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Psychological distress and coping responses among occupational safety and health competent post-COVID-19 era in Malaysia

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ABSTRACT

Amidst the COVID-19 pandemic, mental health challenges have emerged, highlighting the need to identify psychological distress and coping strategies, particularly among occupational safety and health (OSH) competent persons. This is a cross-sectional study measuring stress, anxiety, and depression levels while exploring coping mechanisms among OSH professionals in Malaysia during the COVID-19 recovery phase, using DASS-21 and Brief-COPE questionnaires. The findings indicate that chronic illness increases the risk of depression ($p=0.005$) and stress ($p=0.047$). Higher income is associated with greater risks of depression ($p<0.001$) and stress ($p<0.001$). Monthly expenses exceeding budget limits heighten the risk of depression ($p<0.001$) and anxiety ($p=0.024$). Conversely, older age decreases the risk of both depression ($p<0.001$) and stress ($p=0.001$). Caring for family members affected by COVID-19 reduces depression ($p<0.001$) and stress ($p<0.001$). Having more monthly savings decreases the risk of depression ($p<0.001$) and anxiety ($p=0.017$). The study reveals that stress individuals prefer emotional focus coping ($p=0.006$). Addressing these factors is crucial for mitigating psychological distress among OSH professionals.

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1. INTRODUCTION

The COVID-19 pandemic has brought unprecedented disruptions across various sectors, significantly affecting public health and economic stability worldwide. The World Health Organization (WHO) declared a global pandemic in March 2020, the crisis forced governments to impose strict lockdowns, quarantine measures, and stay-at-home orders to curb the virus's spread. While essential to control the outbreak, these interventions had profound social, psychological, and economic repercussions.

Globally, millions of people faced job insecurity, financial strain, and disruptions to daily routines, causing heightened psychological distress [1]. Older adults experienced disproportionately greater adverse effects from the pandemic including disruptions to their daily routines and access to care and concerns that isolation would exacerbate existing mental health conditions [2]. Among the most affected are healthcare workers with anxiety 22.0% and depression 16.8% [3]. Healthcare workers with long working hours are

shown to have poorer psychological health [4]. High levels of anxiety, psychosomatic symptoms, and burnout were associated with financial insecurity, unmet physical health needs, and inability to provide quality care [5]. While much attention has been directed toward the mental health challenges faced by healthcare workers and the general public during the pandemic, there remains a gap in understanding the psychological impacts on occupational safety and health (OSH) professionals.

OSH-competent persons play a vital role in ensuring workplace safety, especially in high-risk environments, yet their mental health has been underexplored during the recovery phase following the pandemic. These professionals are responsible for identifying workplace hazards, implementing corrective measures, and promoting occupational well-being. However, the prolonged stress, isolation, and increased job demands during the COVID-19 era may have taken a toll on their mental health, leading to stress, anxiety, and depression [6]. Research has shown that psychosocial risks, such as fluctuating workloads, job insecurity, and financial concerns, are linked to adverse mental health outcomes, including anxiety and depression [7].

Moreover, maladaptive coping mechanisms during times of overwhelming stress can exacerbate these conditions, further endangering the mental well-being of workers [8]. Research conducted among OSH practitioners in Ireland revealed that feelings of isolation, loneliness, fear, and anxiety had detrimental effects on their mental well-being [9]. The coping mechanism is an important factor in helping those with overwhelming stress. Maladaptive coping may result in psychological effects such as stress, anxiety, and depression [10]. In Malaysia, studies on the psychological impact of COVID-19 have largely focused on COVID-19 patients [11], healthcare workers [12] and front-line responders, with limited attention to OSH professionals.

This study aimed to address this gap by investigating the psychological distress and coping responses among OSH-competent persons in Malaysia during the post-COVID-19 era. By exploring the levels of stress, anxiety, and depression, and examining the coping strategies adopted, this research seeks to provide insights that could guide intervention strategies to support OSH professionals' mental health. Understanding the psychological well-being of these key workers is crucial for maintaining a resilient workforce as the nation recovers from the pandemic and prepares for future crises.

2. METHOD

2.1. Study design, sampling and participants

The data collected in this study were elicited through an online cross-sectional study using a self-filled online questionnaire. Out of 68,501 OSH-competent persons registered with the Department of Occupational Safety and Health (DOSH), 403 participants were selected using a simple random sampling technique [13]. Sample size calculation was calculated using Krejcie and Morgan Sample Size calculation [14] with a 0.5 population proportion and 0.05 degree of accuracy. The inclusion criteria for this study are OSH-competent individuals registered with DOSH Malaysia during the study period. The exclusion criteria for this study were respondents not in a period of employment, not based in Malaysia during the pandemic and the following National Recovery Plan (NRP); were excluded from this study. In addition, respondents with an existing history of being diagnosed with psychiatric illness or a history of seeking treatment at a psychiatric clinic were also excluded from the study.

2.2. Ethical consideration

The study was approved and funded by the NIOSH Malaysia Research Grant 2022 ethical and research committee (Project ID: 03.16/03/PSYCHOLOGICAL(1)/2022/01). A general description including an informed consent form was included in the first part of the questionnaire. Respondents had been assured that all the information would be kept confidential.

2.3. Statistical analysis

Data collected were analyzed using the IBM SPSS Statistics for Windows, Version 26.0. All continuous variables were described using mean (SD) and/or median (IQR) whereas categorical data as frequency (%). Univariate and multivariate regression analysis was applied to assess the association between sociodemographic data, job-related factors, psychological distress, and coping strategies adopted by the OSH-competent persons in this study with the p-value set at 0.05 and statistical significant being tested by confidence interval of 95%.

2.4. Measurement

2.4.1. Sociodemographic characteristics of the respondents

The questionnaire for the sociodemographic characteristics collected for the respondents includes both social and personal, as well as their financial status. For the social and personal information, data

collected were age, gender, changes in marital status in the past three years, current marital status, number of children, children's age, ethnicity, highest educational level attained, number of household members, status in the household, any known medical illness, history of COVID-19 infection, whether or not they required hospital admission due to the COVID-19 infection, and lastly history of becoming the caregivers of family or household members who were diagnosed with COVID-19 infections. Regarding the financial background of the respondents, data collected include total household income, number of household members who are currently employed, number and type of properties owned, ownership status of the properties, number and ownership status of a vehicle, estimated monthly expenses allocated for food, petrol gas, utility, children's education, whether or not monthly expenses can be met, any monthly fixed deposit and the amount deposited, any household members with special financial needs, whether or not they received financial assistance, and the name of the responsible organization, together with the amount received.

2.4.2. The depression anxiety stress scale (DASS)-21

The DASS-21 questionnaire that consists of 21 items of self-report according to three subscales (with seven items in each subscale) that measure depression, anxiety, and stress, respectively over the past week was used to collect data among respondents. Each item comprises of a statement, and four ordinal responses scored from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time). Scores from each set of seven items were summed up to yield a single subscale score and interpreted as either 'normal,' 'mild,' 'moderate,' 'severe,' to 'extremely severe' according to predetermined criteria. Scores of each subcategory were multiplied by two to compare with the full DASS-42. Higher scores indicate greater severity of depression, anxiety, or stress disorder. Malay translation is available [15] and it has also been validated among the working population in Malaysia [16].

2.4.3. Brief coping orientation to problems experienced, COPE questionnaire

Regarding coping, the Brief-COPE questionnaire was used. It is a 28-item self-report questionnaire and is rated by the four-point Likert scale, ranging from "I haven't been doing this at all" (score one) to "I have been doing this a lot" (score four). In total, 14 dimensions were covered by this scale. These are self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion and self-blame. Every dimension has two items, thus bringing a total of 28 items altogether. Interpretation-wise, a higher total score represents greater coping strategies used by the respondents. The questionnaire version used in this study is the locally validated Malay version with good validity and reliability [17], [18].

3. RESULTS

3.1. Descriptive analysis

3.1.1. Sociodemographic characteristics and financial background of the respondents

Table 1 showed that the mean age of respondents was 38.8 (±8.4) years old, with over two-thirds being male. This is consistent with another study done among safety and health competent and training providers that showed the majority are male [19]. However, the mean age in this study was older. Regarding ethnicity, Malays accounted for more than 60% of the respondents, while the remaining 40% encompassed other ethnic groups such as Chinese, Indian, Sabahan, Sarawakian, and others (including Sikhs). The dominance of Malay applicants and recruits in public sectors reflects a trend where Malays are disproportionately represented compared to other ethnic groups [20]. More than half had achieved education up to the diploma and degree levels and held the position of the head of household. The predominance of male workers in these sectors may contribute to their societal role as heads of the family. Over two-thirds were presently married and had maintained their respective marital status for the past three years. The mean number of members per household was four, with a mean of two children's per household. Nearly all respondents reported not having any medical illnesses, although around half mentioned having contracted COVID-19, none of whom required hospitalization. Half of the respondents shared that they had taken on the responsibility of caring for family members with COVID-19.

Regarding the financial background of the respondents Table 2, they had a median household income of RM 7,000, and a mean number of household members were working. Approximately 80% reported having two properties. Over 90% still have to make monthly instalment payments. The same trend was seen for vehicle ownership, whereby 80% still paid monthly instalments for an average of two vehicles. Almost 90% reported that their monthly expenses amounting to RM 6,000 exceeded the monthly budget allocation. Almost 80% managed to set a fixed monthly savings of RM 400 per month. Only 4% reported having family members with special needs with less than 2% receiving financial assistance.

Table 1. Respondent's sociodemographic characteristics (n=403)

Sociodemographic characteristic	n	Mean (standard deviation)	%
1. Age (years)	403	38.8 (±8.4) Minimum=24.0, Maximum=66.0	
2. Ethnic group			
Malay	259		64.3
Chinese	49		12.2
Indian	10		2.5
Sabahan	34		8.4
Sarawakian	44		10.9
Others (Sikh)	7		1.7
3. Gender			
Male	320		79.4
Female	83		20.6
4. Changes in marital status (past three years)			
Yes	111		27.5
No	297		72.5
5. Current marital status			
Single	91		22.6
Married	292		72.5
Divorced/widowed	20		5.0
6. No of children's	403	2 (±2) (minimum=0, maximum=9)	
7. Highest formal education attained			
Diploma	134		33.3
Degree	125		31.0
Master	111		27.5
Ph.D.	33		8.2
8. Total no of household members	403	4 (±2) (minimum=1, maximum=12)	
9. Status in the household			
Head of the family	265		65.8
Others	138		34.2
10.Any medical illness?			
Yes	18		4.5
No	385		94.5
11.History of COVID-19 infections?			
Yes	217		53.8
No	186		46.2
12.Required hospital admission due to the COVID-19 infection?			
Yes	0		0.0
No	403		100.0
13.History of becoming the caregiver of family/household members who were diagnosed with COVID-19 infections?			
Yes	180		44.7
No	223		55.3

Table 2. Respondents financial background

Financial background	n	Mean (standard deviation)	%
1. Total household income/month (RM)	403	7,000 (IQR: 5,475; 10,000) (minimum=3,000, maximum=25,000)	
2. Number of household members currently employed	403	2 (±1) (minimum=1, maximum=5)	
3. Number of properties owned	403	2 (±1) (minimum=0, maximum=3)	
4. Status of properties owned			
Owned	321		79.7
Rented	71		17.6
Provided/quarters	11		2.7
5. Payment status of the properties			
Still paying loan	372		92.3
Fully paid	31		7.7
6. Number of vehicles owned	403	2 (±1) (minimum=0, maximum=7)	
7. Ownership status of the vehicle			
Still paying loan	323		80.1
Fully paid	80		19.9
8. Estimated monthly expenses allocation (RM):	403	6,000 (IQR: 3,300; 7,500) (minimum=500, maximum=23,000)	
9. Monthly expenses can be met?			
Yes	343		85.9
No	60		14.1
10. Have monthly fixed savings?			
Yes	317		78.7
No	86		21.3
11. Estimated amount of monthly fixed savings (RM)	403	400 (IQR: 100; 1,000) (minimum=0, maximum=5,000)	
12. Any household members with special financial needs?			
Yes	16		4.0
No	387		96.0
13. Received any financial assistance?			
Yes	7		1.7
No	396		98.3

3.2. Multivariate analysis

3.2.1. Association between depression anxiety stress and coping type

Findings in Table 3 showed depressed individual less likely to utilize avoidant coping (p=.013). Findings in Table 4 are not significant. Findings in Table 5 showed anxious individual less likely to use emotion focus coping (p=0.006) while stress individual prefers emotion focus coping (p=0.006).

Table 3. Regression analysis for association between DASS21 scores and avoidant coping

Variables	B	95% confidence interval	β	t	p
Depression scores	-0.12	[-0.22, -0.03]	-0.19	-2.50	0.013[a]
Anxiety scores	0.04	[-0.06, 0.15]	0.07	0.85	0.395
Stress scores	0.10	[-0.03, 0.22]	0.15	1.51	0.133

Adjusted R2=0.060 95% confidence interval for B [a] significant at p<0.05

Table 4. Regression analysis for association between DASS21 scores and problem-focused coping

Variables	B	95% confidence interval	β	t	p
Depression scores	0.02	[-0.07, 0.10]	0.03	0.38	0.705
Anxiety scores	-0.003	[-0.09, 0.09]	-0.01	-0.06	0.956
Stress scores	0.03	[-0.09, 0.14]	0.04	0.44	0.664

Adjusted R2=0.016 95% confidence interval for B

Table 5. Regression analysis for the association between DASS21 scores and emotion-focused coping

Variables	B	95% confidence interval	β	t	p
Depression scores	0.08	[-0.08, 0.24]	0.08	1.01	0.316
Anxiety scores	-0.24	[-0.41, -0.07]	-0.23	-2.79	0.006[a]
Stress scores	0.29	[0.08, 0.50]	0.27	2.77	0.006[a]

Adjusted R2=0.050 95% confidence interval for B a significant at p<0.05

3.2.2. Association between depression anxiety stress with sociodemographic and financial factors

Table 6 showed that with every increase of one unit in age (year), number of children (number) and number of household members (number), there were a decrease of 0.36 (β=-.36, p<.001), increase of 0.39 (β=.39, p=.002) and decrease of 0.34 (β=-.34, p=.001) respectively in the depression scores. Those with a change of marital status have 0.27 (β=-.27, p<.001) lower depression score, while those having a history of chronic medical illness has 0.20 (β=.20, p=.005) higher depression score. Those with a history of being infected with COVID-19 has 0.12 (β=.12, p=.047) higher depression score, while those with a history of being required to care for family members with COVID-19 have 0.30 (β=-.30, p<.001) lower depression score.

Table 7 found that for an increase of one ringgit Malaysia in monthly income and one vehicle owned, there was respectively an increase of 0.56 (β=.56, p<.001) and 0.20 (β=.20, p=.001) in depression scores. Those having monthly expenses exceeded the allocation have 0.25 (β=.25, p<.001) higher depression score. Contrariwise, for an increase of one household member working, one ringgit Malaysia in monthly expenses, and one ringgit Malaysia in monthly savings, there was a decrease of respectively 0.11 (β=-.11, p=.045), 0.57 (β=-.57,p<.001) and 0.24 (β=-.24, p<.001)of depression scores. Those having no fixed monthly savings or having a family with special needs correspondingly have 0.12 (β=-.12, p=.034) and 0.22 (β=-.22, p=.001) lower depression scores.

Table 8 shows that head of household has 0.31 (β=.31, p=.001) higher anxiety score, while those with a history of being required to care for family members with COVID-19 have 0.14 (-0.14, p=.016) lower anxiety scores. Table 9 showed that with an increase of one ringgit Malaysia in both monthly expenses and savings, there was a decrease of 0.22 (β=-.22, p=.023) and 0.016 (β=-.16, p=.017) in anxiety scores. The status of not owning properties has 0.17 (β=-.17, p=.0090), still paying at least one property's monthly loan has 0.21 (β=-.17, p<0.001), and those with no fixed monthly saving has 0.18 (β=-.18, p=.004) lower anxiety scores. In contrast, those having monthly expenses that exceeded budget allocation have 0.15 (β=.15, p=.024) higher anxiety scores.

Table 10 showed that with every one-year increase in age, there was a decrease of 0.26 (β=-0.26, p=.001) in stress scores. The current status of being not married and history of having chronic medical illness have proportionately 0.10 (β=.10, p=.045) and 0.15 (β=.15, p=.047) higher stress scores. In contrast, those who have a change in marital status and are required to care for family members with COVID-19 have correspondingly 0.32 (β=-.32, p<.001) and 0.23 (β=-.23, p<.001) lower stress scores.

Table 11 shows monthly income, status of not owning properties, number of vehicles owned, monthly expenses, and having a family with special needs were found to have a significant association with stress scores. With an increase of one ringgit Malaysia in monthly income, and an additional one vehicle owned, there was an increase of 0.46 (β=.46, p<.001) and 0.17 (β=.17, p=.011) stress scores among respondents. Conversely, the status of not owning properties has 0.14 (β=-.14, p=.031), and having family with special needs has 0.16 (β=-.16, p=.024) lower stress scores. Along the same lines, with an increase of one ringgit Malaysia in monthly expenses, there was a decrease of 0.53 (β=-.53, p<.001) in stress scores among respondents.

Table 6. Regression analysis for association between depression score with sociodemographic factors and financial factors

Variables	B	95% confidence interval	β	t	p
Age	-0.24	[-0.33, -0.15]	-0.36	-5.10	<0.001[a]
Male	-0.28	[-2.34, 1.72]	-0.02	-0.27	0.786
Non-Malay ethnicity	-0.01	[-1.28, 1.25]	-0.001	-0.02	0.983
Degree and higher education attained	0.47	[-0.76, 1.71]	0.04	0.75	0.455
Head of household	-0.81	[-2.79, 1.17]	-0.07	-0.81	0.421
Change in marital status	-3.38	[-4.79, -1.97]	-0.27	-4.72	<0.001[a]
Currently not married	0.67	[-0.64, 1.98]	0.05	1.01	0.314
No of children	1.11	[0.42, 1.80]	0.39	3.15	0.002[a]
No. of household members	-0.89	[-1.42, -0.37]	-0.34	-3.35	0.001[a]
Have chronic medical illness	5.28	[1.59, 8.97]	0.20	2.82	0.005[a]
Infected with COVID-19	1.29	[0.02, 2.57]	0.12	1.99	0.047[a]
Requires to care for family members with COVID19	-3.33	[-4.55, -2.11]	-0.30	-5.38	<0.001[a]

Table 7. Regression analysis for association between depression score with financial factors

Variables	B	95% confidence interval	β	t	p
Monthly income (RM)	0.001	[0.00, 0.001]	0.56	5.35	<0.001[a]
No. of household members working	-0.82	[-1.62, -0.02]	-0.11	-2.12	0.045[a]
No. of properties owned	0.64	[-0.37, 1.65]	0.09	1.25	0.213
Didn't own property	-1.25	[-2.60, 0.11]	-0.11	-1.81	0.071
Still paying loan for property	0.45	[-1.75, 2.65]	0.02	0.40	0.686
No. of vehicle owned	1.08	[0.42, 1.74]	0.20	3.23	0.001[a]
Still paying loan for vehicle	0.40	[-1.05, 1.85]	0.03	0.54	0.589
Estimated monthly expenses (RM)	-0.001	[-.001, -0.001]	-0.57	-6.16	<0.001[a]
Monthly expenses exceeded allocation	3.96	[2.00, 5.92]	0.25	3.96	<0.001[a]
No fixed monthly saving	-1.63	[-3.14, -0.12]	-0.12	-2.13	0.034[a]
Estimated monthly saving (RM)	-0.002	[-0.003, -0.001]	-0.24	-3.91	<0.001[a]
Have family with special needs	-6.19	[-9.86, -2.52]	-0.22	-3.32	0.001[a]
Received financial assistant	-0.19	[-5.51, 5.13]	-0.004	-0.07	0.944

Table 8. Regression analysis for association between anxiety score with sociodemographic and financial factors

Variables	B	95% confidence interval	β	t	p
Age	-0.05	[-0.14, 0.05]	-0.07	-0.90	0.369
Male	-1.70	[-3.89, 0.49]	-0.12	-1.53	0.128
Non-Malay ethnicity	-0.80	[-2.04, 0.43]	-0.07	-1.28	0.202
Degree and higher education attained	0.15	[-1.06, 1.35]	0.01	0.24	0.811
Head of household	3.62	[1.52, 5.73]	0.31	3.39	0.001[a]
Change in marital status	-1.08	[-2.57, 0.418]	-0.09	-1.42	0.158
Currently not married	-1.11	[-2.38, 0.17]	-0.09	-1.71	0.089
No of children	-0.09	[-0.82, 0.65]	-0.03	-0.23	0.821
No. of household members	0.21	[-0.35, 0.77]	0.08	0.75	0.455
Have chronic medical illness	0.36	[-3.57, 4.28]	0.01	0.18	0.858
Infected with COVID-19	-1.10	[-2.46, 0.26]	-0.10	-1.59	0.112
Requires to care for family members with COVID19	-1.59	[-2.89, -0.29]	-0.14	-2.41	0.016[a]

Table 9. Regression analysis for association between anxiety score with financial factors

Variables	B	95% confidence interval	β	t	p
Monthly income (RM)	-8.07×10^{5}	[0.00,0.00]	-0.07	-0.58	0.562
No. of household members working	-0.60	[-1.46, 0.25]	-0.08	-1.40	0.164
No. of properties owned	0.54	[-0.53, 1.61]	0.08	0.99	0.322
Didn't own property	-1.93	[-3.37, -0.49]	-0.17	-2.64	0.009[a]
Still paying loan for property	-4.36	[-6.50, -2.22]	-0.21	-4.00	<0.001[a]
No. of vehicle owned	0.66	[-0.04, 1.36]	0.12	1.85	0.065
Still paying loan for vehicle	1.00	[-0.41, 2.41]	0.07	1.39	0.165
Estimated monthly expenses (RM)	0.00	[-0.001, 0.00]	-0.22	-2.29	0.023[a]
Monthly expenses exceeded allocation	2.41	[0.32, 4.50]	0.15	2.27	0.024[a]
No fixed monthly saving	-2.38	[-3.98, -0.77]	-0.18	-2.92	0.004[a]
Estimated monthly saving (RM)	-0.001	[-0.002, 0.00]	-0.16	-2.40	0.017[a]
Have family with special needs	-2.22	[-6.12, 1.68]	-0.08	-1.12	0.264
Received financial assistant	0.38	[-5.28, 6.05]	0.009	0.13	0.895

Table 10. Regression analysis for association between stress score with sociodemographic and financial factors

Variables	B	95% confidence interval	β	t	p
Age	-0.17	[-0.26, -0.07]	-0.26	-3.48	0.001[a]
Male	-0.45	[-2.53, 1.63]	-0.03	-0.42	0.673
Non-Malay ethnicity	0.80	[-0.38, 1.99]	0.07	1.33	0.184
Degree and higher education attained	-0.48	[-1.64, 0.68]	-0.04	-0.82	0.412
Head of household	0.67	[-1.33, 2.67]	0.06	0.66	0.511
Change in marital status	-3.79	[-5.22, -2.37]	-0.32	-5.24	<0.001a
Currently not married	1.25	[0.03, 2.48]	0.10	2.01	0.045a
No of children	0.17	[-0.53, 0.87]	0.06	0.47	0.640
No. of household members	-0.04	[-0.57, 0.49]	-0.02	-0.14	0.891
Have chronic medical illness	3.79	[0.05, 7.53]	0.15	1.99	0.047a
Infected with COVID-19	0.54	[-0.75, 1.83]	0.05	0.82	0.413
Requires to care for family members with COVID19	-2.44	[-3.67, -1.21]	-0.23	-3.89	<0.001a

Table 11. Regression analysis for association between stress score with financial factors

Variables	B	95% confidence interval	β	t	p
Monthly income (RM)	0.001	[0.00, 0.001]	0.46	4.12	<0.001[a]
No. of household members working	0.10	[-0.71, 0.91]	0.01	0.25	0.803
No. of properties owned	-0.39	[-1.41, 0.63]	-0.06	-0.75	0.457
Didn't own property	-1.51	[-2.88, -0.14]	-0.14	-2.17	0.031[a]
Still paying loan for property	-0.66	[-2.72, 1.40]	-0.03	-0.63	0.530
No. of vehicle owned	0.86	[0.20, 1.53]	0.17	2.55	0.011[a]
Still paying loan for vehicle	-0.99	[-2.35, 0.36]	-0.08	-1.44	0.151
Estimated monthly expenses (RM)	-0.001	[-0.001, -0.001]	-0.53	-5.51	<0.001[a]
Monthly expenses exceeded allocation	2.00	[0.01, 3.99]	0.13	1.98	0.048[a]
No fixed monthly saving	-0.40	[-1.93, 1.13]	-0.03	-0.51	0.608
Estimated monthly saving (RM)	-0.001	[-0.002, 0.00]	-0.12	-1.77	0.077
Have family with special needs	-4.28	[-7.99, -0.57]	-0.16	-2.27	0.024[a]
Received financial assistant	1.68	[-3.71, 7.07]	0.04	0.61	0.540

4. DISCUSSION

The study identifies various factors influencing the risk of depression, anxiety, and stress among OSH-competent individuals. Among the factors that increase the risk of psychological distress are chronic illness, history of COVID-19 infections, higher income, more vehicles owned and monthly expenses exceeding allocated budget while age, change in marital status, caring for family members with COVID-19, having family with special needs, higher monthly expenses, status of not owning properties and more monthly savings decrease the risks. Chronic illnesses can lead to persistent health concerns and stress, contributing to depression. There is a bidirectional relationship between depression and chronic medical disorders. The adverse health risk behaviors associated with depression increase the risk for chronic medical disorders, and biological changes associated with chronic medical disorders may precipitate depressive episodes [21]. This is consistent with findings in this study whereby those with chronic medical illness were more prone to stress and depression.

This study also showed that the risk of stress and depression increases with higher income. Making more money could demand employees devote greater resources to their work role, depleting the remaining resources to devote to family [22]. This can lead to work-family conflict. Higher-income may lead to psychological distress due to increased work stress or higher responsibilities. A study conducted in Singapore showed that professional workers reported the highest levels of stress related to performance pressure [23]. Moreover, people with higher incomes may incur more debt. There is a positive association between debt and depression, but it is more related to unsecured debt (e.g., credit card) or late mortgage payments [24]. This is further confirmed by the finding that people who do not own property and are possibly free of debt experience less stress and anxiety. This finding contrasts with some previous research which suggests higher income typically reduces depression by alleviating financial stress [25], [26]. However, other studies have shown that during COVID-19, the low-income group was negatively impacted in terms of employment, access to food, and increased stress [27]. Owning more vehicles might indicate a lifestyle with higher financial burdens, contributing to stress and depression. Limited research directly correlates the number of vehicles with depression. However, it may serve as a proxy for higher financial burdens, aligning with studies on financial stress. Monthly expenses exceeding the given allocation can lead to financial constraints and subsequently financial stress. Financial stress can be defined as difficulty meeting basic financial commitments due to a shortage of money and it is positively associated with depression [24]. Financial instabilities were identified as key stressors affecting middle to high-income Canadian families during the pandemic COVID-19 [28].

Older adults often report lower levels of depression due to economic stability and social support. They have better coping mechanisms, reducing the risk of depression. It is consistently linked to reduced stress and depression, with less impact on worry and isolation measures, while resilience grew with age during stressful life events [29]. The study's findings support that older age correlates with decreased stress and depression risk. Although married individuals are happier [30], change in marital status is also seen as a factor that contributes to less stress and depression. Changes such as getting married or divorced might alleviate specific stressors, thereby reducing depression. Unhappy marriages can make individuals vulnerable as relationship quality is crucial [31], with marital distress often preceding psychological disorders [32]. Furthermore, they were also twice as likely to report worse health and almost 40% had an increased risk of mortality [31]. Divorced and unmarried individuals reported greater unhappiness than married peers during the pandemic [32]. Emerging studies during and post-pandemic have highlighted the mental health impacts of COVID-19, supporting the finding that infection increases depression risk. A meta-analysis by Wang *et al*. [33] illustrated that higher COVID-19 infection risks were associated with higher odds of anxiety and depression. Likewise, the findings in this study showed that those who were infected with COVID-19 have an increased risk of depression. On a different note, this study revealed those who were caring for family members with COVID-19 infection had a reduced risk of anxiety. Prosocial behavior such as helping someone without expecting in return has a positive relationship with happiness [34]. Caring for family members with special needs gives rewarding experiences and helps build a closer bond [35]. However, there are mixed findings. Some studies highlight a decrease in peace and serenity, while others show that helping behavior leads to happiness and serves as a protective factor against psychological distress [36]. Monthly savings indicate effective financial management, providing both present stability and future security. People with low family savings had 50% greater odds of having depressive symptoms [37]. Financial security has been shown to play a protective role in emotional well-being [38]. Proper financial management can help protect against adverse well-being and health outcomes in middle-aged and older adults [39]. Diversion buying is part of coping to release stress. A certain amount of expenditure was needed for stress release; however, a high expenditure rate did not relieve stress. Gift-giving, particularly to significant individuals, offers potent stress relief [40] and can downregulate physiological stress responses [41]. Our findings were similar whereby those with high estimated monthly expenses have a lower risk of stress, anxiety, and depression.

In this study, the most commonly adopted coping strategies were emotion-focused, followed by problem-focused, and finally, avoidant coping. Men were more likely to use less assertive coping strategies compared to women. Active coping strategies such as emotion-focused and problem-focused are related to lower emotional distress compared to avoidant coping [42]. From this study, we found that persons with higher stress are more likely to engage in emotion-focused coping that functions to regulate the physiological, emotional, cognitive, and behavioral reactions that accompany the experience of stressful encounters [43]. Emotion-focused or emotion-oriented coping construct is still pertinent, as evidenced by its continued prevalence in recent research whereby patients with high stress levels during the pandemic are more likely to utilize emotion-focused coping [44]. Contrarily, those who are anxious are less likely to use emotion-focused coping. A study done among nursing students during the COVID-19 pandemic showed avoidant coping was associated with a higher state of anxiety. Consistent with what is known about alcohol and drugs to cope with anxiety, this coping strategy is ineffective and may worsen the level of anxiety [42]. Depressed persons in this study were less likely to use avoidant coping. This contrasts with an earlier study indicating that men tend to employ avoidant coping strategies more frequently [45] potentially leading to elevated symptoms of stress, anxiety, depression, and anger and cognitive appraisal themes of fear, loss, uncontrollability, delay, and restraint [46]. This shift could stem from heightened mental health awareness, potentially leading men to adopt more adaptive coping strategies.

It is important to mention several limitations encountered in this study. Firstly, some individuals hold multiple competency certificates, which could lead to information being a combination of experiences across these competencies. Secondly, respondents were asked to recall their experiences during the pandemic, which began approximately three years ago and continued until the current recovery plan. This raises the possibility of recall bias in the provided information. Lastly, since data collection tools were self-filled online questionnaires, information bias may arise, necessitating cautious interpretation of the results. Therefore, future studies should take these limitations into account.

5. CONCLUSION

Certain measures should be carried out by policymakers to ensure the well-being of OSH competence. For instance, proper financial planning is crucial in preventing financial stress. Knowledge is important to help individuals manage their finances effectively. Additionally, courses on personal and family finances for workers may be suitable to equip individuals with financial management skills. Regular

screening for mental well-being is important to detect early signs of mental illness, thus providing early intervention. Similarly, maintaining physical fitness is essential to prevent chronic illnesses. Therefore, regular health screenings and programs that promote physical activities are also important. We can see that altruistic behavior, especially towards family members, leads to happiness. Hence, programs involving family members may be beneficial in strengthening family bonds. Adaptive coping skills are crucial in preventing emotional disturbances. Employees should have proper channels to relieve stress, such as access to workplace counsellors, leisure time for hobbies, regular recreational activities, and programs that educate on effective coping skills.

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