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Prevalence of geriatric psychiatric cases in Malaysia and their association with clinical mental health workforce availability

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Abstract

The aging population presents a global challenge, with increasing attention on the mental health needs of elderly individuals. In Malaysia, the rising number of geriatric psychiatric cases emphasizes the urgent need for effective mental health care solutions. This study investigates the relationship between clinical staffing levels in psychiatric care and the management of geriatric psychiatric conditions. While previous research has established a link between staffing levels and care quality, this study provides specific insights into how workforce availability influences the management of elderly psychiatric patients in Malaysia. Given the growing prevalence of psychiatric disorders such as depression, anxiety, and dementia among older adults, this research addresses a critical gap in understanding the effects of staffing on mental health outcomes. Using descriptive and regression analyses, the study assesses data on psychiatric cases and clinical staffing across Malaysian states. The analysis reveals that higher clinical staffing levels significantly improve the management of geriatric psychiatric conditions. This evidence highlights the critical role that adequate staffing plays in enhancing psychiatric care for the elderly. The study underscores the importance of strategic investments in mental health services, offering insights for policymakers and healthcare planners as they strive to meet the increasing demand for mental health care in Malaysia. By optimizing staffing and resource allocation, the research contributes to better mental health outcomes for Malaysia's aging population, improving their quality of life.

Keywords: *clinical staffing, elderly population, geriatric psychiatry, health, psychiatric*

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Introduction

The global rise in the aging population has brought psychiatric care for older adults into sharper focus, revealing an urgent need to address mental health issues within this demographic. As the number of elderly individuals worldwide continues to grow, psychiatric conditions such as depression, anxiety, dementia, and schizophrenia are becoming increasingly prevalent among the elderly (World Health Organization, 2017). According to the World Health Organization, mental health disorders affect a significant proportion of older adults, impacting their

quality of life and overall well-being (World Health Organization, 2017). Depression, for instance, affects an estimated 7% of older adults globally, with factors such as chronic illness, social isolation, and loss of independence contributing to its rise (Chaurasia, 2020; Baiyewu *et al*., 2021; Raaj, 2021). Dementia, including Alzheimer's disease, is another critical concern, affecting approximately 5-10% of individuals aged 65 and older, with numbers expected to double by 2050 due to aging demographics (Coombs *et al*., 2021; Simon Long *et al*., 2023).

The COVID-19 pandemic has exacerbated these issues, leading to increased rates of anxiety, depression, and cognitive decline among older adults, partly due to heightened social isolation and disruptions in routine care (Bafail, 2022; Liu *et al*., 2022). Despite these challenges, there has been progress in understanding and addressing geriatric psychiatric conditions through improved diagnostic tools, treatment methods, and the integration of mental health services into primary care. However, gaps remain in access to care, with many older adults facing barriers such as stigma, lack of awareness, and inadequate resources (Cloak *et al.*, 2019; Dahlberg, 2023). Efforts to enhance mental health services for the elderly are crucial, emphasizing the need for comprehensive strategies to improve diagnosis, treatment, and support for this growing population.

These challenges are particularly pronounced in Malaysia, where the shortage of psychiatrists further complicates the ability to provide adequate mental health care for the elderly. According to recent reports, Malaysia has a low psychiatrist-to-population ratio, with only about one psychiatrist for every 200,000 people (Astro Awani, 2024**;** Selangor Journal, 2024**;** CodeBlue, 2021). This shortage is even more acute in rural areas, where access to specialized mental health services is severely limited. The lack of mental health professionals not only delays diagnosis and treatment but also places an overwhelming burden on the existing healthcare system, which is already stretched thin by the rising demand for services (Adams *et al*., 2024; Suhaimi *et al*., 2014; Dziedzic *et al*., 2023).

For the elderly, who are often dealing with multiple chronic health conditions alongside psychiatric disorders, this lack of specialized care can have devastating consequences. The limited availability of mental health professionals means that many elderly individuals are left untreated, leading to a decline in their overall health and quality of life. Furthermore, the stigma associated with mental health issues, particularly among older adults, often prevents them from seeking help (Teo *et al.*, 2022). In many cases, mental health problems are either ignored or misunderstood as a normal part of aging, which further exacerbates the situation (Cloak *et al*., 2019; Guan *et al*., 2018).

The Malaysian healthcare system is attempting to address these issues through various initiatives aimed at integrating mental health services into primary care (Ministry of Health Malaysia, 2023). This approach is intended to make mental health care more accessible, particularly for the elderly, by allowing general practitioners to play a larger role in diagnosing and managing psychiatric conditions. However, these efforts are still in their early stages, and there is a significant need for more comprehensive training for healthcare providers to ensure they are equipped to handle the complex mental health needs of the elderly (Ito *et al*., 2015: Hassan, 2018).

Additionally, cultural factors play a significant role in the treatment and perception of mental health issues in Malaysia. In many communities, mental health problems are still seen as a taboo subject, leading to a reluctance to seek treatment (Amin, 2024). This cultural stigma is particularly strong among the elderly, who may view mental health issues as a sign of weakness or a personal failing. Addressing these cultural barriers is essential to improving mental health outcomes for Malaysia's aging population. Public awareness campaigns and community-based interventions that focus on reducing stigma and increasing understanding of

mental health issues are critical components of this effort (Talib, 2020; Rosli *et al*., 2021; Hussein, 2021).

In conclusion, while there have been some advancements in addressing geriatric mental health issues in Malaysia, significant challenges remain. The shortage of mental health professionals, combined with cultural stigma and the increasing demand for services due to an aging population, creates a complex and urgent problem. To effectively meet the mental health needs of the elderly, Malaysia must continue to expand access to care, improve the integration of mental health services into the broader healthcare system, and address the cultural factors that prevent individuals from seeking help. Only through a comprehensive and multi-faceted approach can the country hope to provide the level of care needed to support its aging population and improve the overall well-being of its elderly citizens.

Thus, based on previous studies, this study aims to: (a) examine psychiatric cases by state and within the elderly category, and (b) assess the availability of treatment and psychiatric care specialists across Malaysia. These objectives are crucial for understanding the regional distribution of psychiatric issues among the elderly and identifying gaps in mental health services, which can inform targeted interventions and policy improvements.

Materials and Methods

The data used in this study were obtained from publicly accessible government sources. Specifically, geriatric psychiatric case data and staffing numbers were retrieved from the Ministry of Health Malaysia's official publications and the Health Informatics Centre (HIC), which publishes state-level health statistics. These data sets are available online and are collected by the Ministry as part of its national health surveillance system.

For this study, the inclusion criteria were:

- All reported psychiatric cases involving individuals aged 65 and above (geriatric age group).
- States and federal territories in Malaysia with complete data on both psychiatric cases and the number of clinical staff.

The exclusion criteria were any state or territory for which data on either psychiatric cases or clinical staffing were incomplete or unavailable (*e.g.*, Labuan, which reported no cases and had no staffing data).

As this study utilized secondary data obtained from publicly available government databases without any involvement of human subjects, individual identifiers, or patient-level data, formal ethical approval from MREC (Medical Research and Ethics Committee) or NMRR (National Medical Research Register) was not required. Nonetheless, ethical research practices were strictly adhered to by ensuring responsible data handling and reporting.

In this study, we employed both descriptive and regression analysis techniques to examine the prevalence of geriatric psychiatric cases and assess the availability of clinical staff in psychiatric care across Malaysia. For descriptive analysis, we began with numerical descriptive methods to calculate summary statistics such as the mean, median, and standard deviation. These metrics provided an overview of the average prevalence of psychiatric conditions among the elderly and highlighted the variability across different regions. Additionally, graphical descriptive analysis used visual tools such as bar charts and pie charts to represent the data. Bar charts displayed the number of geriatric psychiatric cases across various states, revealing regional disparities, while pie charts illustrated the proportion of different psychiatric conditions within the elderly population. These visualizations facilitated a clearer understanding of trends, patterns, and outliers in the data.

For the regression analysis, we explored the relationship between the number of geriatric psychiatric cases and the

availability of clinical staff in psychiatric care. In this analysis, the number of clinical staff served as the independent variable, while the number of geriatric psychiatric cases served as the dependent variable. We used simple linear regression to determine if there was a significant correlation between these two variables. The regression model helped identify whether an increase in clinical staff was associated with a reduction in psychiatric cases or if other patterns emerged. Key metrics such as the coefficient of determination (R^2) measured the proportion of variance in the number of psychiatric cases explained by the number of clinical staff, and regression coefficients indicated the strength and nature of the relationship. Significance tests, including p-values, assessed whether the observed relationships were statistically significant. A significance level of $p < 0.05$ was used to determine statistical significance for all tests conducted.

Results

Data in Figure 1 indicates that Johor has the highest number of cases, with 11,661 cases (17.87%), followed by Sarawak, Selangor, and Perak with 9,068, 7,510, and 7,501 cases respectively. Terengganu recorded the lowest number of cases with 447, while Labuan reported no cases. The average number of geriatric psychiatric cases is 4,078.44.

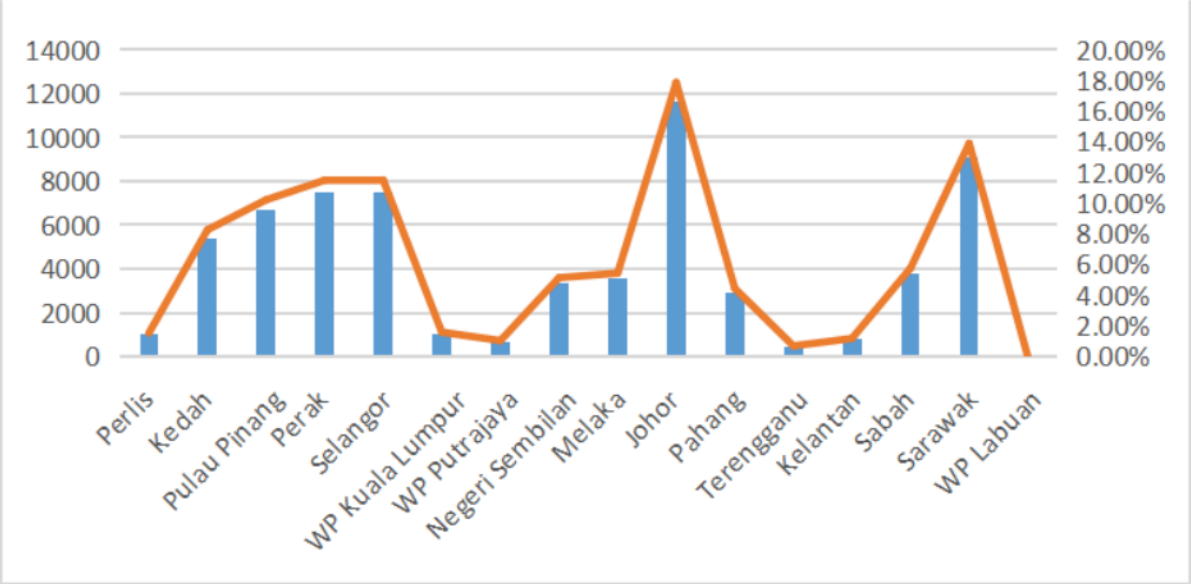

Figure 1. Number of geriatric psychiatric cases in Malaysia.

Figure 2 data shows that Perak has the highest number of psychiatrists, with 23, followed by Selangor, WP Kuala Lumpur, and Johor with 21, 19, and 18 respectively. This suggests that the availability of psychiatric care is generally good across states, although Labuan has no psychiatrists available. On average, there are 10.13 psychiatrists per state.

Regarding psychiatric nurses under the Ministry of Health Malaysia (MOH), Figure 3 shows Perak has the highest number at 336, followed by Johor, Sarawak, and Sabah with 266, 176, and 146 respectively. Labuan has no psychiatric nurses under MOH. The average number of psychiatric nurses under MOH is 77.94.

In terms of clinical workforce in psychiatric care, As shown in Figure 4, Perak again leads with 1,855 individuals, followed by Johor, Sarawak, and Sabah with 1,298 (23.53%), 559 (10.13%), and 474 (8.59%) respectively. Labuan has no clinical workforce in psychiatric care. The average number of clinical staff in psychiatric care is 344.81.

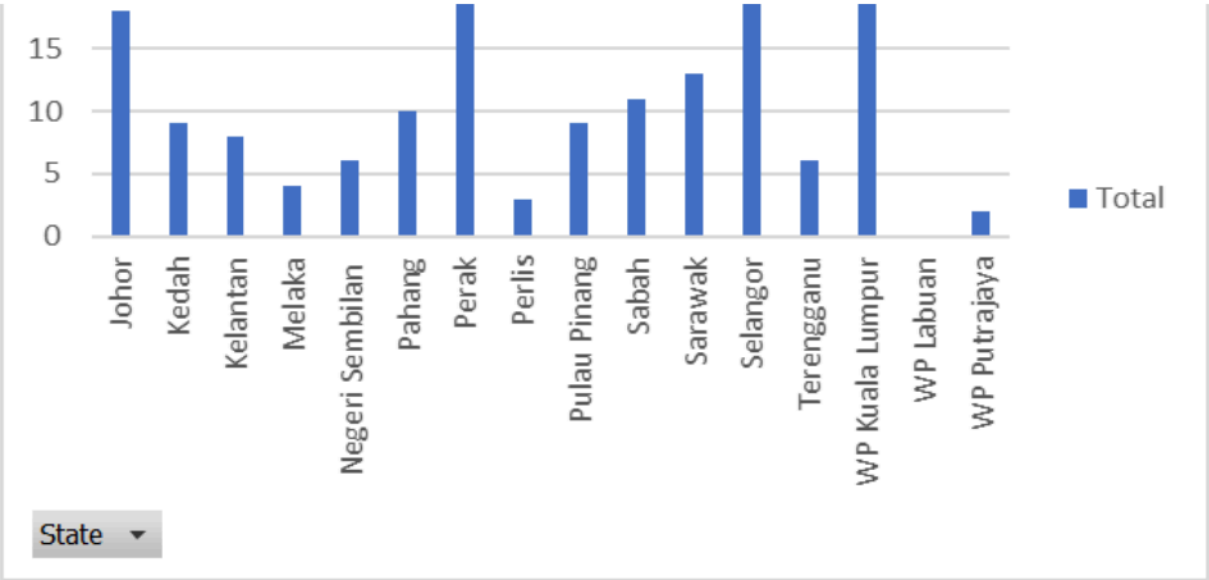

Figure 2. Number of psychiatrists in Malaysia.

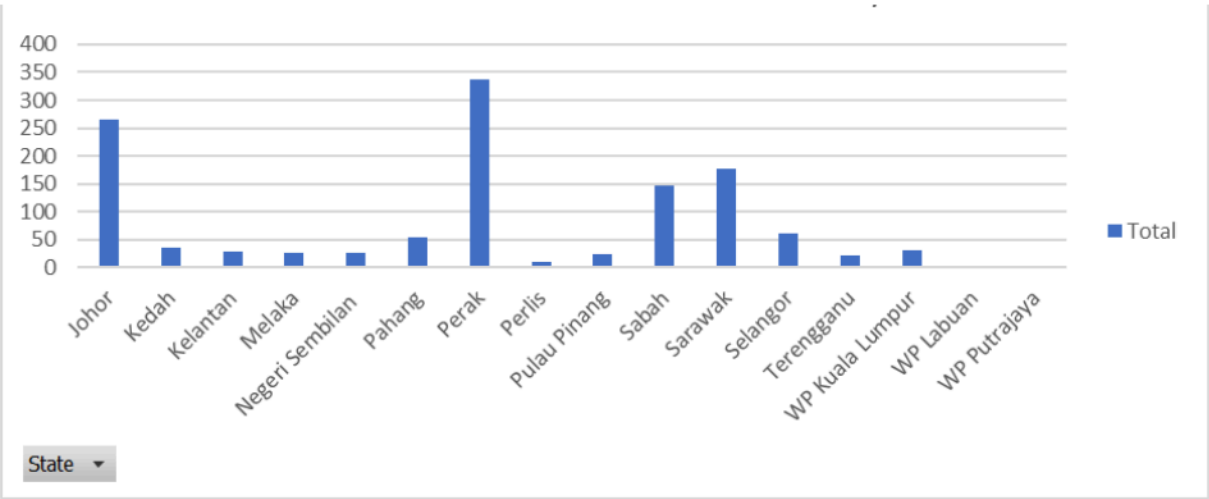

Figure 3. Number of nurses serving in the psychiatric sector under the Ministry of Health Malaysia.

Table 1 displays the results of an ANOVA (Analysis of Variance) test used to evaluate the relationship between the number of clinical staff (independent variable) and the number of geriatric psychiatric cases (dependent variable). The table includes key statistical measures: degrees of freedom (df), sum of squares (SS), mean square (MS), F-statistic, and significance level (p-value).

The degrees of freedom (df) indicate the number of values free to vary in the calculation. For regression, the df is 1, reflecting the inclusion of a single predictor variable. The residual df is 14, which represents the variability left unexplained by the model. The total df is 15, representing the total number of data points minus one. These values help in understanding how much of the total variability in the number of geriatric psychiatric cases can be attributed to the number of clinical staff.

The sum of squares (SS) measures the variability in the data. The regression SS is 83,183,333.69, representing the portion of variability in the number of geriatric psychiatric cases explained by the number of clinical staff. The residual SS is 104,605,210.30, reflecting the variability in psychiatric cases not explained by the clinical staff. The total SS of 187,788,543.90 is the sum of the regression and residual SS, capturing the overall variability.

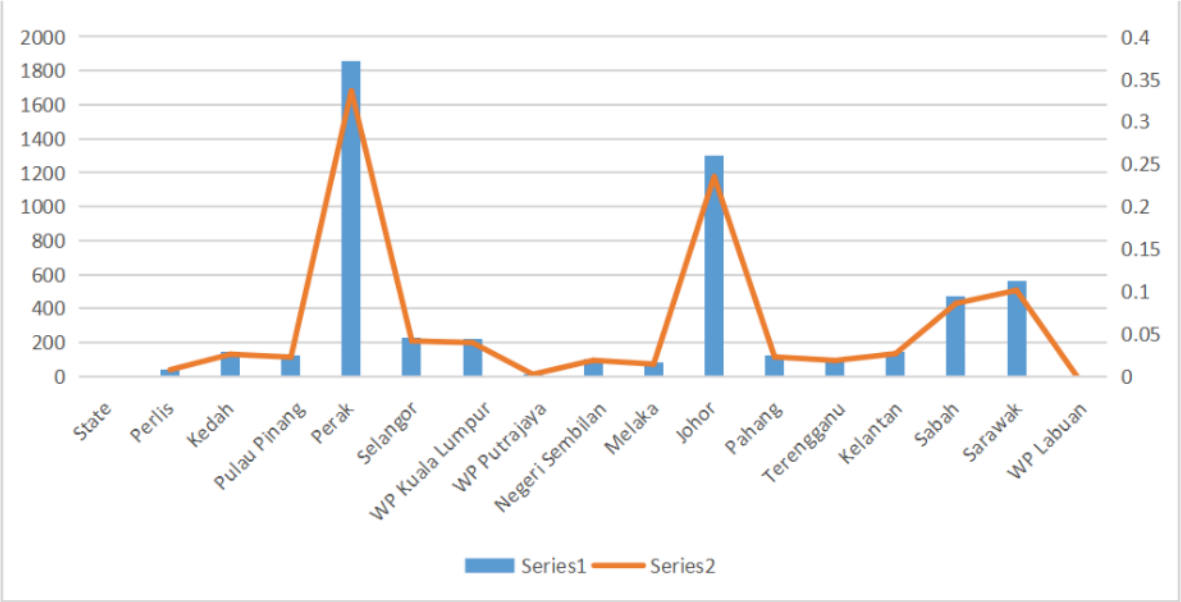

Figure 4. Number of clinical workforce serving in the psychiatric care sector.

Table 1. ANOVA analysis.

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	83183333.69	83183333.69	11.13297004	0.00489259
Residual	14	104605210.3	7471800.732		
Total	15	187788543.9			

The mean square (MS) values are the average amount of variability. The regression MS, which is 83,183,333.69, is derived by dividing the regression SS by its df. The residual MS, 7,471,800.73, is calculated by dividing the residual SS by its df. The F-statistic of 11.133 is obtained by dividing the regression MS by the residual MS. This statistic assesses whether the predictor variable significantly explains the variability in the dependent variable.

The significance level (p-value) of 0.0049 indicates the probability that the observed relationship occurred by chance. Since this p-value is below the common significance threshold of 0.05, it suggests a statistically significant relationship between the number of clinical staff and the number of geriatric psychiatric cases. This finding implies that increasing the number of clinical staff can significantly influence the management of psychiatric cases among the elderly. Overall, the results underscore the importance of adequate clinical staffing in addressing and potentially reducing geriatric psychiatric issues.

Table 2 presents the results of the regression analysis that investigates the relationship between the number of clinical workforces in psychiatric care (independent variable) and the total number of geriatric psychiatric cases (dependent variable).

Table 2. Regression analysis.

Regression Statistics	
Multiple R	0.665554483
R Square	0.44296277
Adjusted R Square	0.403174397
Standard Error	2733.459481
Observations	16

The intercept value is 2499.02, which represents the estimated number of geriatric psychiatric cases when no clinical staff are present. This intercept is statistically significant, as evidenced by its t-statistic of 3.01 and a p-value of 0.009, indicating that the intercept is significantly different from zero. The 95% confidence interval for the intercept, ranging from 716.06 to 4281.98, provides a range within which we can be 95% confident that the true intercept value lies. This result underscores that even without clinical staff, there is a baseline number of cases, highlighting a potential level of cases that would exist due to other factors.

The coefficient for the number of clinical workforces is 4.58. This suggests that for each additional clinical staff member employed in psychiatric care, the number of geriatric psychiatric cases is expected to increase by approximately 4.58 cases. This coefficient is statistically significant, with a t-statistic of 3.34 and a p-value of 0.005, indicating a robust positive relationship between the number of clinical staff and the number of cases. The 95% confidence interval for this coefficient ranges from 1.64 to 7.52, showing that the effect of adding more clinical staff is likely to be between 1.64 and 7.52 additional cases, providing a clear indication of the magnitude and reliability of this relationship.

Table 3 presents the regression analysis examining the relationship between the number of clinical workforce in psychiatric care and the total number of geriatric psychiatric cases. The results reveal a statistically significant positive association, with a regression coefficient of 4.58 (p = 0.0049). This indicates that each additional clinical staff member is associated with an estimated increase of approximately 4.58 geriatric psychiatric cases. The 95% confidence interval for this coefficient ranges from 1.64 to 7.52, reinforcing the reliability of this association. These findings suggest that better staffing is linked to improved case detection and management.

Table 3. Statistical findings of regression analysis between the number of clinical workforces in the psychiatric care sector and the total number of geriatric psychiatric cases.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2499.01836	831.2987224	3.006161676	0.009435561	716.059927	4281.976793	716.0599267	4281.976793
Number of clinical workforces working in psychiatric care	4.580515903	1.372805072	3.336610561	0.004892585	1.636141186	7.524889948	1.636141859	7.524889948

Based on the analyses presented, a conclusion can be drawn regarding the relationship between the clinical workforce in psychiatric care and the number of geriatric psychiatric cases. The combined results from both the regression and ANOVA analyses underscore a clear and significant relationship between the number of clinical staff and the prevalence of geriatric psychiatric cases. The positive correlation indicates that as the number of clinical staff increases, so does the number of cases report. This relationship highlights the importance of adequate staffing in psychiatric care settings to manage and address the growing needs of the elderly population effectively. The findings suggest that increasing the clinical workforce could be a crucial strategy in improving the management of geriatric psychiatric conditions, thereby enhancing overall care quality and responsiveness to patient needs.

Discussion

The analysis reveals significant findings regarding the interplay between the clinical workforce in psychiatric care and the number of geriatric psychiatric cases. The regression analysis and ANOVA results together offer a nuanced understanding of how staffing levels impact psychiatric care for the elderly.

One plausible explanation for this relationship is that a larger clinical workforce enhances the capacity for diagnosing and documenting psychiatric conditions. More staff members may lead to improved detection of psychiatric disorders among the elderly, revealing cases that might otherwise remain undiagnosed. This enhanced detection capability could be particularly crucial in geriatric psychiatry, where symptoms can be subtle and complex. Alternatively, the increase in case numbers associated with a larger workforce could reflect a growing need for mental health services among the elderly. As clinical staffing increases, the healthcare system may be better equipped to address and manage the rising demand for psychiatric care. This scenario suggests that while the presence of more clinical staff leads to an increase in reported cases, it may also be indicative of a broader trend towards recognizing and addressing mental health issues within this demographic. This interpretation aligns with findings from recent studies. For instance, a 2024 study by Hu and Lee demonstrated that enhanced community mental health monitoring, facilitated by machine learning models, improved the detection of mental health issues among the elderly, underscoring the importance of adequate staffing and technological support in mental health services (Hu & Lee, 2024). Additionally, a systematic review and meta-analysis published in 2022 reported a global prevalence of depression in older adults at 28.4%, highlighting the substantial mental health needs within this population (Hu *et al.*, 2022). Furthermore, a Malaysian study in 2024 emphasized the significant burden on caregivers of persons with dementia, indicating that increased support and resources, including staffing, are crucial for managing the growing mental health demands of the aging population (Nasreen *et al.*, 2024). These studies collectively support the notion that augmenting the clinical workforce not only facilitates the identification and reporting of geriatric psychiatric cases but also reflects an essential response to the escalating mental health needs of the aging population.

Overall, the analysis demonstrates a significant positive correlation between the number of clinical workforces in psychiatric care and the number of geriatric psychiatric cases. This implies that increasing clinical staff is associated with an increase in reported cases of geriatric psychiatric conditions. The results highlight the importance of adequate staffing in the psychiatric sector and suggest that managing the growing number of geriatric cases may require scaling up the clinical workforce to address the increasing demand for psychiatric care effectively.

The positive correlation between staffing levels and the prevalence of geriatric psychiatric cases underscores a critical need for sustained investment in mental health

services tailored to the elderly. This association is consistent with findings by Tan *et al.* (2021), who reported that the availability of mental health personnel significantly influenced detection rates of psychiatric conditions among older adults in Southeast Asia. In the context of Malaysia, states such as Johor, which recorded the highest number of geriatric psychiatric cases (11,661), may reflect not only a larger elderly population but also better availability of psychiatric services and infrastructure compared to other states. Johor's relatively higher concentration of health facilities and trained professionals could contribute to more effective detection and reporting of psychiatric conditions among the elderly.

Regionally, the prevalence of psychiatric disorders in the elderly across ASEAN countries varies but remains a growing concern. A recent meta-analysis by Vidyasagaran *et al.* (2023) found that depression affects approximately 20–30% of older adults in ASEAN nations, with dementia prevalence ranging from 6% to 10%, depending on urbanization, access to healthcare, and cultural perceptions. Compared to countries like Thailand and Indonesia, Malaysia demonstrates moderately high reporting rates, possibly due to growing awareness, national mental health campaigns, and expanded geriatric outreach services in recent years.

The role of clinical support staff—especially psychiatric nurses and allied health professionals—is crucial in the early identification, intervention, and follow-up care for elderly patients. However, despite progress, Malaysia still faces a shortage of geriatric-trained mental health personnel, particularly in rural regions (Guan *et al.*, 2018; Rosli *et al.*, 2021). This shortage limits equitable access to psychiatric services and may contribute to underdiagnosis in less-developed states, suggesting that increased staffing alone does not guarantee improved mental health outcomes unless it is complemented by comprehensive training and distribution strategies.

While this study shows that greater staffing is associated with increased reported cases, it is essential to interpret this as an improvement in service outreach and case identification—rather than an actual surge in incidence. This phenomenon has also been observed in other studies, such as Bingham *et al.* (2022), which suggest that enhanced detection and reduced stigma can lead to increased service utilization, thus elevating reported case numbers.

Therefore, it is imperative that future policies not only focus on increasing the number of psychiatric professionals but also on equipping them with geriatric-specific training and ensuring equitable deployment across all Malaysian states. Further research should explore whether such staffing expansions directly contribute to improved clinical outcomes, or whether they primarily affect diagnostic coverage and health-seeking behavior among the elderly.

Limitations of the study

Despite the valuable insights provided, this study has several limitations that should be acknowledged. First, the analysis relies on secondary aggregate data, which limits the ability to account for individual-level variables or more granular determinants such as severity of psychiatric conditions, comorbidities, or treatment outcomes. Second, the study does not control for potential confounding factors such as socioeconomic disparities, access to healthcare facilities, population density, or levels of mental health awareness, which may influence both the number of reported cases and clinical staffing distribution across states. Additionally, the cross-sectional nature of the data restricts the ability to observe changes in psychiatric case trends over time or determine causality. Future studies should consider incorporating longitudinal datasets and multivariate models to better understand the complex interplay between mental health prevalence and healthcare workforce capacity.

Conclusion

This study reinforces the urgent need to expand the number of clinical staff in geriatric psychiatric care to meet the growing mental health demands of Malaysia's aging population. The findings demonstrate a significant positive association between the availability of psychiatric clinical personnel and the prevalence of diagnosed geriatric psychiatric cases, suggesting that improved staffing levels contribute to enhanced detection, diagnosis, and care delivery for elderly individuals with mental health conditions. In a context where psychiatric disorders among the elderly are on the rise, this underscores the importance of strategic workforce planning and targeted investments to strengthen mental health services at both state and national levels.

A key strength of this study lies in its empirical approach, combining descriptive and regression analyses to examine the relationship between staffing availability and psychiatric case prevalence across multiple states in Malaysia. This offers a valuable evidence base for policymakers to prioritize workforce development in mental health services, particularly in underserved regions.

However, the study also has limitations. It relies on secondary data that do not fully account for confounding factors such as differences in population size, socioeconomic status, healthcare access, or public mental health literacy across states. Additionally, the data do not include longitudinal trends, limiting the ability to assess changes over time.

Future research should adopt a more comprehensive and longitudinal approach, incorporating patient outcomes, qualitative insights from healthcare providers, and regional demographic factors. There is also a need to evaluate the impact of staff training quality, mental health policies, and community engagement initiatives in shaping psychiatric care outcomes among the elderly. Expanding the scope of analysis to include other ASEAN countries would provide useful comparative insights and further inform Malaysia's mental health planning.

In conclusion, addressing the shortage and distribution of trained clinical staff is a fundamental step toward improving geriatric psychiatric care. Ensuring both the quantity and quality of the psychiatric workforce will be vital to advancing mental health equity and well-being for Malaysia's elderly population.

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