Depression Among Stroke Patients Based on Gender and Age Category: A Secondary Data Analysis

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Abstract. Post-stroke depression (PSD) is a common but often under-recognized complication that significantly affects the recovery and quality of life of stroke survivors. In Indonesia, population-level data regarding the sociodemographic distribution of PSD remains limited. This study aimed to describe the prevalence of depression among stroke patients based on gender and age category using data from the 2018 Indonesian Basic Health Survey (Riskesdas). A descriptive cross-sectional design was employed using secondary data involving 6,278 stroke patients aged 18 years and above. Descriptive statistics and chi-square tests were used to analyze the association between depression status and sociodemographic variables. The results showed that 19.7% of stroke patients experienced depression. Depression was significantly more prevalent in females (22.3%) compared to males (17.0%) ($p < 0.001$). Moreover, the prevalence of depression increased with age, highest among older adults (21.7%) ($p < 0.001$). These findings underscore the need for targeted mental health screening and age- and gender-sensitive intervention strategies in post-stroke care. This study contributes valuable evidence for public health planning and clinical practice in Indonesia, especially in integrating psychological support in national stroke rehabilitation frameworks.

Keywords: stroke, depression, gender, aging

INTRODUCTION

Stroke is one of the leading causes of death and long-term disability worldwide, affecting millions of people each year, particularly in low- and middle-income countries (Feigin et al., 2019). In Indonesia, stroke has consistently been the leading cause of death for more than a decade (Kementerian Kesehatan RI, 2018). While the focus of stroke care has traditionally centered on physical recovery, psychological consequences—such as post-stroke depression (PSD)—remain underexplored despite their high prevalence and impact on recovery outcomes. Post-stroke depression is the most common neuropsychiatric consequence of stroke, affecting up to one-third of survivors (Towfighi et al., 2017). Depression following stroke is associated with poorer rehabilitation outcomes, lower adherence to treatment, and increased mortality (Ayerbe et al., 2013). Various factors such as gender, age, level of disability, and social support have been shown to influence the risk of PSD (Bartoli et al., 2021). However, in Indonesia, evidence from nationwide data on how these sociodemographic factors correlate with PSD is still limited (Apriliyasari et al., 2023a).

Previous studies in Indonesia have mostly been conducted in clinical or regional settings, often with small sample sizes and limited generalizability. As a result, there is a research gap in understanding the population-level patterns of PSD, particularly from large-scale datasets. The use of nationally representative surveys, such as Riskesdas, provides an opportunity to address this gap and identify priority populations for intervention (Apriliyasari et al., 2023b).

This study aims to describe the prevalence of depression among stroke patients based on gender and age categories using secondary data from Indonesia's 2018 Basic Health Survey (Riskesdas). By identifying high-risk subgroups, this study is expected to provide evidence for integrating mental health screening into stroke rehabilitation policies and contribute to the development of more inclusive, community-based stroke care models in Indonesia.

METHODS

This was a descriptive cross-sectional study using secondary data from the 2018 Indonesian Basic Health Survey (Riskesdas), a nationwide health survey conducted by the National Institute of Health Research and Development (Balitbangkes) under the Ministry of Health of the Republic of Indonesia. The survey used multistage stratified random sampling and covered all provinces and districts in Indonesia, ensuring national representativeness.

The population in this study included individuals aged 18 years and above who were identified as having had a stroke, based on self-report or diagnosis by a health professional recorded in the Riskesdas dataset. Depression status was assessed using structured questions aligned with standard mental health screening items used in the Riskesdas questionnaire. Sociodemographic variables analyzed in this study included gender and age category, which was classified into: young adult (18–35 years), middle adult (36–45 years), late middle adult (46–59 years), and older adult (60+ years).

Data were analyzed using SPSS version 26. Descriptive statistics were used to summarize the characteristics of the respondents, including frequencies and percentages. The chi-square test was used to examine the association between depression status and gender and age categories. A p-value < 0.05 was considered statistically significant. The results were presented in tables and visualized through bar charts to enhance interpretation.

Ethical clearance for the Riskesdas 2018 survey had been obtained by the organizing institution, and this secondary data analysis adhered to ethical standards, with no personal identifiers used during the analysis process.

RESULTS AND DISCUSSION

This study aimed to describe the prevalence of depression among Indonesian stroke patients based on gender and age category using secondary data from Riskesdas 2018.

Table 1. Characteristics of Stroke Patients (n = 6,278)

Variable		n	%
Gender			
-	Male	3,067	48.9
-	Female	3,211	51.1
Age			
-	Young adult	725	11.5
-	Middle adult	1,495	23.8
-	Late middle adult	2,175	34.6
-	Older adult	1.883	30.0
Depression			
-	No	5,040	80.3
-	Yes	1,238	19.7

A total of 6,278 stroke patients were included in this study. As shown in Table 1, the distribution by gender was relatively balanced, with 51.1% being female and 48.9% male. Most participants were late middle-aged (34.6%) and older adults (30.0%). The overall prevalence of depression among stroke patients was 19.7%, which aligns with global estimates ranging from 18–33% as reported in various population-based studies (Towfighi et al., 2017). This finding is also in line with a recent Indonesian nationwide study which found that depression remains a prevalent burden among adults with stroke, especially when compounded by lack of physical activity and psychosocial vulnerability (Apriliyasari et al., 2023a).

Table 2. Depression status by Age and Gender (n = 6,278)

Variable	No Depression (n, %)	Depression (n, %)	Total	p value
Gender				
Male	2,544 (83.0%)	523 (17.0%)	3,067	<0.001
Female	2,496 (77.7%)	715 (22.3%)	3,211	<0.001
Age				
Young adult	615 (84.8 %)	110 (15.2%)	725	<0.001
Middle adult	1,198 (80.1%)	297 (19.9%)	1,495	<0.001
Late middle adult	1,752 (80.5%)	423 (19.5%)	2,175	<0.001
Older adult	1,475 (78.3%)	408 (21.7%)	1,883	<0.001

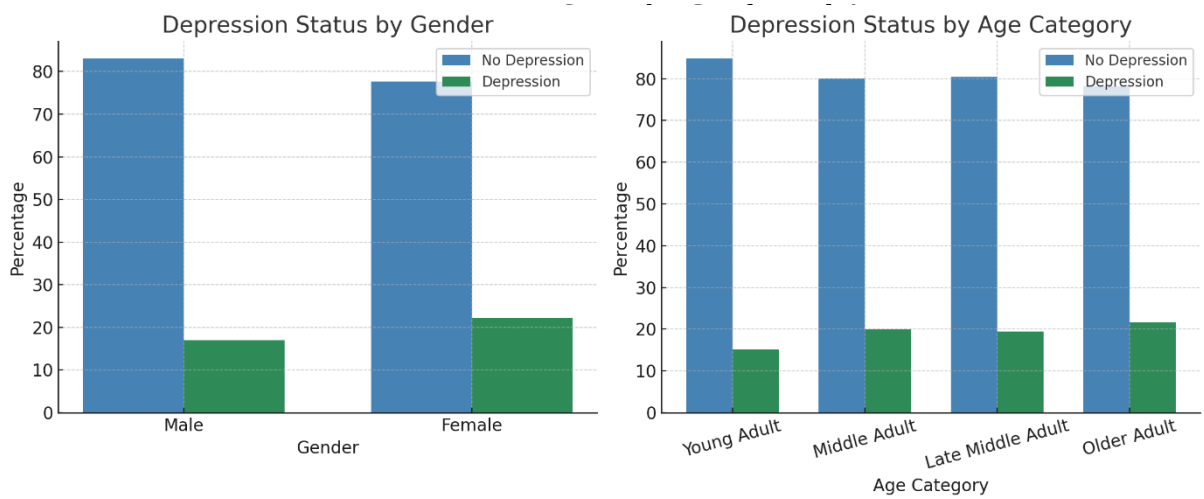

Figure 1. Depression Status by Gender and Age

As presented in Table 2 and Figure 1, female stroke patients were more likely to experience depression (22.3%) compared to males (17.0%). The association between gender and depression was statistically significant ($p < 0.001$). This result is consistent with prior evidence that suggests women are at greater risk of post-stroke depression (PSD), influenced by both biological and psychosocial factors (Bartoli et al., 2021). Estrogen fluctuation, greater emotional expressivity, and differing coping mechanisms are among the factors that may explain this disparity.

Table 2 and Figure 1 also show that depression prevalence increased with age, with the highest prevalence observed in the older adult group (21.7%). This trend was statistically significant ($p < 0.001$) and corresponds to findings from prior research indicating that older age is a risk factor for depression, particularly among individuals with chronic conditions such as stroke (Luppa et al., 2012; Ayerbe et al., 2013). Similarly, another Indonesian study reported that depression among elderly stroke survivors was significantly associated with age-related declines and comorbidities, emphasizing the vulnerability of this population (Apriliyasari et al., 2023b).

The novelty of this study lies in the use of a nationally representative dataset (Riskesdas) to investigate the sociodemographic correlates of depression among stroke patients in Indonesia. Most existing literature on PSD in Indonesia has been limited to small hospital-based or regional studies, lacking broad population-level insights.

This study adds valuable information by demonstrating how gender and age significantly affect depression prevalence among stroke survivors in a large population sample. It emphasizes the need for integrated mental health screening and targeted interventions for specific high-risk groups—especially older females recovering from stroke.

From a practical standpoint, these findings offer several important implications. For policy-makers, the evidence can serve as a foundation to design and implement stroke rehabilitation

programs that are sensitive to gender and age-related differences. For healthcare providers, the results underscore the importance of integrating routine mental health assessments—particularly depression screening—into standard post-stroke care practices. Lastly, for future researchers, this study highlights the need to further investigate the causal pathways of post-stroke depression and to develop targeted psychosocial interventions that can effectively address the unique needs of high-risk groups.

CONCLUSION

This study highlights that depression is a prevalent issue among Indonesian stroke patients, with a higher prevalence observed in females and older adults. The significant association between gender, age category, and depression status emphasizes the need for targeted screening and intervention strategies. These findings demonstrate the importance of incorporating mental health assessments into post-stroke care, particularly for vulnerable groups such as elderly and female patients. Utilizing a nationally representative dataset, this study contributes valuable insights to the limited literature on post-stroke depression in Indonesia and supports the development of more inclusive, age- and gender-sensitive rehabilitation programs.

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