risiko kejadian depresi pada responden disabilitas adalah 3,25 kali lebih besar dibandingkan responden yang tidak mengalami disabilitas (nilai $p=0,000$; 95% IK 2,9-3,6) setelah dikontrol dengan variabel konfonder yaitu jenis kelamin, status pernikahan, pendidikan dan pekerjaan. Saran dari penelitian ini adalah skrining kesehatan mental di masyarakat perlu dilakukan secara rutin dalam kegiatan *posyandu*, *posbindu*, atau saat masyarakat berobat di puskesmas dan menggalakkan upaya promosi

INTRODUCTION

Depression and anxiety are the most commonly reported mental disorders.¹ Globally, more than 300 million people are depressed, or about 4.4% of the total of world population. Nearly half of people with depression live in Southeast Asia and West Pacific Region (48%). According to World Health Organization South East Asia Region (WHO SEARO) the highest number of cases of depression disorders was in India (56,675,969 cases or 4.5% of the total population), the lowest was in Maldives (12,739 cases or 3.7% of the population). In Indonesia there are 9,162,886 cases or 3.7% of the population.²

WHO mentioned that factors affecting mental health and mental disorders are not only due to individual attributes, but also social, economic, and environmental factor. Deteriorating economic conditions or poverty are example of the conditions that have consequences for increased mental health problems, as evidenced by the increase of alcoholism or suicide rates.³ Another factor that causes by is disability.⁴

Depression is the most happened in middle age, but current trends indicate also happened in many adolescences. As reported in *Riset Kesehatan Dasar (Riskesdas) 2018* that 6.2% of adolescents/early adults (15-24 years) had depression. The prevalence is increasing at the age of 55 years and over. As reported by

Taamu, there are 53.7% of the elderly have depression.⁵

Adolescents who have depression will usually suffer for the rest of their lives,⁶ and in some cases, it can cause severe depression when they enter adulthood,^{7,8} and can even increase the risk of suicide 2-3 times.⁹ Currently, suicide is becoming a global concern based on data from WHO that every 40 seconds 1 person commits suicide.¹⁰ Another effect of depression is the increase of Years of Potential Life Lost (YPLL).¹

Depressive condition affects the quality of life of individuals, especially in mental domain, the increasing of depression scores causes the decreasing of quality-of-life scores.^{11,12} The odds of poor quality of life in elderly population were 6.3 times greater in those with suspected depression compared with non-depressed individuals (95% CI 3.3 – 12.1).¹³

Based on data from *Riskesdas 2018* in Indonesia, the prevalence of depression in citizen aged ≥ 15 and over is 6.1%. Central Sulawesi Province is the first rank with the number of people with depression, namely 12,3%.

As reported by several researchers that one of the factors causing depression is disability. Disability is a condition of self-limitation that is physical, cognitive, mental, sensory emotional, growth or some combination of these.¹⁴⁻¹⁶ It is estimated that in Indonesia there are around 2-3% of people with

disabilities,¹⁷ and the most commonly reported is visual impairment.¹⁸ The limitation that someone has is the big potential to cause depression due to the feeling loss of body functions and in the end it will cause lost direction or purpose of life. The result from *Riskesdas* 2018 showed that the disability rate in Central Sulawesi reached 42,1%. However, still no studies have looked at the effect of disability on depression incidence in South Sulawesi. Therefore, the aim of this study was to determine the effect of disability on the incidence of depression in Central Sulawesi.

MATERIAL AND METHOD

The design of this study was cross sectional and used secondary data from *Riskesdas* 2018, which consisted of questions at the household and individual levels. The calculation of minimum sample size uses a sample size formula with different proportions,¹⁹ and the minimum sample size is 800. The sample inclusion criteria are respondents aged 18-59 years and have answered all questions completely.

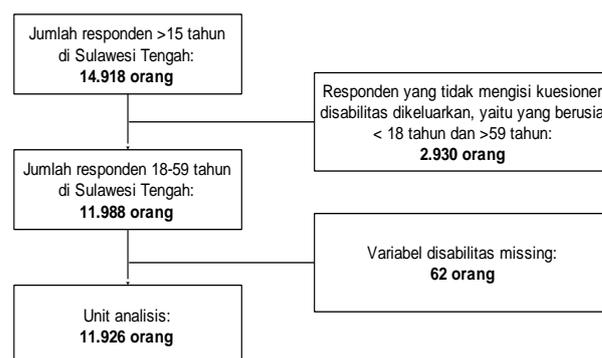
The number of respondents > 15 years in *Riskesdas* 2018 in Central Sulawesi was 14,918 respondents. Considering the disability variable is only asked for respondents aged 15-89 years, then respondents aged <18 years and >59 years were excluded from the sample; therefore, the number of respondents was 11,988 and from that number there were 62 respondents who did

not answer the questions about disability. The number of final respondents who became the unit of analysis for this study was 11,926 respondents (Figure 1).

The dependent variable in this study is depression which is defined as a mental disorder characterized by symptoms of decreased mood, loss of interest in something, feeling guilty, sleep or appetite disturbances, loss of energy, and lack of concentration that measured using the MINI instrument.²⁰

Whereas the primary independent variable is a disability, defined as the ability of respondents to fulfill his/her role at home, workplace, school, or other social areas.²¹

The analysis was carried out until the multivariate stage using cox regression analysis, producing a prevalent ratio value. The use of prevalence ratio measure in this cross-sectional study design due to the observed outcome had a reasonably high prevalence (>10%), that is 11.9%.



Source: Primary Data, 2020

Figure 1. Data Collection Flow

RESULTS

11.9% of respondents experienced depression. The most depressive symptoms reported by respondents were feeling tired, powerless, (27.2%), and sleep disorders, such as difficulty initiating sleep, waking up in the middle of the night, waking up too early, oversleeping in the last two weeks (26.6%). Meanwhile, almost all respondents experienced disabilities in general, that is 42.1% (Table 1). Disability consists of six observation domains. Among the six domains, the mobility domain which consists of difficulty standing up at least 30 minutes and problem walking for 1 kilometer, is the most experienced by respondents (25.0%).

The age distribution was 35-44 years (28.5%), and a fraction was 55-59 years (7.6%). Whereas, characteristics of gender show the proportion is almost the same with the number of male respondents slightly smaller than female, that is 48.7%. In terms of marital status, most respondents were married (78%), followed by 16.4% unmarried respondents, and the rest were divorced, either divorced or widow/widower. The highest education level completed by respondents was low education 59.7%, while respondents with middle and high education were 27.0% and 10.6%. Meanwhile, some respondents have jobs with fixed salaries (50.5%) and only about 9.6% of respondents have jobs with unfixed salaries. Almost one-third of respondents (29.9%) who are not working or are still in school (Table 2).

Table 1. An Overview of the Incidence of Depression and Disability

Variable	n = 11,926	%
Depression		
No	10,506	88.1
Yes	1,420	11.9
Disability		
No	6,911	57.9
Yes	5,015	42.1

Source: *Riskesdas* Secondary Data, 2018

Table 2. Characteristics of Respondent

Characteristics	n = 11,926	%
Age		
18-24 years	1,928	16.2
25-34 years	3,027	25.4
35-44 years	3,405	28.5
45-54 years	2,664	22.3
55-59 years	902	7.6
Gender		
Male	5,802	48.7
Female	6,124	51.3
Marital Status		
Unmarried	1,956	16.4
Married	9,296	78.0
Divorced	292	2.4
Widow/widower	382	3.2
Educational Status		
No school	312	2.6
Low education	7,122	59.7
Middle education	3,224	27.0
Higher education	1,268	10.6
Employment Status		
Job with fixed salary	1,142	9.6
Job with unfixed salary	6,031	50.5
Others	1,188	10.0
Unemployed	3,565	29.9

Source: *Riskesdas* Secondary Data, 2018

Furthermore, bivariate analysis was carried out to determine the correlation between disability and confounding variables with the depressive incidence (Table 3). From the several confounding variables, age was the only variable with no significant correlation with depressive incidence ($p > 0.05$). The risk of depressive incidence in women was 1.57 times higher than in men ($p=0.000$; PR 1.57; 95% CI= 1.41<PR<1.74). Respondents who were divorced also had a higher risk of experiencing

depression than those who were not married ($p=0.000$; PR 1.59; 95% CI= 1.28<PR<1.98). The analysis result also shows that the lower education of respondents, the higher the risk of experiencing depression. The risk of depression in those with no school was 2.5 times (95% IK 1.72-2.59) compared to those who were educated. Whereas for respondents with low and middle education, the risk of experiencing depression was 2.4 ($p=0.000$; PR 2.38; 95% CI=1.88<PR<3.01) and 1.5 ($p=0.000$; PR 1.55; 95% CI=1.20<PR<1.99). Regarding occupational variables, the group of respondents who work and have unfixed salary have the highest risk of

experiencing depression ($p=0.000$; PR 2.89; 95% CI=2.75<PR<2.98) compared to respondents who unemployed ($p=0.000$; PR 2.82; 95% CI=2.15<PR<3.69) and have another job ($p=0.000$; PR 2.10; 95% CI=1.54<PR<2.86).

In general, 20,30% of respondents with disabilities experienced depression. The risk of depression in respondents with disabilities was 3,25 times greater than the respondents without disabilities ($p=0,000$; PRadj 3.25; 95% CI=2.9<PRadj<3.6. This result is the final model after being controlled with the confounder variables, such as gender, marital status, education, and occupation (Table 4).

Table 3. Bivariate Correlation Between Depression and Other Independent Variables

Variables	Depression				<i>p</i>	OR Value (95%CI)
	Yes		No			
	n	%	n	%		
Disability						
Yes	1,018	20.3	399	79.7	0.000	3.5 (3.1-3.9)
No	400	5.8	6,511	94.2	Ref	Ref
Age (Years)						
55-59	127	14.1	775	85.9	0.166	1.17 (0.94-1.45)
45-54	358	13.4	2,306	86.6	0.207	1.11 (0.94-1.31)
35-44	391	11.5	3,014	88.5	0.537	0.95 (0.81-1.12)
25-24	311	10.3	2,716	89.7	0.061	0.85 (0.72-1.01)
18-24	233	12.1	1,695	87.9	Ref	Ref
Gender						
Female	885	14.5	5,239	85.5	0.000	1.57 (1.41-1.74)
Male	535	9.2	5,267	90.8	Ref	Ref
Marital Status						
Divorced	126	18.7	548	81.3	0.000	1.59 (1.28-1.98)
Married	1,065	11.5	8,231	88.5	0.766	0.98 (0.85-1.13)
Unmarried	229	11.7	1,727	88.3	Ref	Ref
Educational Status						
No school	46	14.7	266	85.3	0.000	2.49 (1.72-3.59)
Low education	1,004	14.1	6,118	85.9	0.000	2.38 (1.88-3.01)
Middle education	295	9.2	2,929	90.8	0.001	1.55 (1.20-1.99)
High education	75	5.9	1,193	94.1	Ref	Ref
Employment Status						
Unemployed	519	14.6	3,046	85.4	0.000	2.82 (2.15-3.69)
Others	129	10.9	1,059	89.1	0.000	2.10 (1.54-2.86)
Job with unfixed salary	713	11.8	5,318	88.2	0.000	2.89 (1.75-2.98)
Job with fixed salary	59	5.2	1,083	94.8	Ref	Ref

Source: *Risikedas* Secondary Data, 2018

Furthermore, disabilities that experienced are separated according to the disability domain. It is known that the most depressive incidence happened among respondents with disabilities related to self-care, that is around 28.6%. However, if it is seen from the magnitude of the risk of depression experienced, the highest risk of depression in respondents with disabilities related to the cognition domain, ($p=0.000$; PRadj 2.92; 95% CI=2.6<PRadj<3.2), daily activities PRadj 2.92; 95% CI=2.6<PRadj<3.2) and social participation ($p=0.000$; PRadj 2.93; 95% CI=2.9<PRadj<3.2) (Table 4).

DISCUSSION

This study has the advantage of being able to identify the depressive incidence in the

productive age group (18-59 years) in Central Sulawesi. Studies on general population regarding depression in Central Sulawesi have not been carried out yet. In 2019, a study related to depression in post-disaster refugees in Sigli District had ever carried out,²² but these results can not describe depression in Central Sulawesi's general population. It was carried out in one district only and in a post-disaster setting. Meanwhile, this study deserves to be generalized to the population of Central Sulawesi. This study also indicates that disability is a risk factor for depression, so that prevention of depressive incidence can be done by reducing the number of disabilities.

Table 4. The Correlation of Disability and Each of the Formers Domain Related to the Depressive Incidence in Central Sulawesi

Categories	Depression	No Depression	PR Crude	95%CI	PR adj	95% CI	p
Disability							
Yes	20.3%	79.7%	3.5	3.1-3.9	3.25	2.9-3.6	0.000
No	5.8%	94.2%					
Cognitive Domain							
Yes	25.3%	74.7%	3.12	2.8-3.4	2.92	2.6-3.2	0.000
No	8.1%	91.9%					
Mobility Domain							
Yes	24.1%	75.9%	3.07	2.8-3.4	2.85	2.6-3.1	0.000
No	7.8%	92.2%					
Self-Care Domain							
Yes	28.6%	71.4%	2.48	2.1-3.0	2.21	1.8-2.7	0.000
No	11.5%	88.5%					
Social Interaction Domain							
Yes	27.7%	72.3%	2.70	2.4-3.0	2.42	2.2-2.7	0.000
No	10.3%	89.7%					
Daily Domain							
Yes	27.4%	72.6%	3.12	2.8-3.4	2.92	2.6-3.2	0.000
No	8.8%	91.2%					
Social participation domain							
Yes	25.6%	74.4%	3.12	2.8-3.4	2.93	2.7-3.2	0.000
No	8.2%	91.8%					

Source: *Risikesdas* Secondary Data, 2018

Meanwhile, this study's weakness is using secondary data collected by *Riskesdas* 2018 with cross-sectional study design. Secondary data collection causes limited variables that can be reviewed. Previous studies stated that depression is also influenced by other diseases such as hypertension and TB. Unfortunately, these two variables can not be used in this study because there is no information about the timeline of that two diseases. When the further analysis is carried out, temporality bias will be happen. Another weakness comes from using a cross-sectional study design, that is temporality, where the variables of disability and depression are observed at the same time. However, the questionnaire's weakness can be overcome by asking for the variable of disability in the last a month and depression over the previous two weeks.

Riskesdas 2018 uses the WHODAS instrument to measure the disability. This instrument was developed by WHO to measure the disability and functional limitations based on the International Classification of Functioning (ICF), Disability, and Health model. WHODAS is used to assess the difficulties/independence due to health conditions, including illness, injury, mental health problems, and alcohol and drugs problems. Besides, this instrument also has a reliability >90%,²³ which means that this instrument is right to assess disability at individual and in different groups,²⁴ such as evaluate the picture of disability or independence in the general population.²⁵ Meanwhile, in assessing depression in the

population, *Riskesdas* uses the MINI instrument. It is considered quite right considering that this instrument's validity and measurement are relatively high, 0.60 and 0.78.²⁶

The study's main finding is a depression in the population aged 18-59 years in Central Sulawesi, around 11.9%. The number is considerably higher than the incidence of depression in Indonesia's general population (6.1%). When observing the spread of incidence based on age distribution, it is known that prevalence of depression in the group of pre-elderly 55-59 years is the highest among other age groups, which is 14.1%. This result is much higher than the prevalence of depression in 40-59 years in America, only 8.4%.²⁷ However, this study shows that the prevalence of depression increase of age.²⁸ By increasing age, being alone due to a partner has left (divorced/widow or widower) has become more and more happened,²⁹ the number of chronic diseases,³⁰ and the decreased income because of pensions,²⁸ are factors that cause a high increase of the prevalence of depression in this age group.

This study's hypothesis is related to the effect of disability on the incidence of depression after being controlled by socio-demographic variables has been proven. Respondents with disabilities have 3.25 greater risk of experiencing depression than respondents without disabilities (95% CI 2.9-3.6). Many studies show similar results, that disability is a cause of depression.⁴ One possible explanation for this association is a disability is a stressful condition, in this view, disability requires

patients to adjust to and chronic tension when preventing their daily activities. These factors increase the risk of depression.

This finding is similar to the results of a review that disability is one of the causes of depression in United Arab Emirates, mostly related to social interaction domain.¹⁴ The same thing, but with a different approach, shows that the correlation between disability and depression (as observed through the variable of antidepressant consumption) is 0.7 ($r = 0.7$; $p < 0.001$).¹⁵ A weaker correlation between disability and depression was found in Belgian, 0.3 ($p < 0.001$).¹⁶ Disability is defined as the inability to do certain activities, indicating a person's dependency/lack of independence to do an activity that needs help from others/another tools. A person with disability has tends to experience helplessness, loneliness, loss, dissatisfaction about himself (deprivation).³¹ When this happens for a long time then depression can arise. Based on World Bank report, 14% of world's population has a disability: those who experience at least one severe or extreme limitation.²⁴

The descriptive results show that the most experienced disability domain is mobility domain, which consists of difficulty standing up at least 30 minutes and difficulty walking for 1 kilometer. This condition occurs in around 39.1% respondents aged 54-59 years. In the elderly group, this mobility impairment is caused by arthritis, osteoporosis, hip fractures, stroke, and Parkinson's disease. This condition can be prevented by doing light physical

exercise. The results of the meta-analysis state that light physical exercise can significantly reduce the risk of depression.³² Therefore, it is crucial to promote light physical activity in every community environment (office, neighborhood, market).

This study also shows that the socio-demographic variables are confounding variables that must be controlled, such as gender, marital status, educational status, and employment status. In the variable about gender, the depressive incidence in women is more significant than in men (14.4% vs 9.2%; $p < 0.000$). It is due to several main factors, such as poverty, inequity, and discrimination. In this study, these three variables can be seen in the occupation variable, where almost half of female respondents in Central Sulawesi are unemployed (49.4%). In the unemployed, depression can occur due to higher financial pressure and uncertainty about the suffered future,³³ so that it can be said that unemployed can cause stress which if it happens for a long time can cause depression.³⁴

Another confounder variable is marital status, where the depressive incidence in divorced respondents was 63% greater than married respondents (18.7% vs 11.5%). The divorce process usually involved a lot of stressors, such as major financial, legal, and logistic challenges, and the emotional and social level of divorced is a very unpleasant occurrence, as it has been shown to have a significant impact on physical and psychological well-being.³⁵

CONCLUSION AND RECOMMENDATION

From this study, it can be concluded that the depression problems in Central Sulawesi are quite prevalent, 11.9%. Meanwhile, the disability rate in the population 18-59 years reached 42.1%. The disability variable significantly caused the depressive incidence. The risk of depressive incidence was 3.25 times greater in those with disabilities (PRadj 3.25; 95% IK 2.7-3.2) after being controlled by the variable of gender, marital status, educational status, and employment status. The depressive incidence in Central Sulawesi can be decreased by routinely conducting mental health screening in the community. For example, in *Posyandu*, *Posbindu*, or when people seek treatment at the *Puskesmas*, those who show persistent stress levels (have potential to get depression) can immediately be treated. Mobility impairment, which contributes the most to the disability incidence, can be prevented by promoting light physical exercise to the community. It can be done by requiring office workers to do stretching in working hours at least 15-20 minutes, or to do gymnastics in the community every weekend.

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