

Depression, quality of life and coping style among Thai doctors before their first year of residency training

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ABSTRACT

Objectives Depression and suicide often affect young physicians coping with the demands of residency training. To support effective prevention programmes, we aim to assess depression, quality of life (QoL) and coping style of doctors prior to beginning residency training.

Methods A cross-sectional study of physicians prior to their first year of residency training at the Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand, was conducted. Questionnaires including the Thai versions of the Proactive Coping Inventory, Patient Health Questionnaire and the Pictorial Thai Quality of Life (PTQL) scale were emailed to all first-year residents 1 week before the beginning of residency training in 2015. Descriptive statistics, χ^2 test, independent-sample t-test and Pearson's correlation test were analysed.

Results Among 277 doctors, 102 (36.8%) responded to the survey. The average age of respondents was 26.8 (range 25–33; SD=1.2) and 69.6% were women. Nearly all (99.0%) had moderate-to-high overall QoL scores. Depression was found in 10 (9.8%) of respondents. Depression severity was negatively correlated with proactive coping and QoL. Proactive coping ($r=0.509$, $p<0.001$), reflective coping ($r=0.266$, $p=0.007$), strategic planning ($r=0.347$, $p<0.001$), preventive coping ($r=0.298$, $p=0.002$) and emotional support seeking ($r=0.252$, $p=0.011$) were positively correlated with QoL. Furthermore, proactive was correlated with lower depressive symptoms severity ($r=-0.303$, $p=0.002$).

Conclusions Although nearly all doctors reported moderate-to-high QoL, positive screening for depression was observed in 9.8% of doctors which is much higher than the prevalence in Thais (1.2%). Mental health promotion policies are essential to help residents effectively cope with the stress and demands of training.

INTRODUCTION

Mental health problems are common among doctors during their residency training.¹ Previous studies in Thailand reported that 42.2% of residents had abnormal level of stress,² 38.8–52.8% felt burned out^{3,4} and 21.5% had depression.⁵ Non-technical skills including coping styles have been the focus of medical education studies. In a 10-year prospective study, certain coping styles of medical students during their admission and preclinical year were found to predict success in their future medical career.⁶ Understanding the prevalence of depression, coping style and quality of life (QoL) of newly graduated doctors prior to residency training

may be useful to inform mental health promotion strategies. Therefore, we aimed to assess depression, QoL and coping style of physicians prior to the beginning of residency training.

METHODS

This was a cross-sectional study of first-year medical residents at the Faculty of Medicine Siriraj Hospital, an academic medical facility of Mahidol University in Bangkok, Thailand. A set of links to a website containing online questionnaires was emailed to all first-year residents in academic year 2015, 1 week before the beginning of their residency programme. In addition to demographic data, Thai versions of Patient Health Questionnaire (PHQ-9), Thai Pictorial Quality of Life (TPQL) and Proactive Coping Inventory (PCI) for the assessment of depression, QoL and coping style were included. The website was secured and the results could be assessed only by the authors (PP and JW). Personal identifiers were removed before data analysis. Consent to participate was implied by completing and submitting the questionnaire. The survey was anonymous; however, we invited the respondents to provide their email addresses in case that they want to receive their own individual screening results. In case of individual request, the interpretation of the screening tools by a psychiatrist (PP) would be emailed to the doctors individually 2 days later. In case of positive screening for depression, advice and detailed information on how to obtain counselling and mental health services were provided in the email.

Questionnaires

The Thai version of PHQ-9,⁷ a 9-item self-rated screening tool for depression, was used to assess the prevalence of depression and severity of depressive symptoms. At the cut-off point total score of 9 or more, the PHQ-9 sensitivity to detect depression has been reported to be 0.84, specificity 0.77, positive predictive value 0.21, negative predictive value 0.99 and positive likelihood ratio was 3.71.⁷ QoL before the residency training was assessed using the PTQL scale, a 25-item self-report questionnaire with physical, cognitive, affective, social function, economic and self-esteem domains. PTQL has high concurrent validity with WHO Quality of Life Instrument-Short Form ($r=0.92$).⁸ The Cronbach's Alpha coefficient for the overall test has been reported to be 0.88 and the value of each domain



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Table 1 Brain Maintenance for Medical Doctors (BM-MD) programme in 2015

Weeks from the start of residency	Sessions	Topic/self-report questionnaires
-1	First assessment	Online questionnaires: general demographic data, PCI, PHQ-9, TPQL
4	First intervention (2 hours)	<i>Interactive lecture 'Stay sharp, after nights, over years'</i> Promoting mental health literacy and brain health to maintain our work performance despite inadequate sleep or working under pressure during the residency training, using neuroscientific and psychiatric principles
5	Second assessment	Online questionnaires: T-PSS-10, T-MEQ, health behaviours, sleep habits, physical activities
9	Second intervention	<i>Interactive lecture 'Peeling onion'</i> How to understand our own emotion and thinking to improve ourselves and aware of defence mechanisms we often use unconsciously which might negatively impact our health, relationships and cognitive performance
14	Third assessment	Online questionnaires: T-PSS-10, PHQ-9, MBI
23	Third intervention	<i>Interactive discussion 'Dealing with people'</i> A scenario-based discussion on how to deal with people. There were four video scenarios reflecting problems commonly found in residents, based on clinical experiences of three psychiatrists with at least 10 years' clinical experience, that is (1) conflicts with a faculty staff, (2) communication with nurses, (3) romantic relationship problems among residents and (4) financial and family problems.
25	Fourth assessment	Online questionnaires: T-PSS-10, PHQ-9, MBI

MBI, Maslach Burnout Inventory; MEQ, Thai version of Morningness Eveningness Questionnaire; PCI, Proactive Coping Inventory; PHQ-9, Patient Health Questionnaire; TPQL, Pictorial Thai Quality of Life Scale; T-PSS-10, Thai version of Perceived Stress Scale-10.

was from 0.81 to 0.91.⁸ The Thai version of the PCI has seven subscales, including a 14-item Proactive Coping Scale, 11-item Reflective Coping Scale, 4-item Strategic Planning Scale, 10-item Preventive Coping Scale, 8-item Instrumental Support Seeking Scale, 5-item Emotional Support Seeking Scale and 3-item Avoidance Coping Scale.⁹ The Cronbach's Alpha coefficient of each PCI subscale has been reported to range from 0.70 to 0.81.¹⁰

Mental health literacy programme for residents

Brain Maintenance for Medical Doctors (BM-MD) programme is a routine mental health promotion programme for first-year residents at Siriraj Hospital. It was first implemented in June 2015 after a resident committed suicide in the hospital. In the original programme (table 1), all the residents were screened for depression, QoL and coping styles 1 week before the start of the programme. These questionnaire data were used to support a series of 2-hour seminars on mental health given to all the first-year residents. Information on available mental health services for residents and a mobile phone number for making appointment to see psychiatrists were provided to the audience at the end of the lectures. Residents are then invited to complete self-rated scales for depression, QoL and burnout for early detection and self-monitoring.

After the implementation of the BM-MD programme, self-referral consultation with psychiatrists increased from 2 new consultations in 2014 to at least 10 new consultations per year from 2015 to 2019. Besides, there was no committed suicide among residents from 2015 to 2019.

Statistical analysis

Data were analysed using IBM SPSS Statistics V.25 (IBM). Descriptive statistics were used for demographic data. χ^2 test or Fisher exact test were used to explore the relationship between demographic factors, coping styles, QoL and depression. We also investigated the correlation between the PCI score in each subcategory and the depression severity (PHQ-9 score) and QoL score using Pearson's correlation test. In addition, differences in coping styles among male and female doctors were analysed with the independent-sample t-test.

RESULTS

Among 277 doctors, 102 (36.8%) responded to the survey. The respondents aged 25–33 years (mean=26.8, SD=1.2), 69.6% of which were women. There was no significant difference of characteristics between the responders and non-responders (table 2).

Although most doctors (99.0%) had moderate-to-high overall scores on QoL, depression (PHQ-9 score ≥ 9) was found in 9.8% (n=10) of the respondents (table 3). Three respondents requested to see a psychiatrist and each received psychiatric intervention within a week.

Depression prevalence and associated factors

At 1 week before the start of the residency training, the prevalence of depression was 9.8% (n=10); 60% were women (n=6). There was no significant difference between gender (p=0.487; Fisher exact test). Other factors, that is, year of experience in

Table 2 The characteristics of the responders and non-responders

Factors	Total (n=277)	Respondents (n=102)	Non-respondents (n=175)	Statistics	P value
Female	168 (60.6%)	71 (69.6%)	97 (55.4%)	$\chi^2=5.429$	0.020
Age	N/A	26.755 1.2059	N/A	–	–
	(n=82)	(n=36)	(n=46)		
Work experience (years; mean \pm SD)	2.610 \pm 1.1413	2.889 \pm 1.1899	2.391 \pm 1.0641	t=1.968	0.053
Have chronic medical illnesses	12	6	6	0.212	0.645
Buddhists	77 (93.9%)	34 (94.4%)	43 (93.5%)	0.845	0.839

Table 3 Quality of life and depression in first-year residents 1 week before residency training

Quality of life*		Result of screening for depression†				Total	
Domain	Level	Depressed (n=10)	%	Non-depressed (n=92)	%	(n=102)	%
Physical	High	1	10.0	66	71.7	67	65.7
	Moderate	8	80.0	25	27.2	33	32.4
	Low	1	10.0	1	1.1	2	2.0
Cognitive	High	0	0.0	40	43.5	40	39.2
	Moderate	9	90.0	48	52.2	57	55.9
	Low	1	10.0	4	4.3	5	4.9
Affective	High	0	0.0	38	41.3	38	37.3
	Moderate	5	50.0	50	54.3	55	53.9
	Low	5	50.0	4	4.3	9	8.8
Social	High	1	10.0	74	80.4	75	73.5
	Moderate	9	90.0	18	19.6	27	26.5
	Low	0	0.0	0	0.0	0	0.0
Economic	High	3	30.0	36	39.1	39	38.2
	Moderate	7	70.0	54	58.7	61	59.8
	Low	0	0.0	2	2.2	2	2.0
Self-esteem	High	3	30.0	61	66.3	64	62.7
	Moderate	7	70.0	31	33.7	38	37.3
	Low	0	0.0	0	0.0	0	0.0
Overall	High	0	0.0	60	65.2	60	58.8
	Moderate	9	90.0	32	34.8	41	40.2
	Low	1	10.0	0	0.0	1	1.0

*Quality of life was assessed by Pictorial Thai Quality of Life Scale.

†Depression was defined as total score of 9 or more on the Thai version of Patient Health Questionnaire.

medicine, birthplace, religion, marital status and underlying medical or physical illnesses, could not be analysed due to the small sample size. Almost all of them had moderate level of overall QoL (n=9; 90%), while only one resident (10%) had low-level QoL (table 3). Depression severity was negatively correlated with proactive coping ($r=-0.303$, $p=0.002$; table 4) and every domain of QoL, that is, physical ($r=-0.479$, $p<0.001$), cognitive ($r=-0.563$, $p<0.001$), affective ($r=-0.645$, $p<0.001$), social ($r=-0.547$, $p<0.001$), economic ($r=-0.215$, $p=0.030$) and self-esteem domain ($r=-0.480$, $p<0.001$).

Quality of life

Among all participants (n=102), only one reported low overall QoL while 99% had moderate (40.2%) or high (58.8%) levels of QoL across all domains (table 3).

Coping style

There was no significant difference between male and female doctors regarding coping styles, except for emotional support seeking which female doctors tended to use more than male doctors ($p=0.005$; table 5). Specific coping styles which were positively correlated with higher QoL scores include proactive coping ($r=0.509$, $p<0.001$), reflective coping ($r=0.266$, $p=0.007$), strategic planning ($r=0.347$, $p<0.001$), preventive coping ($r=0.298$, $p=0.002$) and emotional support seeking ($r=0.252$, $p=0.011$). In contrast, instrumental support seeking ($r=0.091$, $p=0.363$), that is, obtaining information, feedback and advice from other people, and avoidance coping ($r=-0.134$, $p=0.179$) were not correlated with QoL.

Table 4 Correlation coefficient of coping style and depression severity at 1 week before the start of residency training (n=102)

Coping style*	Depression severity† before residency	
	r	P value
Proactive coping	-0.303	0.002‡
Reflective coping	-0.167	0.093
Strategic planning	-0.195	0.050
Preventive coping	-0.178	0.074
Instrumental support seeking	0.069	0.490
Emotional support seeking	-0.130	0.192
Avoidance coping	0.163	0.102

*Coping style was measured by the Thai version of Proactive Coping Inventory.

†Depression severity was measured by total score of the Thai version of Patient Health Questionnaire.

‡Statistical significance at $p<0.05$; Pearson's correlation test.

DISCUSSION

Although most doctors had moderate-to-high QoL, positive screening for depression was present in 9.8% of young doctors before beginning their residency training programme. According to the most recent national survey in 2013, the life-time prevalence of major depressive episode among Thais in Bangkok was 1.2%.¹¹ Therefore, despite the difference of research methodology, depression among doctors in our study seems to be considerably more prevalent compared with the general population, even before the start of the residency programme which studies suggest may contribute to mental health problems.

A prospective cohort study in the first-year residents found that QoL decreased in every domain and mental health problems increased from 5.28% to 14.93% during the first 6 months of residency training.^{12 13} This is consistent with results from a recent 15-year retrospective study in the USA that reported suicide is the second most common cause of death (after cancer) during residency.¹⁴ Hence, designing effective prevention programmes for doctors in residency training is a priority that requires regular assessment and careful monitoring. We focused on the relationship between coping styles and depression. For example, while proactive coping was correlated with lower depression severity and higher QoL, it is not known if this coping style protects against developing depression later in residency training.

While many studies have reported high rates of depression and mental health problems among doctors, few have examined

Table 5 Gender of doctors and coping styles (n=102)

Coping style	Mean Proactive Coping Inventory Score (SD)			P value
	Total (n=102)	Male (n=31)	Female (n=71)	
Proactive coping	41.0 (4.8)	41.2 (5.1)	40.9 (4.7)	0.756
Reflective coping	30.1 (4.2)	30.4 (5.2)	30.0 (3.7)	0.694
Strategic planning	11.3 (2.0)	11.4 (2.4)	11.3 (1.9)	0.944
Preventive coping	29.0 (4.4)	29.4 (5.3)	28.9 (4.0)	0.589
Instrumental support seeking	22.7 (4.1)	22.1 (4.0)	23.0 (4.1)	0.341
Emotional support seeking	15.8 (2.7)	14.7 (2.3)	16.3 (2.7)	0.005*
Avoidance coping	6.1 (1.7)	5.8 (1.6)	6.2 (1.7)	0.334

*Statistical significance at $p<0.05$, independent-sample t-test.

how to prevent these problems.^{15 16} According to a Cochrane review,¹⁷ low-quality evidence supports work-schedule management, cognitive-behavioural therapy, mental and physical relaxation, for example, massage, progressive muscle relaxation and music therapy could reduce stress. Organisational interventions should emphasise stressors that are specific to each organisation.¹⁷ The evidence base for interventions specifically designed for residents is even more limited.¹⁸ A study in residents in Internal Medicine and Paediatrics reported that a 1-day stress management workshop reduced burnout 6 weeks after the workshop but no long-term follow-up was conducted.¹⁹

The results of this study underscore the importance of early assessment and primary or secondary prevention programmes. To our knowledge, this is the first study which demonstrates that young doctors have high rate of depression even before the start of residency training and suggests high prevalence of untreated pre-existing psychiatric disorders of residents since before entering residency training programmes. Promotion of mental health literacy and improved, confidential access to psychiatric services may raise awareness of mental health problems and increase self-referral rates for counselling services.

There are some limitations of this study. First, a single-centre study and small sample size limit the generalisability of the results. Second, cross-sectional study designs are not able to prove any causal relationships between coping style, depression or QoL. Third, the results were based on self-report rating scales and not confirmed by diagnostic interview. Therefore, the results should be interpreted with caution. In addition, a few doctors who participated in this survey and came to see psychiatrists later reported that they intentionally under-report their depressive symptoms in the questionnaire because they would not want to make the overall prevalence of depression in the survey too high, although the survey was anonymous. An in-depth interview in

a qualitative research may provide better understanding of the current situation in young doctors.

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Contributors PP and WR-a designed the study. PP and JW collected the data. PP conducted the statistical analysis and wrote the manuscript. All authors analysed and interpreted the data. All authors critically reviewed and approved the final version of the manuscript.

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Main messages

- ▶ At 1 week prior to the beginning of their residency training, the prevalence of depression in young physicians is already high (9.8%).
- ▶ Mental health promotion policies are essential to help residents effectively cope with the stress and demands of training.
- ▶ Our study supports that mental health promotion programme should be provided to residents earlier in the beginning of their residency training programme.

Current research questions

- ▶ What is the prevalence of pre-existing psychiatric disorders among doctors before the start of residency training?
- ▶ What is the impact of mental health literacy programme on psychiatric services utilisation among residents?
- ▶ Is there the influence of psychiatric services utilisation on residency training outcome?

What is already known on the subject

- ▶ Depression and suicide are common among physicians during their residency training.