








## RESEARCH ARTICLE

# Prevalence of depressive symptoms and associated factors among foreign caregivers: A cross-sectional study

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## Abstract

**Aim:** To understand the prevalence of depressive symptoms among foreign caregivers and the associated factors.

**Design:** A cross-sectional study.

**Methods:** Data from 178 Indonesian foreign caregivers, selected based on convenience and snowball sampling in Taiwan, were collected between July 2019 and February 2020 using questionnaires. Stepwise multiple linear regression was used to identify the factors associated with depressive symptoms.

**Results:** Approximately 30.3% of the foreign caregivers displayed depressive symptoms. The symptoms were more prevalent among the participants who were younger; had more social support; shared a bed with others; and experienced higher work-related stress, more loneliness and physical discomfort. The findings suggest that nurses or nurse practitioners visiting patients at home should not only deliver care for them but also show concern for the psychological well-being of the foreign caregivers of these patients. Moreover, interventions should be developed to alleviate or prevent the emergence of depressive symptoms among foreign caregivers.

## KEYWORDS

depression, depressive symptoms, foreign caregivers, Indonesia, Taiwan

## 1 | INTRODUCTION

Taiwan became an aged society in 2018 (National Development Council, 2021), and the number of older people with impaired physical and mental function has steadily increased. It is estimated that the number of dependent people in the nation will grow from 415,314 to 619,827 within 10 years (2017–2026), and the percentage increase in the impaired older population would be larger than the

percentage increase in the dependent people aged below 65 years (Ministry of Health and Welfare, 2016). Owing to the importance of filial piety in Taiwanese culture, family members have been the main caregivers for impaired older adults over the past several decades. The concept of “aging in place” has been consistently promoted by the Taiwanese government and society. Thus, most dependent older individuals prefer staying at home rather than being sent to care-providing institutions. However, owing to the low birth rate, small

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family sizes and greater number of female employees in Taiwan, few families can give full-time personal care to their dependent loved ones. Families use services such as day-care centres, home health-care, respite care and foreign caregivers to be relieved from caregiving burdens. Among these services, hiring foreign caregivers is a priority for most Taiwanese families who can afford them (Chen & Tsai, 2012; Peng, 2017). By the end of 2020, there were 718,058 foreign workers in Taiwan of which 244,379 were foreign caregivers. There has been a 40% increase in the number of foreign caregivers during the past decade, and they have become one of the major constituents of the long-term care workforce. The majority of foreign caregivers are from Indonesia ( $n = 201,647$ ; 77.1%), followed by the Philippines and Vietnam (Ministry of Labor, 2021).

## 2 | BACKGROUND

Foreign caregivers migrate to Taiwan to work, and they face several challenges, including language barriers, culture shock, discrimination and prejudice, financial problems, long working hours, heavy workloads and unequal employment relationships. Additionally, foreign caregivers are othered by the society, and consequently, they take time to acclimatize to their host environment (Lan, 2008). Owing to the advancement of technology, caregivers are able to remain in contact with their own family through social media and the internet. However, they continue to experience homesickness owing to the physical distance from their family and friends. Previous studies have revealed that 16.5%–42.5% of Indonesian workers in Taiwan displayed depressive symptoms (Palupi et al., 2017; Pratiwi, 2015). When depressive symptoms last for a certain period of time (e.g. 2 weeks) and cause clinical impairment in the functioning of individuals, it might result in a diagnosis of depression (American Psychiatric Association, 2013). Depression is a common and serious mental disorder worldwide, and women are more prone to suffer from the illness than men (World Health Organization, 2021). It might lead to many adverse outcomes, affect everyday life and increase the risk of mortality (Penninx et al., 2013). Moreover, previous studies have shown that depressed workers are more likely to have poorer work performance than non-depressed workers (Harvey et al., 2011; Parent-Lamarche et al., 2020).

Foreign caregivers' job descriptions differ vastly from that of other types of foreign workers in Taiwan. Caregivers are expected to possess the knowledge and skills required to care for dependent individuals and ensure their safety and health. In addition, they must have adequate communication and language abilities to understand the dependent persons' needs and queries and satisfactorily perform the tasks required by clients, their family members and health-care professionals. A study found that "being scolded" was a major source of stress in caregivers (Chen et al., 2012). In Taiwan, most foreign caregivers are women who usually live with their clients, which makes it difficult for them to have fixed working hours. Moreover, the scope of their job is also difficult to ascertain. As a result, they must not only take care of their clients but also perform other household

chores such as cooking and cleaning. In addition, they usually must stay in the same bedroom as their clients in order to give care more readily, which impinges on their privacy. All of these factors potentially generate significant stress in foreign caregivers, which results in deterioration of their physical and psychological health (Huang & Lin, 2013; Setyowati et al., 2010; Vahabi & Wong, 2017). Previous studies have indicated that 5.83%–64.7% of the local informal or family caregivers of dependent older adults show depressive symptoms (Chiu et al., 2022; Liu et al., 2017; Sandoval et al., 2019). These studies generally show that local informal caregivers are at risk of developing depressive symptoms due to heavy burden of care, limited number of leaves and lack of perceived social support. Foreign caregivers face situations similar to those experienced by local informal caregivers. Additionally, since most foreign caregivers are women who live far from their countries and families and are required to deliver care for dependent individuals while receiving little assistance, they are likely to experience negative feelings as well.

Indonesian caregivers constitute the largest proportion of foreign caregivers in Taiwan, but their language, religious beliefs and food habits are quite dissimilar to those of the Taiwanese. Consequently, they experience more stress than caregivers from other countries (Chen et al., 2012). However, few studies have focused on the depressive symptoms of these foreign caregivers. Therefore, this study aimed to investigate the prevalence of depressive symptoms among Indonesian caregivers in Taiwan and the associated factors. The research question was: what is the prevalence of depressive symptoms and what are the associated factors among Indonesian caregivers in Taiwan?

## 3 | METHODS

### 3.1 | Research design

This was a cross-sectional descriptive and correlational research study for which questionnaires were used to collect data.

### 3.2 | Research settings and samples

Convenience sampling was performed at a hospital in northern Taiwan. Moreover, snowball sampling was used to select more participants. To be included in the sample, participants had to be Indonesian caregivers who (1) were 20 years of age or older, (2) gave care for more than or equal to 8 hr/day, (3) had been taking care of their client for over 1 month, (4) could read Indonesian and (5) could speak a little Mandarin or English. Caregivers whose clients moved to long-term care facilities or were admitted to the hospital for more than 1 week were excluded from the study. G\*Power was used to calculate the ideal sample size, power = 0.8, alpha = 0.05 and effect size = 0.14, and it indicated that 170 participants were required for the study. Ultimately, 178 questionnaires were distributed, all of which were completed and returned.

### 3.3 | Instruments

#### 3.3.1 | Demographic and characteristic information

This questionnaire consisted of two parts: one queried information about the foreign caregiver and the other pertained to the client. The questions about foreign caregivers sought information about their age, gender, educational level, marital status, religious beliefs, length of stay in Taiwan, number of times they had worked in Taiwan, healthcare professionals' licence, caregiving experience, communication abilities, physical discomfort, self-perceived health conditions, working hours, total sleep time, continuous sleep time at night, number of days off, availability of a substitute caregiver, number of clients, social interaction frequency, living status and bedroom arrangement. The questions related to caregivers' clients were about their age, gender, cognitive function (measured by Short Portable Mental Status Questionnaire, SPMSQ) (Pfeiffer, 1975), activities of daily living (ADLs) (measured by Barthel Index) (Mahoney & Barthel, 1965), comorbidities and special care needs such as trachea care, nasogastric tube feeding and care, urinary catheter care, suction, wound care, rehabilitation and haemodialysis.

#### 3.3.2 | Work-related stress

The caregivers' work-related stress levels were measured using the stress Visual Analog Scale (VAS), on which 0 points indicated no pressure at all and 10 points indicated extreme stress. The concurrent validity between the stress VAS and the Perceived Stress Scale-14 was 0.68. The stress VAS had adequate sensitivity (0.74) and specificity (0.93) to identify people experiencing high stress (Dutheil et al., 2017; Lesage et al., 2012; Lesage & Berjot, 2011).

#### 3.3.3 | Loneliness

The UCLA Loneliness Scale (version 3) was used to measure caregivers' loneliness (Russell, 1996). This study used the Indonesian version that was translated by Fauziyyah and Ampuni (2018). The scale consists of 20 items to be answered using a four-point Likert scale. The total scores ranged from 20–80. A higher score indicated a greater degree of loneliness. The Cronbach's alpha of the Indonesian version scale was 0.87 and 0.71 in the current study.

#### 3.3.4 | Social support

The 12-item Multidimensional Scale of Perceived Social Support (MSPSS) developed by Zimet et al. (1988) was used to measure the participants' social support. Winahyu et al. (2015) translated this scale into the Indonesian version that was used in this study. It contains three subscales based on resources, which include family,

friends and significant others. The answers were given using a seven-point Likert scale, which ranged from 1 (very strongly disagree) to 7 (very strongly agree). The total score ranged from 12–84. It could be scored by summing all items or adding items to each subscale. A higher score indicated greater social support for the participant. The Cronbach's alpha and the content validity index of the Indonesian version scale were 0.85 and 1.0, respectively. The Cronbach's alpha was 0.86 in the current study.

#### 3.3.5 | Depressive symptoms

To measure depressive symptoms, the Center for Epidemiologic Studies Depression Scale (CES-D) developed by Radloff (1977) was used. This scale was translated by Purwono and French (2016) into the Indonesian version, which was used in the current study.

The 20-item scale uses a four-point Likert scale that consists of the following responses: 0 (rarely or none of the time), 1 (some or little of the time), 2 (moderately or much of the time) and 3 (most or all of the time). The total score ranged from 0–60, and higher scores indicated more depressive symptoms. CES-D also gives a cut-off score of 16. The Cronbach's alpha was 0.82 for the translated scale and 0.83 in the current study.

### 3.4 | Data collection procedures

After receiving approval from the hospital, one of the researchers attended a regular head nurses' meeting at the hospital to explain the study purpose and data collection procedures and to inform them that this study would be conducted in their units. Subsequently, the home health nurses and discharge case managers distributed flyers related to the study to the caregivers whose clients were either admitted at hospital or received home healthcare services. The caregivers could contact the researchers either directly or through the home health nurses or discharge case managers if they were willing to participate in the study. Moreover, the participants could also introduce other caregivers who met the inclusion criteria and were willing to take part in the study. After signing the informed consent form, the caregivers completed the questionnaires, placed them in an envelope and returned them to the researchers. Data were collected between July 2019 and February 2020.

### 3.5 | Data analysis

SPSS software (version 22.0; IBM Inc., Armonk, NY, USA) was used to analyse the data and check for missing values. The significance level was set at  $p < .05$ . Mean, Standard Deviation (SD), frequency and percentage were used to describe participants' demographic and characteristic information such as stress, loneliness, social support level and depression. T-test, one-way ANOVA and Pearson's  $r$

were used to examine the differences and associations of depressive symptoms and independent variables. A stepwise multiple linear regression analysis was conducted to examine the factors associated with depressive symptoms.

### 3.6 | Ethical considerations

Ethical approval was obtained from the Taipei Medical University-Joint Institutional Review Board (N201905035), and all participants signed an informed consent. Before signing the informed consent form, the purpose and procedure of the study were explained to the participants, and confidentiality was guaranteed. In addition, the participants could seek support if any items in the questionnaire upset or distress them; the necessary contact information was given to them. Additionally, they were informed they could withdraw at any time during the survey.

## 4 | RESULTS

### 4.1 | Demographic data and related information

The average age of the 178 participants was 34.10 years ( $SD = 6.69$ ). All participants were females, and 61.2% of them were married. A majority of the participants were Muslim (95.5%) and were not licensed healthcare professionals (93.3%). In total, 63.5% of the participants had graduated from elementary school or junior high school. The average number of times they had worked in Taiwan was 2.03 ( $SD = 1.06$ ). The average length of their stay in Taiwan was 5.0 ( $SD = 3.34$ ) years. A total of 69.1% of the participants had no prior experience of being a caregiver. Less than half (42.1%) of the participants believed that their level of communication in Chinese and Taiwanese with their clients/employers was poor, whereas 14.1% reported that they experienced no problems in communication. The average score of their self-perceived health condition was 3.97 (out of 5) ( $SD = 0.79$ ), and 79.2% of the participants did not suffer any physical discomfort. Their average number of working hours per day was 18.72 ( $SD = 6.13$ ) hr. Their average total sleep time was 7.58 ( $SD = 1.78$ ) hr, and average continuous sleep time at night was 4.27 ( $SD = 2.16$ ) hr. The average number of days off per month was 0.55 days ( $SD = 0.56$ ). A substitute caregiver was not available for most of the participants (78.1%) to take care of their clients when they prepared the meal or slept at night. Most of the participants only took care of one client (91%). All participants lived either with the clients (29.8%) or with the clients and their family members (70.2%). In total, 70.8% of the participants shared the same bedroom with their clients but slept in their own bed, 9.5% of them shared a bed with their clients, and 19.7% of them had their own personal bedroom. Most (75.3%) of the participants interacted with their families or friends daily with the help of the internet. Their average level of work-related stress was 3.6 ( $SD = 2.48$ ) (VAS 0–10). Their average score

on the social support scale (MSPSS) was 28.93 ( $SD = 4.7$ ), with significant others accounting for ( $11.17 \pm 2.03$ ), friends accounting for ( $9.39 \pm 1.92$ ) and families accounting for ( $8.37 \pm 2.62$ ) of the score. Their average loneliness score (UCLA Loneliness Scale) was 40.68 ( $SD = 8.22$ ).

With regard to the clients, 38.8% of them were male and 61.2% were female. The average age of the clients was 81.9 years ( $SD = 11.68$ ). Their mean SPMSQ score was 2.85 ( $SD = 3.87$ ). In total, 64% of the clients had severe cognitive impairment, 8.4% had moderate cognitive impairment, and 6.7% had mild cognitive impairment. The cognitive function of 20.8% of the clients was intact. Their average ADL score was 29.44 ( $SD = 31.28$ ), indicating severe dependency. The average number of comorbidities was 2.52 ( $SD = 1.09$ ). Over half of the clients either had tracheal tubes, nasogastric tubes or indwelling urinary catheters or needed suction, wound care, haemodialysis or rehabilitation (Table 1).

### 4.2 | Depressive symptoms and associated factors

The average score of the participants on the CES-D was 12.57 ( $SD = 7.60$ ; min = 0, max = 45). In total, 30.3% of the caregivers displayed depressive symptoms. Pearson's  $r$ ,  $t$ -test and one-way ANOVA were used to analyse the relationships between each independent variable and depression. The results for each variable were as follows: age ( $r = -.27, p < .001$ ), self-perceived health condition ( $r = -.26, p = .001$ ), level of work-related stress ( $r = .40, p < .001$ ), social support ( $r = .27, p < .001$ ), loneliness ( $r = .39, p < .001$ ), prior caregiving experience ( $t = 2.21, p = .029$ ), physical discomfort ( $t = -3.17, p = .003$ ), self-perceived communication abilities ( $F = 4.31, p = .015$ ) and bedroom arrangement ( $F = 3.32, p = .039$ ). Using the Scheffe test for post-hoc testing, the caregivers with poor communication abilities were found to have higher depression scores than those with good communication abilities ( $p = .015$ ), and the caregivers who slept in the same bed as their clients had higher depression scores than those who had their own bedroom ( $p = .048$ ). There was a positive relationship between support from friends ( $r = .200, p = .008$ ) and depression. There was also a positive relationship between support from family members and depression ( $r = .428, p < .001$ ) (Table 2).

A multiple linear regression analysis was conducted to identify the predictors of foreign caregivers' depression by entering the previously obtained significant variables for depression. A significant regression was found ( $F = 17.34, p < .001$ ), with an  $R^2$  of 37.8% and an adjusted  $R^2$  of 35.6%. The predictors were caregivers' age ( $B = -0.28, p < .001$ ), physical discomfort ( $B = 2.46, p = .039$ ), level of work-related stress ( $B = 0.94, p < .001$ ), loneliness ( $B = 0.21, p = .001$ ), social support ( $B = 0.25, p = .016$ ) and bedroom arrangement ( $B = 3.25, p = .043$ ). Physical discomfort was coded as 0 = no and 1 = yes, and bedroom arrangement was coded as 0 = having own bedroom and 1 = shared a bed with client. Level of work-related stress, loneliness, caregivers' age and social support were all continuous variables (Table 3).

TABLE 1 Demographic characteristics of Indonesian caregivers and their clients (N = 178)

Variables	n	%	M ± SD	Range
Age			34.10 ± 6.69	20–51
Gender				
Female	178	100		
Educational level				
Junior high and under	113	63.5		
Senior high and above	65	36.5		
Marital status				
Single/widowed	69	38.8		
Married	109	61.2		
Religion				
Non-Muslim	8	4.5		
Muslim	170	95.5		
Average number of times worked in Taiwan			2.03 ± 1.06	1–5
Length of stay in Taiwan (years)			5.02 ± 3.34	0.17–14
Healthcare professionals licence				
No	166	93.3		
Yes	12	6.7		
Prior caregiving experience				
No	123	69.1		
Yes	55	30.9		
Self-perceived language and communication ability				
Poor	75	42.1		
Neutral	78	43.8		
Good	25	14.1		
Physical discomfort				
No	141	79.2		
Yes	37	20.8		
Self-perceived health condition			3.97 ± 0.79	1–5
Number of working hours per day			18.72 ± 6.13	8–24
Total sleep time			7.58 ± 1.78	1–13
Continuous sleep time at night			4.27 ± 2.16	1–10
Average number of days off per month			0.55 ± 0.56	0–2
Substitute (alternative) caregiver				
No	139	78.1		
Yes	39	21.9		
Number of clients cared for				
One person	162	91.0		
Two or more people	16	9.0		
Frequency of social interaction				
Not everyday	44	24.7		
Everyday	134	75.3		
Living with other family members				
No	53	29.8		
Yes	125	70.2		
Living arrangement				

(Continues)

TABLE 1 (Continued)

Variables	<i>n</i>	%	<i>M</i> ± <i>SD</i>	Range
Private room	35	19.7		
Living in the same room but having a separate bed	126	70.8		
Living in the same room and sharing a bed	17	9.5		
Level of work-related stress			3.60 ± 2.48	0–10
Social support			28.93 ± 4.70	12–84
Support from friends			9.39 ± 1.92	4–28
Support from family			8.37 ± 2.62	4–28
Support from significant others			11.17 ± 2.03	4–28
Loneliness			40.68 ± 8.22	23–59
Depression			12.57 ± 7.6	0–45
Client's gender				
Male	69	38.8		
Female	109	61.2		
Client's age			81.90 ± 11.68	26–102
Client's cognitive function (SPMSQ)			2.85 ± 3.87	0–10
Clients' ADLs (BI)			29.44 ± 31.28	0–100
Client's comorbidities			2.52 ± 1.09	0–6
Special care and treatment needs				
No	82	46.1		
Yes	96	56.9		

Note: Special care and treatment needs included tracheal tube, nasogastric tube, indwelling urinary catheter or needed suction, wound care, haemodialysis and rehabilitation.

Abbreviations: ADLs, activities of daily living; BI, Barthel Index; M, mean; SD, standard deviation; SPMSQ, short portable mental status questionnaire.

## 5 | DISCUSSION

A total of 178 female Indonesian foreign caregivers with mean age of 34.10 years ( $SD = 6.69$ ) were selected, and most of the participants were married (61.2%). A recent Taiwanese study investigating workplace bullying among Indonesian caregivers who either worked at their employer's home or in the institutions also showed similar demographic and characteristics of the participants – all the participants were women with a mean age of 35 years ( $SD = 6.80$ ), and 57.5% of them were married (Lu et al., 2022).

In total, 30.3% of the Indonesian caregivers had depressive symptoms, and the mean score on the CES-D was 12.57 ( $SD = 7.6$ ). A previous study that used the Beck Depression Inventory-II scale found that 16.5% of female Indonesian workers in Taiwan had depression (Palupi et al., 2017). Another Taiwanese study used the CES-D to investigate depression among Indonesian workers and found that their average score on the scale was 21.6 ( $SD = 9.1$ ), and the prevalence rate was 42.5% (Pratiwi, 2015). Pratiwi's study revealed a higher prevalence rate of depressive symptoms, as compared with the findings of our study, possibly because all types of foreign workers, regardless of gender, were included in it. Moreover, Lu et al. (2022) found that 60.9% of Indonesian caregivers experienced workplace bullying during the past 6 months in Taiwan, and the bullying was significantly related to their

deteriorating mental health. This might be a possible reason that almost one-third of foreign caregivers had depressive symptoms. Regardless of the differences in statistics between the previous studies and our study, the evidence indicates that the mood status of foreign workers in Taiwan should be paid serious attention to. Since foreign caregivers give direct care to dependent individuals, their psychological health should be monitored regularly in order to ensure that they have good work performance and can give high-quality care to their clients.

The current study found that depressive symptoms were more prevalent among younger foreign caregivers who had physical discomfort, greater work stress level, more loneliness, greater social support and shared bed with their clients.

Age and depressive symptoms were negatively associated with each other. Nadim et al. (2016) also found that younger migrant workers in Saudi Arabia were more likely to experience depression. Contrarily, Saha et al. (2020) found that migrant workers in Bangladesh who were older displayed more depressive symptoms. Thus, there is no consistent conclusion about the relationship between foreign workers' age and their depressive symptoms. Such variance could be attributed to the different scales used to measure depressive symptoms and the differences in the study participants' cultural backgrounds, host countries, job descriptions and working environments.

TABLE 2 Associations between Indonesian caregivers' demographic characteristics and their depression (N = 178)

Variables	Depression score $M \pm SD$	F/t/r	Scheffe post-hoc test
Age		-0.27***	
Educational level			
Junior high and under	12.36 ± 7.54	-0.47	
Senior high and above	12.92 ± 7.75		
Marital status			
Single/widowed	13.20 ± 7.83	0.89	
Married	12.17 ± 7.46		
Religion			
Non-Muslim	12.51 ± 7.64	0.45	
Muslim	13.75 ± 7.17		
Average number of times worked in Taiwan		-0.14	
Length of staying in Taiwan (years)		-0.04	
Healthcare professionals licence		-0.16	
No	12.54 ± 7.70		
Yes	12.92 ± 6.49		
Prior caregiving experience		2.21*	
No	13.40 ± 8.07		
Yes	10.71 ± 6.10		
Self-perceived language communication ability		4.31*	1>3
Poor <sup>1</sup>	13.77 ± 7.44		
Neutral <sup>2</sup>	12.64 ± 7.90		
Good <sup>3</sup>	8.72 ± 5.90		
Physical discomfort		-3.17**	
No	11.56 ± 7.02		
Yes	16.41 ± 8.58		
Self-perceived health condition		-0.26**	
Number of working hours per day		0.12	
Total sleep time		-0.14	
Continuous sleep time at night		-0.10	
Average number of days off per month		-0.11	
Substitute (alternative) person			
No	12.18 ± 7.43	-1.29	
Yes	13.95 ± 8.12		
Number of clients cared for		-2.09	
One person	12.07 ± 7.02		
Two or more people	17.88 ± 10.94		
Frequency of social interaction		0.75	
Not everyday	13.32 ± 7.91		
Everyday	12.32 ± 7.51		
Living with other family members		0.71	
No	13.19 ± 6.95		
Yes	12.30 ± 7.87		
Living arrangement		3.32*	3>2
Private room <sup>1</sup>	11.80 ± 7.20		
Living in the same room but having a separate bed <sup>2</sup>	12.18 ± 7.50		

(Continues)

TABLE 2 (Continued)

Variables	Depression score $M \pm SD$	F/t/r	Scheffe post-hoc test
Living in the same room and sharing a bed <sup>3</sup>	17.00 ± 8.13		
Level of work-related stress		0.40***	
Social support		0.27***	
Support from friends		0.20**	
Support from family		0.43***	
Support from significant others		-0.13	
Loneliness		0.39***	
Clients' gender		-0.54	
Male	12.20 ± 6.23		
Female	12.80 ± 8.37		
Clients' age		-0.06	
Clients' cognitive function (SPMSQ)		-0.08	
Clients' ADLs (BI)		-0.10	
Clients' comorbidities		-0.09	
Special care and treatment needs		-1.10	
No	11.89 ± 6.91		
Yes	13.15 ± 8.14		

Note: Special care and treatment needs included tracheal tube, nasogastric tube, indwelling urinary catheter or needed suction, wound care, haemodialysis and rehabilitation.

Abbreviations: ADLs, activities of daily living; BI, Barthel Index; M, mean; SD, standard deviation; SPMSQ, short portable mental status questionnaire.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

The <sup>1</sup>, <sup>2</sup>, and <sup>3</sup> indicate the results of post hoc test which is  $3 > 2$ .

TABLE 3 Predictors of depressive symptoms among Indonesian caregivers ( $N = 178$ )

Variables	B	SE	B	t	p
Level of work-related stress	0.94	0.19	0.31	4.91	<.001
Loneliness	0.21	0.06	0.23	3.45	.001
Caregiver's age	-0.28	0.07	-0.25	-4.02	<.001
Physical discomfort <sup>a</sup>	2.46	1.18	0.13	2.08	.039
Social support	0.25	0.10	0.16	2.44	.016
Living arrangement					
Living in the same room and sharing a bed <sup>b</sup>	3.25	1.59	0.13	2.04	.043

Note:  $F = 17.34$ ,  $p < .001$ ,  $R^2 = 0.378$ ,  $Adjusted R^2 = 0.356$ . Caregivers' age, prior caregiving experience, self-perceived language communication ability, physical discomfort, living arrangement, level of work-related stress, social support and loneliness were entered into the stepwise regression analysis.

<sup>a</sup>Reference: without physical discomfort.

<sup>b</sup>Reference: private room.

The current study revealed that caregivers who experienced physical discomfort had higher depression scores. A previous study illustrated the presence of a relationship between physical and mental health (Ohrnberger et al., 2017). Nadim et al. (2016) also indicated that migrant workers in Saudi Arabia with "fair to very poor" health were 4.8 times more likely to experience depression than those who reported their health as "very good/excellent". Since there is a bidirectional link between physical and psychological well-being, employers and healthcare professionals should pay attention not only to the physical health of the caregivers but also to their mental health.

This study found a positive relationship between foreign caregivers' degree of work-related stress and their depressive symptoms. This finding echoed those of several previous studies (Farah & Choi, 2019; Lee et al., 2012; Mendoza et al., 2017; Nadim et al., 2016; Ramos et al., 2015), even though various types of stress, such as acculturative stress, work-related stress and general stress, were examined in these studies. A recent study reported that Indonesian caregivers in Taiwan experienced moderate levels of stress (Lo et al., 2019). Their stress could be attributed to the fact that they worked in unfamiliar environments, stayed with their clients and



employers all day, had insufficient caregiving experience and experienced language barriers. It was thus suggested that the stress experienced by foreign caregivers should be amended in the near future.

We also found that caregivers who shared the same bed with their clients had more depressive symptoms. In the current study, 80.3% of the caregivers lived in the same room as their clients, and 9.6% of them slept in the same bed with their female clients. Taiwan has a total land area of 35,410 km<sup>2</sup> and a population of approximately 23,470,633 people. The nation's population density is extremely high (648 persons per square kilometre in 2020) (National Statistics Republic of China [Taiwan], 2021), and thus the size of the living spaces is usually small. Owing to this lack of space, when families hire a foreign caregiver, they are usually required to live in the same room as the individuals who need care and sleep on either the same bed or on a different bed in the room. Convenience of care is another reason caregivers share a bedroom with the client. The caregivers are deprived of their privacy when they share beds with the clients, which may aggravate their feelings of depression. Previous studies also indicated that living in an unsatisfactory environment or with clients and their families might negatively impact foreign workers' psychological well-being (Cheung et al., 2019; Vahabi & Wong, 2017).

Surprisingly, the current study revealed that caregivers who had greater social support displayed more depressive symptoms. These findings were different from the findings of most previous studies (Cho, 2017; Liang et al., 2019; Lu, 2010). Moreover, this study also found that there was a significant positive relationship between support from friends/family and depression, but there was a non-significant negative relationship between support from significant others and depression. du Plooy et al. (2019) indicated that South Asian migrants in Australia received greater support from their families than migrants from Western countries and Confucian Asian countries such as China, Hong Kong, Singapore and Taiwan. However, greater family support was not related to a lower likelihood of distress, such as depression and anxiety. The authors argued that in collectivistic cultures, family support might potentially increase relational demands, resulting in greater distress. They also proposed that the type of support received might also affect one's psychological health. Western families gave more practical support compared with the emotional support given by the families of South Asian migrants. Most foreign caregivers go abroad to earn more and improve their families' economic conditions and quality of life. Therefore, they do not want to share their negative experiences and worry their families or make them feel guilty. One study revealed that migrant live-in caregivers in Canada seldom shared their negative experiences with their family, because they were afraid that it might cause them distress and pain (Vahabi & Wong, 2017). Moreover, when contacted, the caregivers' families may remind them of their responsibility as a breadwinner. The contradictory feelings of being eager to obtain familial support without upsetting them might worsen caregivers' emotional state. Similarly, Mendoza et al. (2017) found that Filipino domestic workers in Macau, who had greater social support from their friends, experienced greater depression. The caregivers' fear of losing face, receiving criticism from their friends and being gossiped

about in social circles might also explain the paradoxical effect of social support on their depressive symptoms. Further in-depth research is needed to comprehensively examine this relationship.

Finally, we found that foreign caregivers who felt more lonely were more depressed. In contrast, a previous study revealed that there was a negative relationship between loneliness and depression among Chinese rural-to-urban migrant workers (Liang et al., 2019). To the best of our knowledge, few studies have examined the relationship between loneliness and depression among foreign caregivers. Although the populations studied were different in previous research, their findings indicated that there is a positive relationship between loneliness and depression (Bodner & Bergman, 2016; Lee et al., 2021; Ren et al., 2020). More research is needed in the future to understand the association between foreign caregivers' loneliness and depression and its interaction mechanism.

## 5.1 | Limitations of the study

First, this was a cross-sectional study; hence, only Indonesian foreign caregivers' present feelings can be understood. It would therefore be extremely beneficial to conduct a longitudinal study in the future. Moreover, qualitative studies are suggested to understand the meaning and context of these caregivers' experiences. Second, all the participants were female, but this is because most families in Taiwan prefer to hire female foreign caregivers. Third, the caregivers were only recruited from northern Taiwan, which limits the study's generalizability. It is thus suggested that a national survey be conducted in the future.

## 6 | CONCLUSION

The current study showed a high prevalence of depressive symptoms among Indonesian foreign caregivers, especially in the case of those who were younger, had better social support, shared a bed with clients and experienced higher work-related stress, more loneliness and physical discomfort. This high prevalence rate should be of concern to the government, healthcare professionals and employers. As the foreign caregivers live with their employers or clients in the host country, the relationship between them is closer compared with that in other kinds of work. It is necessary to raise awareness among the employers or clients to enable them to detect the depressive symptoms of the foreign caregivers well in advance. They should also be able to talk to or assist the foreign caregivers in seeking help if necessary. Moreover, the government should give information or resources online about managing caregivers' psychological health and offer free counsellors or support groups for those who are in need of such aid. Lastly, when home health nurses or practitioners visit patients at home, they should not only give care to their patients but also show concern for the psychological well-being of the patients' foreign caregivers, especially with respect to depressive symptoms. Moreover, interventions should be developed to alleviate

or prevent the emergence of depressive symptoms among foreign caregivers in Taiwan in the near future.

## AUTHOR CONTRIBUTIONS

Hsuan-Cheng Su, Sophia H. Hu and Yeu-Hui Chuang designed the study. Hsuan-Cheng Su collected the data. Hsuan-Cheng Su, Yen-Kuang Lin, Mei-Ju Chi and Yeu-Hui Chuang analysed the data. Hsuan-Cheng Su, Sophia H. Hu, Yen-Kuang Lin, Mei-Ju Chi and Yeu-Hui Chuang interpreted the data. Hsuan-Cheng Su and Yeu-Hui Chuang prepared the manuscript. Hsuan-Cheng Su, Chih-Yu Wang, Trung V. Nguyen and Yeu-Hui Chuang revised the manuscript. All authors read and approved the final manuscript.

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## CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

## DATA AVAILABILITY STATEMENT

Data available on request from the authors.

## ETHICS STATEMENT

This study was approved by the Taipei Medical University-Joint Institutional Review Board (N201905035).

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