Original article

Mental health during COVID-19 pandemic among young medical graduates from Prince of Songkla University in Thailand

Received : 15 January 2021
Revised : 22 July 2021
Accepted : 23 July 2021

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Abstract

Objective: To assess the magnitude of mental health problems and associated factors among young Thai physicians during the COVID-19 pandemic in Thailand.

Methods: An online cross-sectional study was conducted among young Thai physicians from May to June 2020. The questionnaires were composed of personal and demographic inquiries, depression anxiety and stress scales (DASS-21)-Thai version, and concerns about the COVID-19 pandemic. All data were analyzed using descriptive statistics, and associated factors concerning mental health were analyzed using chi-square and logistic regression.

Results: There were 264 respondents, interns (38.6%) and non-interns (61.4%). The mean age was 26.0 ± 1.2 years. The majority of participants were female (61.4%), worked in a non-medical school (62.5%), and worked in the southern area (73.9%). Most participants reported a normal level of depression, anxiety, and stress (74.2%, 79.9%, and 87.9% respectively). More than half of participants worried about insufficiency of healthcare workers and facilities, and quality of protective equipment (62.5%, 61.0%, and 62.9% respectively). Moreover, they felt worried about having a chance of being sick and dying (63.2%) and being a source of spreading (69.7%). None of the factors were statistically significantly associated with mental health.

Conclusion: During the COVID-19 pandemic, most young Thai physicians had normal mental health. However, they identified some worries about insufficiency of healthcare workers and facilities, quality of protective equipment, and the chance of being sick and dying or being a source of spreading.

Keywords: COVID-19, mental health, physician, psychosocial

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Original article

ระดับสุขภาพจิตของแพทย์ไทยจบใหม่ จากมหาวิทยาลัยสงขลานครินทร์ ในช่วงการระบาดของโรคโควิด 19

วันรับ : 15 มกราคม 2564
วันแก้ไข : 22 กรกฎาคม 2564
วันตอบรับ : 23 กรกฎาคม 2564

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บทคัดย่อ

วัตถุประสงค์ : สำรวจระดับสุขภาพจิตและปัจจัยเกี่ยวข้องของแพทย์ไทยจบใหม่ต่อการระบาดของของโรคโควิด 19 ในประเทศไทย

วิธีการ : เป็นการสำรวจภาคตัดขวาง เก็บข้อมูลทางออนไลน์ในช่วงเดือนพฤษภาคมถึงมิถุนายน ปี พ.ศ. 2563 ใช้แบบสอบถามซึ่งประกอบด้วย ข้อมูลส่วนตัว แบบประเมินสุขภาพจิต depression anxiety and stress scales (DASS-21) ฉบับภาษาไทย และคำถามความกังวลต่อสถานการณ์การระบาดของของโรคโควิด 19 วิเคราะห์ข้อมูลทั่วไปด้วยสถิติเชิงพรรณนาและวิเคราะห์ปัจจัยที่สัมพันธ์กับสุขภาพจิตด้วย chi-square และ logistic regression

ผล : กลุ่มตัวอย่าง 264 คน เป็นแพทย์เพิ่มพูนทักษะชั้นปีที่ 1 (ร้อยละ 38.6) และชั้นปีอื่น ๆ (ร้อยละ 61.4) มีอายุเฉลี่ย 26.0 ± 1.2 ปี ส่วนใหญ่เป็นเพศหญิง (ร้อยละ 61.4) ไม่ได้ทำงานในโรงเรียนแพทย์ (ร้อยละ 62.5) และทำงานในภาคใต้ของไทย (ร้อยละ 73.9) มีคะแนนความเศร้า กังวล และความเครียดในระดับปกติ (ร้อยละ 74.2, 79.9 และ 87.9 ตามลำดับ) มีความกังวลเรื่องความไม่เพียงพอของบุคลากร อุปกรณ์ และคุณภาพของอุปกรณ์ทางการแพทย์ (ร้อยละ 62.5, 61.0 และ 62.9 ตามลำดับ) กังวลว่าตนเองจะป่วยหรือตาย (ร้อยละ 62.3) และอาจเป็นส่วนหนึ่งของการแพร่เชื้อ (ร้อยละ 69.7) ไม่พบปัจจัยที่สัมพันธ์กับระดับสุขภาพจิตอย่างมีนัยสำคัญทางสถิติ

สรุป : ในสถานการณ์การระบาดของโรคโควิด 19 แพทย์จบใหม่ส่วนใหญ่มีสุขภาพจิตที่ปกติ พบความกังวลต่อความไม่เพียงพอของจำนวนบุคลากร อุปกรณ์ทางการแพทย์ และคุณภาพของเครื่องมือ รวมทั้งกังวลว่าตนเองจะป่วยและตาย หรือเป็นต้นเหตุในการแพร่เชื้อให้คนอื่น

คำสำคัญ : จิตสังคม แพทย์ โรคโควิด 19 สุขภาพจิต

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Previous knowledge: Chinese healthcare personnel reported mental health problems in dealing with COVID-19 pandemic.

New knowledge: Most young Thai physicians had normal mental health. However, they identified some worries about the insufficiency of healthcare workers and facilities, quality of protective equipment, and having a chance of falling sick and dying, and being a source of spreading.

Applications: The protective healthcare system to support healthcare workers should be emphasized during the time of pandemic in Thailand.

Introduction

The coronavirus disease 2019 (COVID-19) pandemic in China became a global health threat. The widening geographical spread of the disease and an increasing number of cases raised grave concerns about the outbreak's future trajectory.[1] In January 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency of international concern.[2] In Thailand, on the 8th of January 2020, the first COVID-19 case came from Wuhan, Hubei province, China.[3]

In the initial phase of the COVID-19 outbreak in China, the infection spread rapidly. Feelings of extreme vulnerability and uncertainty threatened life with a wide range of psychosocial impacts at the individual, community, and international levels.[4] At an individual level, people were likely to experience fear of falling sick or dying, helplessness,[5] and anxiety.[6] Besides, stigma might certainly be a consequence of mass quarantine.[7,8] In the 'repair' phase, when the infection was brought under control, depression, phobia, and avoidance were evident.[4]

Among healthcare workers in China, the study showed 36.9% of 994 medical and nursing staff had subthreshold mental health disturbances, while 22.4% and 6.2% had moderate and severe disturbances, respectively.[9] Also, the survey study in China among 1,257 medical and nursing staff from a total of 34 hospitals, using validated rating scales to assess anxiety, depression, insomnia, distress, and post-traumatic stress symptoms, found that 42% of respondents who directly cared for COVID-19 patients experienced high rates of distress (71.5%), depression (50.4%), anxiety (44.6%), and insomnia (34%). In addition, nurses, women, and frontline healthcare workers who directly engaged in diagnosing, treating, and caring for COVID-19 patients reported experiencing psychological burdens.[10]

In dealing with the COVID-19 pandemic, healthcare staff is at increased risk of moral injury and mental health problems because of the unprecedented nature of the challenges and feeling unprepared. These findings emphasize the importance of preparedness to support frontline workers through mental health interventions during the widespread crisis.[11] Besides, protection of staff wellbeing should be proactive, and staff must be monitored, supported, and provided with evidence-based treatments and adequate protective equipment when faced with critically ill patients.[12]

In Thailand, physicians are the practitioners who directly care for COVID-19 patients, along with interns and residents. Enlightenment of knowledge and attitudes towards COVID-19 will help attending physicians decrease panic emotions.[13] In addition,

practitioners should be protected by adequate caution and sufficient supplies of protective equipment.[14] The author observed situations where interns were often on duty at the frontlines, although no preceding research has compared mental health problems among interns and other physicians. However, COVID-19 is a new emerging and rapidly evolving situation, so research assessing the magnitude of mental health, psychosocial problems, and associated factors according to COVID-19 pandemic among Thai physicians will provide beneficial and useful information for establishing protective systems for healthcare workers in preparation for any future pandemic.

The objective of this study is to assess the magnitude of mental health and associated factors among young Thai physicians during the COVID-19 pandemic in Thailand.

Methods

From May to June; 2020, this cross-sectional study explored young Thai physicians who graduated from the Prince of Songkla university, in the south of Thailand. A young physician refers to a physician who graduated between one and four years ago, while an intern refers to a young physician who graduated one year ago and a non-intern refers to a young physician who graduated between two and four years ago. The inclusion criteria were young Thai physicians who graduated from the faculty of medicine, Prince of Songkla university from 2015 to 2018, who was in the Line group, and willing to answer the questionnaires.

This study was approved by the ethics committee of the faculty of medicine, Prince of Songkla university (REC: 63-172-3-4).

The sample size was calculated based on a previous study reporting the rates of depression (50%), anxiety (45%), and distress (72%)[12], yielding the sample size of 384, 381, and 310 respectively. However, because of the finite population size of 758 physicians within the Line group (N), the sample size of at least 255 was given for our study, using the finite population correction factor equation for the proportion. The participants' information was collected online from the physician's Line group. Participants were invited to the study by clicking the link or scanning QR codes through social media advertisement. Adhering to the policy of strict confidentiality, the participants' signatures were not required, and all of the participants retained the right to withdraw from the research at any time without giving any reason. Data were stored in secure places, and only researchers could access all information by a password.

Questionnaire modification was assisted by five psychiatrists before the content validity was assessed. The questionnaire was transformed from paper to an online version through Google Forms. The online questionnaires were composed of three parts: *1) Personal and demographic inquiries* consisting of gender, age, marital status, religion, home province, workplace type (medical school, hospital center, and community hospital), income, and physical and psychiatric illnesses. 2) *The Depression anxiety and stress scales (DASS-21)-Thai version* consisting of 21 questions, with Cronbach's alpha coefficients of depression, anxiety, and stress domains of 0.82, 0.78, and 0.69 respectively. Each question has a score range of 0 - 3. Interpretation of depression, anxiety, and stress was based on scores above 4, 3, and 7 respectively.[15]

3) The COVID-19 questionnaire by the Department of Mental Health of Thailand consisting of 15 questions in three domains; sufficiency of healthcare workers and facilities, individual value and knowledge, and consequences of COVID-19. Each item has a rating scale ranging from "0" (no), "1 - 2" (sometimes) to "3" (very often).[16]

All data were analyzed using the descriptive statistics. The results were presented as average, percentage, frequency, and standard deviation. Factors associated with mental health were analyzed using chi-square and logistic regression.

Results

Two hundred sixty-four physicians completed the online questionnaire, 102 interns (38.6%) and 162 non-interns (61.4%). The demographic data of the participants are shown in Table 1. Most participants were on duty at the frontlines towards COVID-19 screening.

Mental health

Using the DASS-21-Thai version, most participants had a normal level of depression, anxiety, and stress (74.2%, 79.9 %, and 87.9% respectively). Only 5 - 10 participants had severe or extremely severe levels of depression, anxiety, and stress (3.8%, 2.2%, and 1.9%, respectively). In addition, there was no statistically significant difference in mental health towards COVID-19 between interns and non-interns.

The psychosocial problems and consequences of COVID-19

According to the first domains of the COVID-19 questionnaire by the Department of Mental Health of Thailand; sufficiency of healthcare workers and facilities, the study identified that more than a half of all participants felt concerned or worried about the insufficiency of healthcare workers and facilities, including inpatient and intensive care units, and quality of protective equipment (62.5%, 61.0%, 55.7%, and 62.9% respectively).

In the second domain, individual value and knowledge, the study identified that more than half of all participants did not feel worried about their capacity to gather health information promptly in time (53.8%). Still, some participants felt worried about having inadequate knowledge of COVID-19 (64.4%).

In the last domain, the consequences of COVID-19, the study identified that a quarter of participants experienced low self-esteem or inadequacy (25.8%). More than a half of them felt worried about being infected and having a chance of falling sick and dying (63.2%), having asymptomatic infection and becoming a source of spreading (69.7%), and providing delayed or inadequate management for COVID-19 patients (54.2%), In addition, they felt worried that close friends might have a chance of falling sick and dying (59.8%), and that the COVID-19 pandemic situation in Thailand might be uncontrollable (66.3%). Moreover, one-third of all participants had sleep problems (31.8%) and were concerned about lack of income (34.9%). However, there was no statistically significant difference in psychosocial issues and consequences of COVID-19 between interns and non-interns.

The association between demographic characteristics and mental health

Due to variables concerning psychosocial problems and consequences being correlated amongst themselves, we only explored the crude

Table 1 Demographic characteristics categorized by group

Demographic characteristics	total (n = 264)	number (%)		X^2 p-value
		interns (n = 102)	non-interns (n = 162)	
Gender				.45
Male	102 (38.6)	36 (35.3)	66 (40.7)	
Female	162 (61.4)	66 (64.7)	96 (59.3)	
Religion				1
Buddhism	250 (94.7)	97 (95.1)	153 (94.4)	
Others (Islam, Christ, others)	14 (5.3)	5 (4.9)	9 (5.6)	
Home province				.012
South	230 (87.1)	96 (94.1)	134 (82.7)	
Others	34 (12.9)	6 (5.9)	28 (17.3)	
Marital status				.014[a]
Single	255 (96.6)	102 (100.0)	153 (94.4)	
Married/others	9 (3.4)	0 (0.0)	9 (5.6)	
Parents status				.611
Couple	220 (83.3)	87 (85.3)	133 (82.1)	
Others (divorce, separate, passed away)	44 (16.7)	15 (14.7)	29 (17.9)	
Type of workplace				< .001
Medical school	99 (37.5)	25 (24.5)	74 (45.7)	
Hospital center	87 (33.0)	61 (59.8)	26 (16.0)	
Community hospital	69 (26.1)	15 (14.7)	54 (33.3)	
Other	9 (3.4)	1 (1.0)	8 (4.9)	
Area of workplace				
South	195 (73.9)	81 (79.4)	114 (70.4)	
Other	69 (26.1)	21 (20.6)	48 (29.6)	
Monthly income				< .001
15,000 - 30,000	43 (16.3)	8 (8.0)	35 (22.2)	
30,001 - 60,000	117 (44.3)	45 (45.0)	72 (45.6)	
60,001 - 100,000	86 (32.6)	47 (47.0)	39 (24.7)	
> 100,000	12 (4.5)	0 (0.0)	12 (7.6)	
Not answer	6 (2.3)			
Physical illness				.671
Yes	30 (11.4)	10 (9.9)	20 (12.4)	
No	232 (87.9)	91 (90.1)	141 (87.6)	
Not answer	2 (0.8)			
Psychiatric illness				.74[a]
Yes	9 (3.4)	4 (3.9)	5 (3.1)	
No	252 (95.5)	98 (96.1)	154 (96.9)	
Not answer	3 (1.1)			

[a] Fisher's exact test

association between psychosocial problems and mental health consequences. The results show that the participants who had mild to extreme depression had a higher proportion of some domains of psychosocial problems and consequences of COVID-19, such as having inadequate knowledge, than the participants who had no depression. (p = .025). The participants who had mild to extreme anxiety and stress had a higher proportion of all domains of psychosocial problems and consequences of COVID-19, including sufficiency of workers and facilities, individual value, and knowledge, than the participants who had no anxiety and stress (Table 2, 3).

To examine the association between demographic characteristics and mental health (depression, anxiety, stress), variables whose p-values from the univariate analysis were lower than 0.2 were included in the initial model for multivariate analysis (Table 4). There were no remaining variables that were significantly associated with mental health in the multivariate analysis, although the study identified that higher income might relate to less anxiety (OR = 0.40, 95% CI = 0.16 - 0.96).

Discussion

Regarding the COVID-19 pandemic, this study shows that most of young Thai physicians had normal mental health. However, they had some worries about the insufficiency of healthcare workers and facilities, quality of protective equipment, having the chance of falling sick and dying or becoming a source of spreading. According to this study, the prevalence of mental health problems among young Thai physicians was low. The majority of participants had a normal level of depression, anxiety, and stress (74.2%, 79.9 %, 87.9%, respectively). Only 5 - 10 participants had severe or extremely severe levels of depression, anxiety, and stress (3.8%, 2.2%, 1.9%, respectively). This rate was lower than the findings among physicians in other countries.[9,10] The reasons might be due to difference in study instruments or mental health baseline among the participants. The previous study using patient health questionnaire-9 found that 26.5% of residents had depression during normal time.[17] Therefore, it might be that persons choosing to be physicians and being able to graduate from medical school should have a good mental fitness,[18,19] and use adaptive or mature coping mechanisms.[20,21]

According to this study, more than half of the participants reported feeling worried about insufficiency of healthcare workers and facilities including inpatient and intensive care units, and quality of protective equipment. These findings were similar to a study from Houston Methodist hospital that identified the lack of established policies for pandemic triage, equipment ordering, and emergency management as the sources of system-wide inefficiencies and increased healthcare workers' burden.[22]

Moreover, one-third of the participants (31.8%) had a sleep problem. This result was similar to a study from King's College London that found that 37.9% of healthcare workers had insomnia when confronted with COVID-19 pandemic infection.[23] Therefore, sleep hygiene and proper work schedule should be promoted in the time of pandemic.

Regarding other outcomes, the physicians felt worried about having a chance of falling sick and dying (63.2%) and being a resource of spreading

Table 2 Psychosocial problems related to the COVID-19 pandemic

Type of worry	Depression; number (%)		x^2 p-value	Anxiety; number (%)		x^2 p-value	Stress; number (%)		x^2 p-value
	normal (n = 196)	mild to extreme (n = 68)		normal (n = 211)	mild to extreme (n = 53)		normal (n = 196)	mild to extreme (n = 68)	
Sufficiency of worker and facilities									
Insufficiency of healthcare workers			.680			< .001			.009
No	75 (38.3)	24 (35.3)		85 (40.3)	14 (26.4)		93 (40.1)	6 (18.8)	
Sometimes	108 (55.1)	41 (60.3)		119 (56.4)	30 (56.6)		128 (55.2)	21 (65.6)	
Very often	13 (6.6)	3 (4.4)		7 (3.3)	9 (17.0)		11 (4.7)	5 (15.6)	
Insufficiency of equipment			.163			.012			.036
No	81 (41.3)	22 (32.4)		91 (43.1)	12 (22.6)		97 (41.8)	6 (18.8)	
Sometimes	106 (54.1)	45 (66.2)		114 (54.0)	37 (69.8)		126 (54.3)	25 (78.1)	
Very often	9 (4.6)	1 (1.5)		6 (2.8)	4 (7.5)		9 (3.9)	1 (3.1)	
Insufficiency of care unit			.545			< .001			.057
No	83 (42.3)	34 (50.0)		93 (44.1)	24 (45.3)		106 (45.7)	11 (34.4)	
Sometimes	107 (54.6)	32 (47.1)		116 (55.0)	23 (43.4)		121 (52.2)	18 (56.2)	
Very often	6 (3.1)	2 (2.9)		2 (0.9)	6 (11.3)		5 (2.2)	3 (9.4)	
Quality of protective equipment			.554[a]			.156[a]			.002[a]
No	72 (36.7)	26 (38.2)		83 (39.3)	15 (28.3)		92 (39.7)	6 (18.8)	
Sometimes	119 (60.7)	42 (61.8)		125 (59.2)	36 (67.9)		138 (59.5)	23 (71.9)	
Very often	5 (2.6)	0 (0.0)		3 (1.4)	2 (3.8)		2 (0.9)	3 (9.4)	
Individual value and knowledge									
Having inadequate knowledge			.025			< .001			< .001
No	79 (40.3)	15 (22.1)		89 (42.2)	5 (9.4)		92 (39.7)	2 (6.2)	
Sometimes	111 (56.6)	50 (73.5)		117 (55.5)	44 (83.0)		135 (58.2)	26 (81.2)	
Very often	6 (3.1)	3 (4.4)		5 (2.4)	4 (7.5)		5 (2.2)	4 (12.5)	
Lack of capacity for gathering healthcare information			.067[a]			< .001[a]			.001[a]
No	113 (57.7)	29 (42.6)		127 (60.2)	15 (28.3)		134 (57.8)	8 (25.0)	
Sometimes	81 (41.3)	38 (55.9)		82 (38.9)	37 (69.8)		96 (41.4)	23 (71.9)	
Very often	2 (1.0)	1 (1.5)		2 (0.9)	1 (1.9)		2 (0.9)	1 (3.1)	

[a] Fisher's exact test

Table 3 Psychosocial consequences of the COVID-19 pandemic

Type of worry	Depression; number (%)		χ^2 p-value	Anxiety; number (%)		χ^2 p-value	Stress; number (%)		χ^2 p-value
	normal (n = 196)	mild to extreme (n = 68)		normal (n = 211)	mild to extreme (n = 53)		normal (n = 196)	mild to extreme (n = 68)	
Perceiving low self-esteem or feeling of inadequacy			< .001			< .001			< .001
No	164 (83.7)	32 (47.1)		171 (81.0)	25 (47.2)		185 (79.7)	11 (34.4)	
Sometimes	32 (16.3)	36 (52.9)		40 (19.0)	28 (52.8)		47 (20.3)	21 (65.6)	
Very often	0	0		0	0		0	0	
Having chance of falling sick and dying			.371[a]			.042[a]			.177[a]
No	75 (38.3)	22 (32.4)		84 (39.8)	13 (24.5)		89 (38.4)	8 (25.0)	
Sometimes	117 (59.7)	46 (67.6)		125 (59.2)	38 (71.7)		140 (60.3)	23 (71.9)	
Very often	4 (2.0)	0 (0)		2 (0.9)	2 (3.8)		3 (1.3)	1 (3.1)	
Having chance of being asymptomatic source of spreading			.694			.272			.146
No	59 (30.1)	21 (30.9)		67 (31.8)	13 (24.5)		75 (32.3)	5 (15.6)	
Sometimes	130 (66.3)	43 (63.2)		137 (64.9)	36 (67.9)		148 (63.8)	25 (78.1)	
Very often	7 (3.6)	4 (5.9)		7 (3.3)	4 (7.5)		9 (3.9)	2 (6.2)	
Providing inadequate management for the patients			.001[a]			< .001[a]			< .001[a]
No	102 (52.0)	19 (27.9)		109 (51.7)	12 (22.6)		118 (50.9)	3 (9.4)	
Sometimes	91 (46.4)	48 (70.6)		99 (46.9)	40 (75.5)		111 (47.8)	28 (87.5)	
Very often	3 (1.5)	1 (1.5)		3 (1.4)	1 (1.9)		3 (1.3)	1 (3.1)	
Providing inadequate management for the relatives			.012			.001			< .001
No	58 (29.6)	12 (17.6)		63 (29.9)	7 (13.2)		67 (28.9)	3 (9.4)	
Sometimes	121 (61.7)	42 (61.8)		130 (61.6)	33 (62.3)		144 (62.1)	19 (59.4)	
Very often	17 (8.7)	14 (20.6)		18 (8.5)	13 (24.5)		21 (9.1)	10 (31.2)	
Close friends having chance of falling sick and dying			.472[a]			.099[a]			.458[a]
No	80 (40.8)	26 (38.2)		91 (43.1)	15 (28.3)		96 (41.4)	10 (31.2)	
Sometimes	114 (58.2)	40 (58.8)		117 (55.5)	37 (69.8)		132 (56.9)	22 (68.8)	
Very often	2 (1.0)	2 (2.9)		3 (1.4)	1 (1.9)		4 (1.7)	0 (0.0)	
Having sleep problem			< .001[a]			< .001[a]			< .001[a]
No	146 (74.5)	34 (50.0)		157 (74.4)	23 (43.4)		169 (72.8)	11 (34.4)	
Sometimes	49 (25.0)	33 (48.5)		54 (25.6)	28 (52.8)		63 (27.2)	19 (59.4)	
Very often	1 (0.5)	1 (1.5)		0 (0.0)	2 (3.8)		0 (0)	2 (6.2)	

[a] Fisher's exact test

Table 3 Psychosocial consequences of the COVID-19 pandemic (continued)

Type of worry	Depression; number (%)		x^2 p-value	Anxiety; number (%)		x^2 p-value	Stress; number (%)		x^2 p-value
	normal (n = 196)	mild to extreme (n = 68)		normal (n = 211)	mild to extreme (n = 53)		normal (n = 196)	mild to extreme (n = 68)	
Lack of income			.266			< .001			.002
No	132 (67.3)	40 (58.8)		150 (71.1)	22 (41.5)		159 (68.5)	13 (40.6)	
Sometime	58 (29.6)	27 (39.7)		56 (26.5)	29 (54.7)		66 (28.4)	19 (59.4)	
Very often	6 (3.1)	1 (1.5)		5 (2.4)	2 (3.8)		7 (3.0)	0 (0.0)	
Uncontrollable situation of the COVID-19 pandemic			.394			.106			< .001
No	68 (34.7)	21 (30.9)		75 (35.5)	14 (26.4)		85 (36.6)	4 (12.5)	
Sometimes	123 (62.8)	43 (63.2)		131 (62.1)	35 (66.0)		142 (61.2)	24 (75.0)	
Very often	5 (2.6)	4 (5.9)		5 (2.4)	4 (7.5)		5 (2.2)	4 (12.5)	

[a] Fisher's exact test

Table 4 Crude association between demographic characteristics and mental health

Demographic characteristics	Depression; number (%)		x^2 p-value	Anxiety; number (%)		x^2 p-value	Stress; number (%)		x^2 p-value
	normal (n = 196)	mild to extreme (n = 68)		normal (n = 211)	mild to extreme (n = 53)		normal (n = 232)	mild to extreme (n = 32)	
Gender			.222			.747			.66
Male	71 (36.2)	31 (45.6)		80 (37.9)	22 (41.5)		88 (37.9)	14 (43.8)	
Female	125 (63.8)	37 (54.4)		131 (62.1)	31 (58.5)		144 (62.1)	18 (56.2)	
Home province			.343			.286			.778[a]
South	168 (85.7)	62 (91.2)		181 (85.8)	49 (92.5)		201 (86.6)	29 (90.6)	
Others	28 (14.3)	6 (8.8)		30 (14.2)	4 (7.5)		31 (13.4)	3 (9.4)	
Marital status			.699[a]			.018[a]			1[a]
Single	190 (96.9)	65 (95.6)		207 (98.1)	48 (90.6)		224 (96.6)	31 (96.9)	
Married/others	6 (3.1)	3 (4.4)		4 (1.9)	5 (9.4)		8 (3.4)	1 (3.1)	
Type of workplace			.146			.142			.33
Medical school	68 (34.7)	31 (45.6)		74 (35.1)	25 (47.2)		84 (36.2)	15 (46.9)	
Non-medical school	128 (65.3)	37 (54.4)		137 (64.9)	28 (52.8)		148 (63.8)	17 (53.1)	
Incomec			.046			.066			.164
15,000 - 30,000	29 (15.2)	14 (20.9)		31 (15.1)	12 (22.6)		37 (16.3)	6 (19.4)	
30,001 - 60,000	81 (42.4)	36 (53.7)		89 (43.4)	28 (52.8)		99 (43.6)	18 (58.1)	
> 60,000	81 (42.4)	17 (25.4)		85 (41.5)	13 (24.5)		91 (40.1)	7 (22.6)	
Physical illnessc			.334			1			1[a]
Yes	25 (12.8)	5 (7.5)		24 (11.5)	6 (11.3)		27 (11.7)	3 (9.4)	
No	170 (87.2)	62 (92.5)		185 (88.5)	47 (88.7)		203 (88.3)	29 (90.6)	
Psychiatric illnessc			.051[a]			.38[a]			.078[a]
Yes	4 (2.1)	5 (7.5)		6 (2.8)	3 (6.0)		6 (2.6)	3 (9.7)	
No	190 (97.9)	62 (92.5)		205 (97.2)	47 (94.)		224 (97.4)	28 (90.3)	

[a] Fisher's exact test; [c] There are missing value

COVID-19 to others (69.7%). These results might be due to social stigmatization and rejection,[24] and the baseline cultural attitude of Thai people that they often have feelings of guilt when they cause a worsening pandemic situation.

Finally, in our opinion, the rate of COVID-19 infection in Thailand is relatively low due to successful management for controlling pandemic, although there is an increasing number, mostly among immigrants. Therefore, estimating mental health's effect of the pandemic might be difficult and not reflect its actual impact on mental health. Health workers' views might be mostly based on their imagination about problems and not based on managing COVID-19 patients by themselves. However, referring to this excellent management provides a good capacity and distributes health knowledge, health promotion, and prevention towards COVID-19 for the Thai population. Therefore, all Thai people, including physicians, can perceive correct, current health information in real-time and cooperate very well. Moreover, Thai physicians received full support from the Thai government, so the burden and feeling of burnout in caring for COVID-19 patients are very low,[25] in congruence with the WHO report on the situation in Thailand.[26]

This study had strengths and limitations. To our knowledge, it is the first study that explored mental health, psychosocial problems, and consequences of COVID-19 among young Thai physicians. However, it was a cross-sectional survey and employed the online self-report questionnaires for individual evaluation. Due to the social distancing policy, we could not perform face-to-face interviews, so the information gained might have led to bias. In addition, the study was quantitative, and the sample size was restricted to only young physicians who graduated from the faculty of medicine, Prince of Songkla university. Therefore, the findings might not be generalizable to all Thai physicians nationwide. Regarding the low response rate of online questionnaires, the reason might be that physicians were not available to participate during the pandemic situations.

Furthermore, the study was conducted during the near 'repair' or 'resolution' phase of the COVID-19 pandemic in Thailand, despite a remaining global outbreak and a second wave of the pandemic in Thailand, it might lead to a recall bias. Lastly, this study might not cover all matters related to the physician's stress during all phases, particularly the initial or the panic phase of the earlier COVID-19 pandemic.

Conclusion

During the COVID-19 pandemic, most young Thai physicians had normal mental health. More than half of them reported worries about insufficiency of healthcare workers and facilities, quality of protective equipment, having a chance of falling sick and dying, and being a source of spreading. As a result, the protective healthcare system to support healthcare workers should be emphasized.

Acknowledgments

The faculty of medicine, Prince of Songkla university, Thailand, supported this study. The authors are very appreciative of the data analysis provided by Ms. Kruewan Jongborwanwiwat and Mrs. Nisan Werachattawan.

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