

## Prevalence of ADHD symptoms and depression among Malaysian working adults

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### ABSTRACT

*Attention Deficit Hyperactivity Disorder (ADHD) is a neurological condition that affects individuals' normal functioning or growth and affected 2% to 5% of adults in Malaysia. Depression is defined as severe sadness that last for many days which affects daily activities and is the most prevalent mental illness worldwide. It was established that adults with ADHD are prone to have comorbid depression. The main goals of this study were to identify the prevalence of ADHD symptoms and depression among Malaysian working adults and its associated demographic factors. This is a cross-sectional quantitative study with 104 Malaysian working adults participated in this study through convenience sampling. An online self-report questionnaire, including demographic information, the Adult ADHD Self-Report Scale, and the Beck's Depression Inventory II (BDI-II), were given to the participants. The results obtained from this study showed about 30% participants (n=34) were identified with ADHD symptoms and 100% of participants (n=104) were identified with depressive symptoms. Additional analysis revealed significant negative association ( $p<0.05$ ) between ADHD symptoms and age. Moreover, ADHD symptoms showed significant positive relationship ( $p<0.05$ ) with depression. In conclusion, depression is high among younger employees in Malaysia which is also associated to ADHD symptoms. This emphasizes the need of attending to the consequences of ADHD symptoms and depression within the workplace. Acknowledging, understanding and caring for employees by providing supports in any forms will greatly influence the mental health of the employees and increase their productivity.*

**Keywords:** ADHD, depression, working adult, Beck's Depression Inventory II, ADHD Self-Report Scale

## INTRODUCTION

ADHD is a neurodevelopmental disorder defined by impairing levels of inattention, disorganization, and/or hyperactivity-impulsivity (Koutsoklenis & Honkasilta, 2022). The symptoms of ADHD, according to numerous research, can last throughout a person's life, including adolescence (Low, 2022). According to previous study, more than 60% of children with ADHD still exhibit symptoms as adults (Angel, 2021). On the other hand, Depression is characterised as profound melancholy or despair that persists for more than a few days (American Psychological Association, n.d.). An estimated 300 million individuals worldwide suffer from depression, making it the most prevalent mental illness (DuBois-Maahs, 2021). In addition, depression was discovered to be the mental condition that affects working people the most frequently (Roche et al., 2016). According to Adamou et al. (2013), comorbid disorders are frequently present in adults with ADHD, making it rare for ADHD to be diagnosed as a separate condition. Compared to the general adult population, adults with ADHD are thought to experience depression 2.7 times more frequently.

Researchers believe that at least 75% of adults who have ADHD don't realize the symptoms due to the misconception that it doesn't affect adults (Miller, 2021). Hence, they experience more difficulties, and those around them frequently disregard their symptoms as just being careless or having attitude issues, especially at work. On top of that, there are also studies stating that 7.5% of the population of depressive workers is underdiagnosed and remains in activity without his/her problem being noticed (Domingos et al., 2019). A study in Journal of Consulting and Clinical Psychology stated that since many individuals are not diagnosed until later in life which keeps their symptoms in check until they experience overwhelming and disorienting life changes, they are at risk for the serious psychological implications of a late diagnosis.

Besides that, there are strong familial links and neurobiological similarities between ADHD and the various associated psychiatric comorbidities. According to Woon and Zakaria (2019), adults with ADHD had a much greater lifetime prevalence of psychiatric problems than the general population. Thus, there are lack of awareness of considering and addressing both ADHD and depression concurrently during the assessment and treatment of working adults. The main aim of this study was to investigate the prevalence of ADHD symptoms and depression among Malaysian working adults and to determine the correlation between ADHD symptoms and depression.

This study enables the employees to be aware of their symptoms and how it is impacting their job performance, thus develop strategies to overcome them and they may turn out to be their strength. This is because they may find it difficult to comprehend the issues they experience and absorbing the assigned flaws others give to them, such as being unmotivated, careless, irresponsible, and untrustworthy, since they are unaware and believe there is something wrong with them. Hence, through this study, it will help the employers to foresee performance problems at work and the kinds of accommodations an employee might need. By doing so, the employers and team members may be better able to appreciate the difficulties that the individuals face, how they function best, and come up with strategies on how to work in harmony with them if they are aware of these issues. By offering their expertise, employees can become productive members of your team and are sure to be a fantastic asset.

## METHODOLOGY

### Sampling method

For this study, convenience sampling, a non-probability sample technique, was utilised. Participants were expected to be easily accessible for the study. Due to the participants' accessibility to researchers, this sort of sampling was used (Etikan, 2016).

### Study population

The sample population was limited to working adults in Malaysia. According to the statistics published by the Key Statistic of labour Source in Malaysia (2022), the total number of employed persons is 15850000 with 76.3%, which is 12093550 employees in April 2022.

### Data collection

The information was gathered using Google Form, and three-part surveys were distributed via social media sites such as Facebook and WhatsApp through a specific link. Since the convenience sampling method was used in this study, participants were asked to spread the Google Form link to their friends and classmates in order to reach for more study population. There are three sections in all to the information gathered by the questionnaire:

- Demographic data
- Adult ADHD Self-Report Scale (ASRS) used to collect information regarding ADHD symptoms in the context of adulthood rather than childhood.
- Beck's Depression Inventory II (BDI-II) used for evaluating the severity of in normal and psychiatric populations.

This study collected 104 samples (n=104) at the end of data collection.

### Data analysis

The data analysis was done using the SPSS analytical software. The data is presented as descriptive analysis including mean, standard deviation, and frequency to summarise the data and find patterns for the first objective which is to investigate the prevalence of ADHD symptoms among working adults in Malaysia. The second objective, to investigate the association of ADHD symptoms among working adults in Malaysia and its associated demographic factors, the data (Gender) is analysed as Mann-Whitney U Test where the means of two independent groups are compared, while the data (Age) is analysed as Spearman's rho Test where it measures the strength of the linear relationship between variables. The third objective, to investigate the prevalence of depression among working adults in Malaysia, the data is presented as descriptive analysis including mean, standard deviation, and frequency to summarise the data and find patterns. As for the fourth subjective, to investigate the association of depression among working adults in Malaysia and its associated demographic factors, the data (Gender) is presented as Mann-Whitney U Test where the means of two independent groups are compared, while the data (Age) is analysed as Spearman's rho Test where it measures the strength of the linear relationship between variables. Lastly, the objective is to determine the relationship between ADHD symptoms and depression. Thus, the data is analysed as Spearman's rho Test where it measures the strength of the linear relationship between two variables.

### Ethical clearance

To make sure each person understood the nature of the research, was aware of the purpose, the risks and benefits, and alternative therapy, online consent was offered to each participant before the surveys began. The participant received a consent form, deciding whether to contribute to this specific research project after acknowledging this research paper. An Institutional Review Board (IRB) was consulted regarding the research proposal in order to uphold the rights and ensure the welfare of the subjects.

## RESULTS

### Demographic data

Variables	Frequency (n)	Percentage (%)
Age (Years)		
18-27	17	10.1
28-37	27	16.0
38-47	19	11.2
48-60	41	24.3
Gender		
Male	53	31.4
Female	51	30.2

Employment Status		
Employed	89	52.7
Self-employed	15	8.9
Type of Employment		
Full-time	104	61.5
Part-time	0	0
Working Hours per Day		
8 hours	62	36.7
9 hours	42	24.9
History of Diagnosed ADHD		
No	102	60.4
Yes	2	1.2
History of Diagnosed Depression		
No	98	58.0
Yes	6	3.6

**Table 1:** Summaries of demographic data

A total of 104 working adults (n=104) had participated in the survey and completed the questionnaire correctly. The participants' ages ranged from 18 to 60. Participants' mean ages ranged from  $41.0 \pm 11.6$  years. 10.1% of participants (n=17) were within the 18-27 years group while 16.0% participants (n=27) were within the 28-37 years group. Age groups 38-47 and 48-60 have 11.2% (n=19) and 24.3% (n=41) respectively.

Males made up 51.0% of the participants (n=53), while females made up 49.0% (n=51), with a mean age of  $40.6 \pm 12.4$  years. 52.7% of the participants (n=89) were employed, 61.5% of the study population (n=89) were full-time employment, 36.7% of the participants (n=62) were working 8 hours per day, and 60.4% (n=102) and 58.0% (n=98) of the participants has no history of diagnosed ADHD and depression respectively as shown in Table 1.

### Prevalence of ADHD symptoms

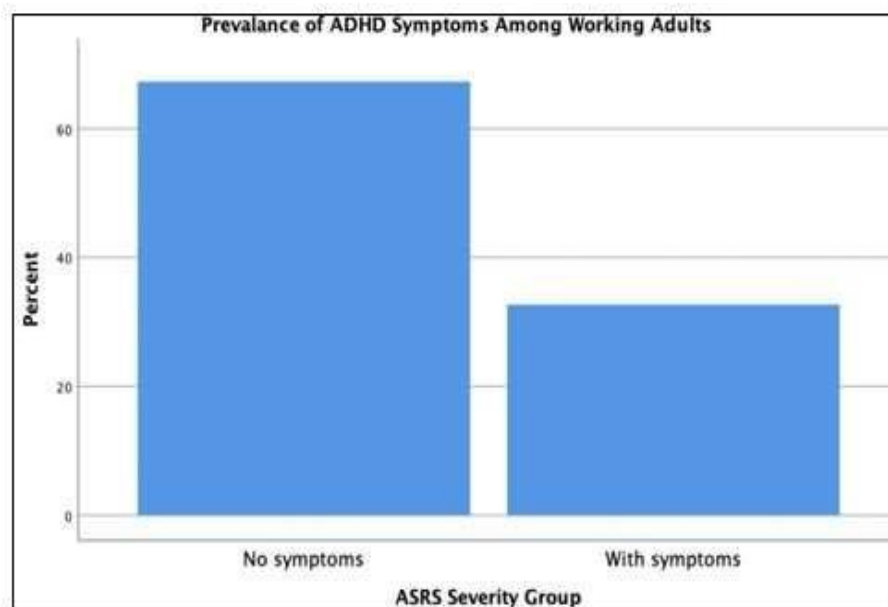
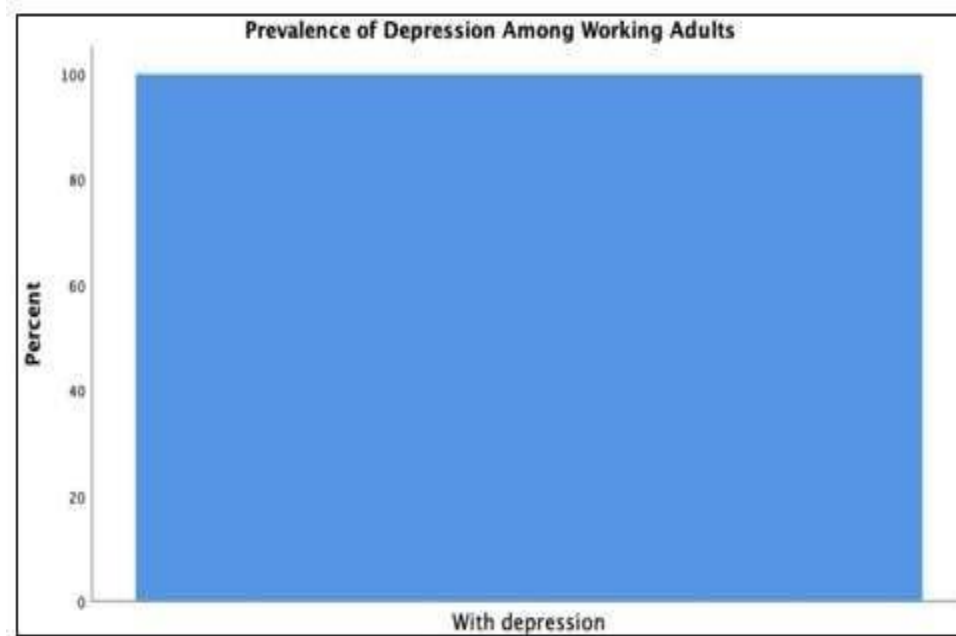
**Figure 1:** Prevalence of ADHD symptoms among working adults

Figure 1 showed more than 60% of participants (n=70) identified no ADHD symptoms whereas more than 30% participants (n=34) identified with ADHD symptoms.

### Prevalence of depression



**Figure 2:** Prevalence of depression among working adults

According to figure 2, it showed 100% of participants (n=104) identified with depressive symptoms.

### The association of ADHD symptoms and demographic factors

	Variables		Age	ASRS Total Score
Spearman's rho (rs)	Age	Correlation Coefficient	1.000	-.157
		Sig. (2-tailed)	.	.111
		N	104	104
	ASRS Total Score	Correlation Coefficient	-.157	1.000
		Sig. (2-tailed)	.111	.
		N	104	104

**Table 2:** The Association of ADHD symptoms and age

	Gender	N	Mean Rank	Sum of Ranks
ASRS Total Score	Male	53	50.88	2696.50
	Female	51	54.19	2763.50
	Total	104		
ASRS Total Score				
Mann-Whitney U				1265.500
Wilcoxon W				2696.500
Z			-.563	
Asymp. Sig. (2-tailed)			.573	

**Table 3:** The association of ADHD symptoms and gender

The outcomes displayed in Tables 2 and 3 are the association of ADHD symptoms and its associated demographic factors (gender and age) among working adults in Malaysia. It indicates there is an association in ADHD symptoms and age. Spearman's rho(rs) test had been used. There is no correlation between the symptoms of ADHD and the various age groups,  $r_s = -.157$ ,  $p = .111$ ,  $N = 104$  (Table 2).

On the other hand, to analyze the association in ADHD symptoms and gender among working adults in Malaysia, Mann-Whitney U test had been used. According to Table 3, there is no significant gender-related association in the prevalence of ADHD symptoms. The mean rank for male is 50.88 ( $n = 53$ ) whereas female's mean rank is 54.19 ( $n = 51$ ),  $U = 1265.500$ ,  $z = -.563$ ,  $p = .573$ .

#### The association of depression and demographic factors

	Variables		Age	BDI2 Total Score
<b>Spearman's rho (rs)</b>	<b>Age</b>	Correlation Coefficient	1.000	-.345
		Sig. (2-tailed)	.	.000
		N	104	104
	<b>BDI2 Total Score</b>	Correlation Coefficient	-.345	1.000
		Sig. (2-tailed)	.000	.
		N	104	104

**Table 4:** The association of depression and age

	Gender	N	Mean Rank	Sum of Ranks
<b>BDI2 Total Score</b>	<b>Male</b>	53	50.58	2681.00
	<b>Female</b>	51	54.49	2779.00
	<b>Total</b>	104		

	BDI2 Total Score
<b>Mann-Whitney U</b>	1250.000
<b>Wilcoxon W</b>	2681.000
<b>Z</b>	-.663
<b>Asymp. Sig. (2-tailed)</b>	.507

**Table 5:** The association of depression and gender

Table 4 and Table 5 shows the association of depression among working adults in Malaysia and its associated demographic factors (gender and age). To analyze the correlation in depression and different age groups among working adults in Malaysia, Spearman's rho test had been used. The results (Table 4) revealed a weak negative correlation between age and depression,  $r_s = .345$ ,  $p = .000$ ,  $N = 104$ .

On the other hand, to analyze the association in depression and gender among working adults in Malaysia, Mann-Whitney U test had been used. The outcome (Table 5) showed that there is no statistically significant relationship between depression and gender. The mean rank for male is 50.58 ( $n = 53$ ) whereas female's mean rank is 54.49 ( $n = 51$ ),  $U = 1250.000$ ,  $z = -.663$ ,  $p = .507$ .

#### The correlation between ADHD and depression

	Variables		BDI2 Total Score	ASRS Total Score
<b>Spearman's</b>	<b>BDI2 Total Score</b>	Correlation Coefficient	1.000	.624



rho (rs)				
		Sig. (2-tailed)	.	.000
		N	104	104
	<b>ASRS Total Score</b>	Correlation Coefficient	.624	1.000
		Sig. (2-tailed)	.000	.
		N	104	104

**Table 6:** The relationship between ADHD and depression

Correlation between ADHD and depression in working adults in Malaysia is depicted in Table 6. Spearman's rho(rs) was utilized to examine the correlation between ADHD and depression in Malaysian working people. There is a substantial but weak positive relationship between ADHD and depression, according to the results of Spearman's rho(rs) (Table 6), ( $r_s=.624$ ,  $p=.000$ ,  $N=104$ ).

## DISCUSSION

### The prevalence of ADHD symptoms

Based on the findings, this study concluded that some working individuals in Malaysia were experiencing symptoms of ADHD and left undiagnosed. Numerous studies have shown that ADHD symptoms can persist throughout a person's life, including adolescence (Low, 2022). This emphasises once more how common ADHD symptoms are among working individuals in Malaysia.

### The prevalence of depression

Based on the result obtained, this study found that working adults in Malaysia do experience depression. This study found that 100% of participants ( $n=104$ ) are likely to have risk in depression. Therefore, the risk of depression among working adults is identified as high. This again stress on the prevalence of depression among working adults in Malaysia is present.

### The association of ADHD symptoms and demographic factors

Different results were obtained from previous existing research where the prevalence of adults with ADHD symptoms are higher among older age group ( $>25$ ) compared to younger group ( $<25$ ). Moreover, different results were presented among ADHD symptoms and gender compared to previous study where it indicated that the odds of being diagnosed with ADHD were twice as high for men as for women, although it was shown not significant.

### The association of depression and demographic factors

The results showed that there was significant weak negative association in depression and age, whereas depression and gender is not associated. Age is the primary demographic characteristic that significantly contributed to the occurrence of depression, according to previous research (Islam & Adnan, 2017). The findings of this study are consistent with earlier research showing an age-related association between depression and age (Islam & Adnan, 2017; Amy Morin, 2022). On the other hand, different results are identified from previous existing research where it comes to the conclusion that women are more likely than males to be working adults who have depression, with global yearly prevalence rates of 5.

### The correlation of ADHD symptoms and depression

The results showed that there was significant weak positive association in ADHD and depression at the significance level of 95% ( $p<0$ ). This shows that higher ADHD symptoms correlated to higher depression. When people with ADHD struggle with their symptoms, depression may result.

## CONCLUSION

ADHD symptoms and depression are prevalence among working adults in Malaysia. Hence screening is crucial to bring awareness to employers and team members regarding the difficulties that the individuals face and produce strategies on how to work in harmony. By doing so, the individual's performance and behaviour will not be misjudged. At the same time, it promotes the awareness of considering and addressing both ADHD

and depression concurrently during the assessment and treatment of working adults. It's critical for businesses to offer a setting that meets their demands and offers a suggestion or solution through these difficulties by offering a loving and supportive environment for their employees (Chechi, 2023).

### LIMITATION

Convenience samples are particularly susceptible to bias in research because of the sampling methodology. Because the sample is chosen primarily on convenience rather than equal probability, convenience samples never result in a statistically balanced selection of the population (Nikolopoulou, 2023). Additionally, as a result of the small sample size, quick data collection, and non-normally distributed data, the results of this study may also be biased. Besides that, the inclusion criteria constrained the research population, act as the second limitation of this study. It did not include part-time worker, employee under probation and employee with less or more than 8 to 9 working hours. According to Zeytinoglu et al. (2005), other stress-causing variables include job insecurity, short and split shifts, irregular hours, low pay and benefits in part-time positions, and the need to work multiple jobs in order to make ends meet.

### RECOMMENDATION

This study recommends that additional studies on this subject be carried out using a bigger and more evenly distributed sample group in order to learn more about the prevalence of both ADHD symptoms and depression among working adults in Malaysia and how it connects to demographic traits. Furthermore, more study is needed to broaden the inclusion criteria to include working people and investigate other demographic characteristics related with ADHD, depression, and anxiety. Aside from that, additional research can be conducted using an interview method in order to gain a better understanding of each participant than a self-reported evaluation.

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