Impact of COVID-19 on Mental Health of Palliative Care Professionals and Services: A Mixed-Methods Survey Study

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Abstract

Introduction: This study aimed to examine the mental health of palliative care professionals in Hong Kong during the COVID-19 pandemic, the relationship of mental health with socio-demographic factors, and the impact of the pandemic on palliative care services. **Methods:** A total of 142 palliative care professionals in Hong Kong participated in an online survey. The questionnaire includes measurements on depression, anxiety, perceived stress, post-traumatic stress, professional quality of life, items that measure the effect of COVID-19 on palliative care services, and one open-ended question for describing how the services were affected. Descriptive and multivariate regression analyses were conducted. Quantitative and qualitative data about the impact of COVID-19 on palliative care services were analyzed and triangulated using a mixed-methods approach. **Results:** Up to 82%, 43%, and 42% of the participants felt moderately to highly stressed, anxious, and depressed, respectively, during the pandemic. Younger participants tended to have poorer mental health and professional quality of life. Around 82% felt stressed when communicating with patients and family members under the no-visiting policy during the pandemic. More than three-quarters of participants showed lack of confidence in the anti-epidemic policy of the government. Qualitative findings identified 3 themes affecting the provision of palliative care: 1. the tightening of restrictions on visitors; 2. the limited provision of services; and 3. staff deployment. **Conclusions:** Appropriate responses are required to give extra support to palliative care professionals during the pandemic and facilitate their coping with the impact of COVID-19 on the provision of palliative care.

Keywords

palliative care, professionals, mental health, depression, anxiety, stress, COVID-19, pandemic

Introduction

The novel coronavirus, COVID-19, has caused a pandemic. There have been more than 204 million confirmed cases worldwide.[1] In Hong Kong (HK), by August 11, 2021, more than 12 000 confirmed cases and 212 deaths were reported.[2] The outbreak of COVID-19 has caused substantial pressure on healthcare workers.[3] Globally, 23% of healthcare workers have experienced symptoms of depression and anxiety during COVID-19.[4] A more adverse psychological impact was found among healthcare workers in East Asia. One study found around 72% of healthcare workers in China experienced an extremely high rate of distress, and 50% exhibited symptoms of depression and anxiety.[5] Despite evidence of the detrimental psychological impact on healthcare workers, few studies have examined the mental health of palliative care professionals (PCP). During COVID-19, resource support to PC teams has been largely reduced. Many PCP were asked to work in the COVID-19

team and had duties they were not familiar with.[6] PCP also reported having more emotionally and ethically challenging communication with patients and their caregivers because of service rearrangement. Overall, the impact of COVID-19 on the mental health of PCP and the service provision of PC appears to be unique and profound, highlighting the need to investigate.

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This study aimed to address the above research gap by 1. examining the mental health of PCP during the pandemic and the relationship of mental health with socio-demographic factors and 2. exploring the impact of the pandemic on PC services as perceived by PCP. The findings may highlight the way PCP and PC services in HK were affected during the pandemic and shed light on measures to ensure the quality of PC provision.

Methods

Study Design

A mixed-methods survey was conducted. Participants were PCP of public hospitals in HK, recruited from the networks of the research team by snowball sampling.[7] Ethical approval was obtained from the research ethics committee of the first author's affiliated university (Reference No. SBRE-19-529). Participants were invited via email to complete an online self-reported questionnaire from April 3, 2020 to May 31, 2020. No incentives were offered.

To examine the mental health of PCP during COVID-19 and associated socio-demographic factors, a battery of mental health measurements were included: the Patient Health Questionnaire-9 (PHQ-9), the Generalized Anxiety Disorder-7 (GAD-7), the Perceived Stress scale (PSS), the Impact of Event Scale-revised (IES-R), the Professional Quality of Life (Pro-QOL) scale, and demographic questions. All scales were found valid and reliable. The details are summarized in Table 1.

The effects of COVID-19 on PC service were examined quantitatively by 14 questions. These questions were designed by the research team after reviewing relevant literature and discussing with frontline PCPs. The questions depicted common scenarios that PCP would face during the pandemic. Three aspects of questions were interruption to everyday PC services (5 questions), fear of infection and infection control (IC) support (6 questions), and overall support from government and hospital (3 questions). Participants were asked to rate their level of agreement with each statement on a 4-point Likert scale (from strongly disagree to strongly agree). Another research question focused on how PCP perceived the PC

Table 1. Summary of Outcome Measurements.

Outcome measurements	Details
The Patient Health Questionnaire-9 (PHQ-9)	PHQ-9 is a 9-item scale measuring depression level. Participants were asked about their symptoms of depression since the outbreak of COVID-19. The options for each response were presented on a 4-point Likert scale (from not at all to nearly every day). The total score ranges from 0 to 27, a higher score indicating a higher depression level. The Chinese version of PHQ-9 demonstrated good validity and reliability among the HK general population.[21] Cronbach's alpha is .87, demonstrating good reliability in our samples
The Generalized Anxiety Disorder-7 (GAD-7)	GAD-7 is a 7-item scale used to measure anxiety level. For each item, participants were asked how often they were bothered by each anxiety symptoms since the outbreak of COVID-19. The options were recorded on a 4-point scale (from not at all to nearly every day). The total score ranges from 0 to 21, a higher score indicating a higher anxiety level. GAD-7 demonstrated good validity and reliability in the Chinese general population.[22] Cronbach's alpha is .92, demonstrating excellent reliability
The Perceived Stress Scale (PSS)	PSS assessed participants' perception of stress level since the outbreak of COVID-19.[23] The scale consists of 10 items, in which participants were asked how they have felt since the COVID-19 pandemic. The total score ranges from 0 to 40, a higher score indicating higher distress. PSS exhibited good validity and reliability among Chinese service workers.[24] Cronbach's alpha is .75, demonstrating acceptable reliability
The Impact of Event Scale-Revised (IES-R)	CIES-R is a 22-item scale assessing a participant's post-traumatic stress. All items correspond directly to the DSM-IV symptoms of post-traumatic stress disorder. For each item, participants were asked to indicate how much they were bothered by the COVID-19 pandemic, according to a 5-point Likert scale (from not at all to extremely). IES-R generates a total score from 0 to 88, a higher score indicating a higher level of psychological distress. The scale exhibited satisfactory validity and reliability in the Chinese population.[25] Cronbach's alpha is .92, indicating excellent reliability
The Professional Quality of Life (ProQOL) scale	ProQOL assessed both the compassion satisfaction and compassion fatigue of helping professionals. The scale consists of 30 items. Participants were asked about their feelings at work during the pandemic, using a 5-point Likert scale (from never to very often). The scale creates 3 subscale scores: Compassion Satisfaction Subscale (CS), Burnout Scale (BO) and Secondary Traumatic Stress Scale (STS). A higher CS score suggests greater compassion satisfaction. A higher BO score and STS score indicates a greater risk of burnout and secondary traumatic stress. Each subscale total score ranges from 10 to 50. The traditional Chinese version of ProQOL demonstrated satisfactory reliability and validity in a previous study in HK.[26] Cronbach's alphas for CS, BO and STS are .88, .78, and .73, respectively, indicating acceptable to excellent reliability
Demographic information	Items included age, gender, marital status, type of profession, educational level, years of experience in PC services, and whether the participant has direct involvement in caring for COVID-19 patients

service was being influenced by COVID-19, explored qualitatively by an open-ended question. Participants were first asked whether they think COVID-19 influenced the provision of PC service. Those who responded yes were asked to provide details to describe how the service was influenced. Their answers became the qualitative data of this study.

Analysis

Data analyses of quantitative data were performed by SPSS. The mental health profile was presented according to severity of symptoms, using count and percentages. To analyze how socio-demographic factors were associated with mental health outcomes, multivariate regression analyses were undertaken. Initially, all 6 potential demographic variables were entered into the model. Through backward elimination, a final risk prediction model for each mental health outcome was created.

For the 14 quantitative questions related to the impact of COVID-19 on PC services, counts and percentages for each question were presented. For qualitative data, the responses to the open-ended question were extracted by 1 author (DK) and analyzed with thematic analyses. DK read all the texts, generated initial codes, and developed potential themes.[8] The codes and themes were then further reviewed, discussed, clarified, and refined with the first author. The final version of themes was confirmed with all the authors. The quantitative and qualitative data were triangulated.

Results

Participants

A total of 142 PCP participated in the survey. Sample characteristics are summarized in Table 2. Most are female (n = , 83%) with a mean age of 44 years (SD: 10.06). Around 64% were married (n = 91), and only 38% have a religion (n = 54).

Nurses constitute the largest proportion in the samples (n=56, 39%). On average, the participants have been working in the PC setting for 9 years (SD = 8.17). Only 9% (n = 12) reported that they had worked in the high-risk areas serving COVID-19 patients during the pandemic.

Mental Health Outcomes and Associated Socio-Demographic Factors

Our results suggest that 86% PCP (n = 110) felt moderately and highly stressed during the pandemic; 43%, 42%, and 60% of PCP reported at least mild depression, mild anxiety symptoms, and mild post-traumatic stress symptoms, respectively (Table 3). Despite this, 99% had average and above average levels of compassion satisfaction from their work, and none showed high levels of burnout or secondary traumatic stress.

The result of regression (Table 4) showed that a younger age was associated with depression during COVID-19 (Beta:

Table 2. Demographics and Characteristics of the Respondents (N = 142).

	Mean	SD
Age	43.64	10.06
Years in the profession	17.34	9.85
Years of PC service	8.97	8.17
	n	**(%)**
Gender		
Male	24	(16.9)
Female	118	(83.1)
Education level		
Non-degree holder	7	(4.9)
Degree holder	55	(38.7)
Master's degree or higher	82	(57.7)
Profession		
Physician	24	(16.9)
Nurse	56	(39.4)
Medical social worker	24	(16.9)
Physiotherapist/speech therapist/occupational therapist/dietitian	16	(11.3)
Spiritual care provider	14	(9.9)
Clinical psychologist	8	(5.6)
Religion		
Have a religion	54	(38)
No religion	88	(62)
Marital status		
Single	46	(32.4)
Married	91	(64.1)
Divorced or other	5	(3.5)
Children		
No	87	(61.3)
Yes	55	(38.7)
Professional status during SARS		
Worked in non-medical field	13	(9.2)
Worked in healthcare profession	78	(54.9)
Student in healthcare field	16	(11.3)
Primary or secondary school student	35	(24.6)
Worked in high-risk area		
Yes	12	(8.5)
No	130	(91.5)

−.33, P < .001) Participants who are younger (Beta: −.25, P = .05) and do not have a religion (Beta = .14, P = .97) were also associated with more anxiety. There was no statistically significant association between any of the demographic variables with stress and post-traumatic stress symptoms (P >.05). For PROQOL, being younger (Beta: −.30, P < .001), female (Beta: .20, P = .03), and without a religion (Beta: .18, P = .04) were associated with a higher level of secondary traumatic stress. Being younger was also found associated with a higher level of burnout (Beta: −.35, P < .001). There was no statistically significant association between any of the demographic variables with compassion satisfaction (P > .05).

Table 3. Mental Health of Palliative Care Professionals.

	N	(%)
Depression; PHQ-9 (n = 134)		
Normal	76	(56.70)
Mild	44	(32.80)
Moderate	11	(8.20)
Severe	3	(2.20)
Anxiety; GAD-7 (n = 134)		
Normal	78	(58.20)
Mild	48	(35.80)
Moderate	4	(3.00)
Severe	4	(3.00)
Perceived distress; PSS (n = 129)		
Low	18	(14.00)
Moderate	98	(76.00)
High	13	(10.10)
Post-traumatic stress; IES-Revised (n = 125)		
Normal	50	(40.00)
Mild PTSD	40	(32.00)
Moderate PTSD	15	(12.00)
Severe PTSD	20	(16.00)
Professional quality of life; PROQoL (n = 118)		
Compassion satisfaction subscale (CS)		
Low	1	(.80)
Average	93	(78.80)
High	24	(20.30)
Secondary traumatic stress subscale (STS)		
Low	45	(38.10)
Average	73	(61.90)
High	0	(.00)
Burnout subscale (BO)		
Low	45	(38.10)
Average	73	(61.90)
High	0	(.00)

PHQ-9: Patient Health Questionnaire-9; The severity categorization was based on cut-off points suggested by Yu et al.[21] The mean of PHQ-9 is 4.42 (SD: 4.14).
GAD-7: Generalized anxiety disorder-7. The severity categorization was based on cut-off points suggested by Alharthy et al.[27] The mean of GAD-7 is 4.08 (SD: 3.86).
PSS: Perceived stress scale. The mean score of perceived stress is 19.63 (SD: 5.28).
IES-Revised: The impact of event scale. The severity categorization was based on cut-off points of. 5 The mean total score of IES-R of our sample is 25.74 (SD: 11.35). The subscale scores of intrusion, avoidance, and hyperarousal are 1.34 (SD: .58), 1.03 (SD: .61) and 1.11 (SD: .51) respectively. The cut-off point for all the subscale scores is 2.
ProQOL: Professional Quality of life. The severity categorization was based on.[25] The mean scores of CS, ST, and BO in our sample are 36.84 (SD: 4.98), 23.64 (SD: 4.36), and 23.58 (SD: 4.57), respectively.

Impact of Pandemic on PC Services

Survey Findings. Ninety percent of participants agreed that PC services had been affected by the pandemic. Table 5 shows the details. For "interruption to PC services," 82% (n = 102) reported feeling stressed when communicating with patients and family about the visitor policy, 78% (n = 98) agreed that

the negative social atmosphere had influenced service quality, and 50% (n = 63) agreed their workload had increased. Around 33% to 43% reported that wearing a face mask and limiting physical contact had affected the service quality.

For "fear of infection and infection control support," around 64% (n = 80) reported they feared being infected, but only 20% (n = 25) reported fear of death. About 34% (n = 42) worried that "compassionate visiting" in the PC ward may put them at greater risk of infection. Only 47% (n = 59) felt at ease when serving febrile PC patients during the pandemic. For "perceived support on IC measures", 73% (n = 90) believed they received sufficient and appropriate IC training for COVID-19. A similar proportion reported feeling safe (n = 92, 74%) when they wore personal protective equipment (PPE) while serving PC patients.

For "overall support from government and hospital," 62% (n = 77) and 76% (n = 95) expressed lack of confidence in the anti-epidemic policy of the HK government and the Hospital Authority, respectively. Despite this, 80% (n = 100) felt they were well supported by their own PC team.

Qualitative Findings

To the open-ended question on the perceived impacts of COVID-19 on PC services, 83% provided a response. Three themes were identified: 1. tightening the restrictions on visitors, 2. limiting the provision of PC services, and 3. staff deployment.

Tightening the Restrictions on Visitors. Seventy-two percent of responses (75/104) were related to this theme. During COVID-19, visiting hours and number of visitors were restricted in the inpatient PC service. The tightening of restrictions on visitors affected the following people:

Patients and caregivers: Participants reported that such visitor-restriction polices had limited patients' chances to interact with their loved ones, leading to distress. "Our patients are profoundly affected, as ward visits are banned now. Their mood is influenced by the physical disconnection from families" (Participant 45, physician).

Participants also reported family caregivers were particularly concerned about their patients' health condition when visits were banned. Caregivers also expressed guilt because they were unable to uphold their caregiving responsibility. "Caregivers can no longer take homemade meals to patients every day. Most were upset to see patients feeling lonely in their hospital bed" (Participant 45, physician).

PCP: Participants reported that tension and conflicts had increased between them and patients and patients' family caregivers "Most patients have a poor prognosis… it is difficult to give discretion to relatives to visit patients just because of their terminal condition. If we allow all families to visit, the ward will be too crowded, hence increasing the risk of infection" (Participant 36, physician). Participants also stated that the no-visiting policy created an additional

Table 4. Final Risk Prediction Model on Mental Health Outcomes After Backward Elimination.

	Standardized beta (95% CI)	p	Model's statistics		
			R^2	F	p
PHQ-9 depression symptoms[a]			.11	$F (1, 131) = 16.13$	.00
Age	−.33 (−.21 .70)	.00	—		
GAD-7 anxiety symptoms[b]			.07	$F (2, 130) = 4.88$	.01
Age	−2.45 (−.16–.03)	.05	—		
Religion			—		
With	Ref				
Without	.143 (−.206–2.46)	.97			
ProQOL-secondary traumatic stress[c]			.15	$F (3,113) = 6.68$	.00
Age	−.30 (−.20–.05)	.00	—		
Gender			—		
Male	Ref				
Female	.20 (.26-4.04)	.03			
Religion			—		
With	Ref				
Without	.18 (.05-2.98)	.04			
ProQOL-burnout[d]			.13	$F (1, 115) = 16.47$	.00
Age	−.35 (−.244–.084)	.00	—		

Abbreviation: Ref= reference group in the regression.
Remarks: As none of the socio-demographic variables were found associated with the total score of the perceived stress scale (PSS), the impact of event scale (IES-R), and the subscale score of ProQOL-CS, multivariate regression analyses were not conducted on these mental health outcomes.
[a]This is the final risk prediction model on PHQ-9. Through the procedure, gender (female vs male), occupation (doctor, nurse, and allied health professional), marital status (married and not married), years of experience, religion (with vs without), and direct involvement with COVID patients (with vs without) were eliminated.
[b]This is the final risk prediction model on GAD-7. Through the procedure, gender (female vs male), occupation (doctor, nurse, and allied health professional), marital status (married and not married), years of experience, and direct involvement with COVID patients (with vs without) were eliminated.
[c]This is the final risk prediction model on ProQOL secondary traumatic stress after backward elimination. Through the procedure, occupation (doctor, nurse, and allied health professions), marital status (married and not married), years of experience, and direct involvement with COVID patients (with vs without) were eliminated.
[d]This is the final risk prediction model on ProQOL-burnout after backward elimination. Through the procedure, gender (female vs male), occupation (doctor, nurse, and allied health professional), marital status (married and not married), years of experience, religion (with vs without), and direct involvement with COVID patients (with vs without) were eliminated.

administrative workload, such as video calls and implementing additional IC measures (e.g., temperature checking and filling in visit records). It was also difficult to assess the needs of caregivers and provide them with timely support during the outbreak due to reduced face-to-face interaction with caregivers.

Limiting the Provision of PC Services. Of the 104 responses, 54% (56) described how the provision of PC services had been affected during COVID. Various PC service components were affected.

a) Homecare service

Some participants stated that the number of home visits had been greatly reduced due to the outbreak; hence, they were unable to provide timely intervention to patients and families. They also shared their worries in providing homecare service due to the scarcity of PPE. "PPE was limited, which creates great anxiety for us… Raincoats were used to replace PPE" (Participant 40, nurse).

b) Spiritual service

Spiritual support service for PC patients was limited during COVID-19, changing to provision on request from patients and requiring special approval. The spiritual needs of patients were ignored, which might have led to further emotional distress for patients. "The referral procedure of spiritual support service has become more complicated, and the time for approval may need a whole day… In some cases, the patients died while waiting" (Participant 59, spiritual care worker).

c) Service routine

Participants mentioned that patients were required to undergo a more complicated admission procedure to PC wards during the pandemic. These delays affected patients' well-being: "The new admission procedure is so complicated … some patients need to stay at home without any assistance while waiting" (Participant 30, nurse).
Some PC services were suspended, as they were regarded as non-essential (e.g., pain management consultation and

Table 5. Respondents' Response about the Impact of the Pandemic on Palliative Care.

	Agree or strongly agree		Disagree or strongly disagree	
	n	(%)	n	(%)
1 Under the no-visiting policy, I feel stressed when communicating with patients and family members. (Interr)	102	(81.6)	23	(18.4)
2 With the personal protection equipment provided, I feel safe when serving patients in palliative care. (IC)	92	(73.6)	33	(26.4)
3 I worry I would be infected if I allow family members to visit dying patients under compassionate visiting. (IC)	42	(33.6)	83	(66.4)
4 I feel at ease when serving febrile palliative care patients. (IC)	59	(47.2)	66	(52.8)
5 The negative social atmosphere would influence the palliative care service quality. (Interr)	98	(78.4)	27	(21.6)
6 I am confident about the anti-epidemic policy and instructions of the hospital authority. (SUP)	48	(38.4)	77	(61.6)
7 During the COVID-19 epidemic, I feel the support of the palliative care team. (SUP)	100	(80.0)	25	(20.0)
8 During the COVID-19 epidemic, my workload has increased. (Interr)	63	(50.4)	62	(49.6)
9 I think I have received enough and appropriate infection control. (IC)	90	(72.0)	35	(28.0)
10 I am confident about the anti-epidemic policy of the government. (SUP)	30	(24.0)	95	(76.0)
11 I am afraid I will be infected by COVID-19 at work. (IC)	80	(64.0)	45	(36.0)
12 I am afraid I would die of COVID-19. (IC)	25	(20.0)	100	(80.0)
13 The patient and I need to wear masks during the epidemic, and it affects my communication with patients. (Interr)	41	(32.8)	84	(67.2)
14 During the epidemic, my patient and I are afraid of physical contact, and it affects the service I provided. (Interr)	54	(43.2)	71	(56.8)

palliative radiotherapy/surgery). In 1 hospital, the entire PC ward was closed, and all cubicles were converted to managing suspected/confirmed COVID-19 cases.

d) Post-death service

Participants said that post-death support services had been reduced. For example, funeral service providers could not go to the hospitals to do the make-up or change clothes for the deceased. Also, the hospital stopped providing a venue for family members to hold simple memorial rituals before transferring the bodies to the crematorium. This created additional financial burden to the families, as they had to use the services of private funeral parlors. Some social workers mentioned the difficulty of providing bereavement support to the family. They found the comprehensiveness of bereavement risk assessment conducted solely by phone was compromised.

Staff Deployment. Of the 104 responses, 8% (9) were related to staff deployment. Participants reported that some PC staff had been deployed to wards that provide care to suspected/confirmed COVID-19 patients. Such deployment caused distress and confusion and increased the workload of the PC team.

"Two-thirds of PC physicians and two-thirds of PC nurses are deployed to either dirty teams or acute medical duties" (Participant 28, physician).

"PC service in acute hospitals is regarded as a non-essential service. The PC ward was even temporarily closed, and only

ambulatory service remained" (Participant 19, nurse). Some participants also mentioned that the reduction of staff caused an increased workload in PC services. One physician even said that his role in PC service was diminished and became ambiguous, as all the attention had been shifted to IC.

Discussion

Mental Health of Palliative Care Professionals

This study found that the prevalence of mental health symptoms was high among PCP in HK. About 82% felt moderately and highly stressed, and 42% and 43% reported symptoms of depression and anxiety, respectively, during the COVID-19 pandemic. These figures are similar to the depression (50%) and anxiety rates (45%) reported by Lai et al.,[5] which targets Chinese healthcare workers who treat COVID patients. This may suggest that the degree of psychological impact of the pandemic on PCP could be as substantial as for professionals directly involved in the care of COVID-19 patients. The effect of the pandemic on the mental health of PCP should not be underestimated. Despite this, in our study, we found a lower proportion of participants (60%) reporting post-traumatic stress symptoms compared to the proportion in Lai et al.'s study (72%),[5] which may suggest the differences in the major challenges in their work (e.g., taking care of COVID-19 patients directly vs taking care of PC patients during the COVID-19 pandemic).

Our study further indicated that younger PCPs tend to be more depressed, and those who are younger and had no religion were more anxious. Female PCPs who do not have a religion and are younger showed higher levels of secondary

traumatic stress and burnout. This finding is in line with those in the existing literature which indicate that age and religion constitute a protective effect during a pandemic, as older participants tend to have a greater ability to self-reflect and adopt positive coping,[9] and religious belief may provide faith to the person in times of crisis.[10] Our study suggested that this subgroup of PCP could be the most vulnerable workforce during the pandemic. They may require further attention and psychological support from the hospital team. The encouraging side is that, despite all the challenges to the mental health of these PCP during the COVID-19 pandemic, about 20% of participants indicated a high level of compassion satisfaction in their work, comparable to what we found in a study conducted before the pandemic (about 22%).[26]

Impact of Pandemic on PC Services

Our findings on the effect of the pandemic on PC services can provide some context for understanding why PCP experienced poor mental health during the pandemic. The quantitative findings indicated that most PCP agreed that PC services had been affected by the pandemic, and the qualitative findings provide the details of their experience at work. The tightening of the restrictions on visitors affected PC service the most. Many revealed that the change of visiting policy increased tension and conflicts with their patients and family caregivers. Consistently, we found over 80% participants reported difficulty in communicating with their clients about the visiting policy. The restrictions on visitors also drastically reduced the in-person contact between patients and caregivers. PC patients often experience loneliness and existential isolation when facing death and dying.[11,12] Our findings illustrate that lack of in-person contacts with family members due to tightening restrictions on visitors may further exacerbate these feelings. Our findings also pointed out that family caregivers suffered when they could not often visit patients in PC wards and express their support. Culturally among HK caregivers, preparing meals for patients is a way of expressing support.[13,14]

Many PCP witnessed their patients dying alone, and their family caregivers experienced strong caregiving guilt. Many PC services were also suspended or delayed, affecting the prognosis of patients. Facing such a situation, PCP might feel guilty and helpless at not being able to do more for their clients.[15] Litz et al.[16] termed such experience "moral injuries," which describes moral distress experienced when a circumstance clashes with one's moral code. It is especially true when PCP have a strong belief in improving the quality of life and providing holistic care in PC. Continuous exposure of these events was associated with poorer mental well-being.[17] From our findings, we see that the source of distress of PCP may also come from fear of infection, perceived lack of support from government and hospital, and frustration in staff deployment. Such results are consistent with those of the existing study which suggest these factors as potential reasons leading to the poor mental health of healthcare staff during the pandemic.[6]

Limitations

There are several limitations of this study. First, this study is cross-sectional. We cannot determine causality on pandemic and mental health. Future studies should consider using a case control/longitudinal study design to verify the findings. Second, our sample size was small, which decreases the power of the study. However, the profile of the sample was broadly representative of the workforce profile of PCP in HK, which guarantees the generalizability of our findings.[18] Third, coping skills, resiliency level, and social support network were not measured among participants. They are likely confounders affecting the mental health of PCP. Finally, the qualitative data were based on the text responding to an open-ended question only. Future studies may consider conducting in-depth interviews with PCP to further enhance the richness of data.

Conclusion

This is the first study examining the mental health of PCP during COVID-19 and the impact of the pandemic on the local provision of PC. Our study showed preliminary findings that the pandemic has affected PCP's mental health, especially females, younger ones, and those without a religion. Several measures can be undertaken. First, workshops focusing on self-care and enhancing PCP's competence to cope with personal emotional and existential challenges in providing PC could be provided.[19,20] More support could be given to younger PCP, as they may be the more vulnerable group. Second, training should be provided to PCP on communicating effectively with patients and caregivers during the pandemic, during which complications are experienced (e.g., change in visiting policy and delays of PC services). Last, the government and the Hospital Authority should consider improving communications with the PCP to re-establish trust and respond to concerns on the impacts of various COVID-19 IC measures on the quality provision of PC.

Author Contributions

WCHC, RKWW, DKSK, LMHC participated in the study design and data collection. WCHC, DKSK and CTKY analyzed and interpreted the quantitative and qualitative data. All authors contributed to the writing of the manuscript and critical revision of the manuscript for important intellectual content. All authors have read and approved the final manuscript for submission.All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Declaration of Conflicting Interests

All authors have disclosed no conflicts of interest.

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