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Physician's Hesitancy in Treating COVID-19 Patients and Its Associated Occupational Risk Factors in Indonesia: an Online Cross-Sectional Survey

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Abstract: This study is a cross-sectional survey involving physicians around Indonesia aimed to explore physician hesitancy to treat COVID-19 patients after experiencing COVID-19 infection coupled with associated occupational risk factors. The questionnaire was distributed via contact information from the Indonesian Physician Association database. Out of 383 participants, 25.6% suffered from moderate symptoms of COVID-19 and 2.9% were admitted for critical care. Hesitancy to treat suspected, probable, or confirmed COVID-19 patients was found in 20.3% of physicians. A higher hesitancy rate was found in older physicians and those with less experience in treating COVID-19 patients. Specialist trainees and those who work in public hospitals were physicians with the lowest hesitancy in treating COVID-19 patients. There is a significant hesitancy in treating COVID-19 patients among physicians who have suffered from COVID-19 which calls for further action by management and policy makers.

Keywords: hesitancy; covid-19; post-covid; medical doctors; indonesia

1. INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an infectious disease that attacks the respiratory system. Common signs and symptoms of this disease include acute respiratory disorders such as fever, cough, and shortness of breath.^{1,2} WHO has declared COVID-19 a global pandemic due to its rapid spread, with Indonesia being one of the countries with a high incidence and mortality rate. The risk is especially true for frontline health workers who are at risk of contracting the disease through direct contact with asymptomatic and symptomatic COVID-19 patients. Additional unpreparedness during the pandemic (such as lack of information on infection management, limited PPE and diagnostic test tools, rampant untreated psychosocial stress, excessive workload, and fatigue) further increased health workers' vulnerability to COVID-19 infection.³⁻⁵

Contracting COVID-19 is a traumatic experience that physically and psychologically scars its survivor. The severity of symptoms felt by many at the beginning of the pandemic, paired with psychological stress from continuous isolation, had made the disease especially challenging. In addition to the strenuous path to recovery, there are also long-

lasting sequelae of COVID-19. (recently dubbed as “Long COVID-19”; including prolonged anosmia, fatigue, shortness of breath, etc.) that could last for months after a negative COVID-19 result. Obviously, this had also contributed to the fact that most survivors had to deal with myriads of psychological problems such as anxiety and depression.⁶ Doctors who have survived COVID-19 are not an exception to these issues and complications, which surely lead to hesitancy in treating COVID-19 patients.⁷

However traumatic the experience of COVID-19 infection is, doctors were still crucially needed at the frontline of the fight against the pandemic.⁸ The importance of doctors returning to service necessitates assessing their reluctance in treating COVID-19 patients, especially doctors who had survived COVID-19 infection. This study will investigate the presence of hesitancy in treating COVID-19 patients in physicians who had survived COVID-19 infections, followed by an investigation of associated individual and occupational risk factors leading to the hesitancy. This study will assist individual doctors, hospital management, and related stakeholders in preparing intervention strategies to prepare doctors returning to duty after surviving COVID-19. More importantly, the results of this study may be used as ways of preparing physicians to face future pandemics.

2. MATERIAL AND METHODS

2.1. Study Design

The study was a cross-sectional survey exploring physicians' hesitancy to treat COVID-19 patients after experiencing at least one episode of COVID-19 infection. The study also investigates individual risk factors (e.g., age, gender, married status) and occupational risk factors (e.g., type of health facility, working hours, experience in treating COVID-19 patients), which may lead to hesitancy. The study was a part of a core study titled: "The Behavioral Adaptation Survey of Doctors After Being a Covid-19 Survivor in Indonesia", which aims to find out the changes in the behaviour of doctors after surviving COVID-19 infection. This research was conducted by distributing online survey forms through social media from October 2020 to December 2020.

2.2. Questionnaire Design

The questionnaire used in this study was developed by an expert panel involving specialists and consultants from internal medicine, occupational medicine, and community medicine. Prior to distribution to participants, the questionnaire had been pretested and revised accordingly. Hesitancy was assessed by asking: "After you are cured of COVID-19, are you willing to treat suspected, probable, or confirmed COVID-19 patients?". Individual risk factors assessed were the type of physician (GP, specialist, or specialist trainee), age, marital status, and gender. Medical practice locations included big islands in Indonesia like Java, Sumatera, and Kalimantan, with special highlights given to Jakarta as the capital city and the primary locus of COVID-19 in Indonesia.

Occupational risk factors identified in this study were the type of health facility where the physician worked (hospital or primary care clinic, private or public, COVID-19 referral hospital or non-referral), working hours (above or less than 40 hours per week), responsibility in clinical services (emergency, outpatient, isolation and high critical unit) and managerial duty. The level of COVID-19 occupational risk exposure was subjectively determined from low to very high by the physician's assessment of their workplace condition. Disease morbidity characteristics were symptom (asymptomatic, mild, moderate, or critical), illness duration, treatment in hospital or self-isolation, and whether other family members were infected with COVID-19.

2.3. Participants

The target population for this study are doctors who had been infected with COVID-19 in Indonesia. Inclusion criteria were: [1] Registered physician in the Indonesian Doctors

Association database, [2] Actively conducting medical practice (handling patients directly), [3] Had a history of confirmed COVID-19 infection based on nasopharyngeal and or oropharynx swab RT-PCR examination and have been declared COVID-19 negative before participating in this study. All participants are asked to give their consent and fill out the survey form from start to finish.

2.4. Data Collection

The study utilized non-probability sampling using the consecutive sampling method. All subjects who fulfilled the inclusion criteria, accepted the invitation, and gave their consent were included in the study. Invitation to join the study was distributed via social media groups containing members of associations of doctors or specialists. Data collection was carried out for three months, from October 2020 to December 2020. The sample size was performed using the estimated 50% proportion of doctors who are proven to have been infected with COVID-19, and an absolute error of 5%, resulting in a minimum sample size of 380 subjects.

2.5. Statistical Analysis

Data processing utilizes SPSS (Statistical Product for Social Science) version 20.0 program. Categorical data in this study will be presented in frequency distribution and 95% confidence interval. The proportion of hesitancy was presented with data that includes and excludes specialist trainees (since their status as trainees and work obligation to be reassigned to a hospital might interfere with the result). Bivariate analysis was done using Chi-square and Fisher analytical to determine the relationship between individual risk factors, disease severity, occupational risk factors and physician hesitancy to treat COVID-19 patients after COVID-19 infection. Binary logistic regression was done using significant factors found in bivariate analysis. Results were then presented using adjusted Odds Ratio (aOR), 95% confidence interval, and R square to show relations of risk factors to variation of the outcome.

3. RESULT

Among 383 participants included in this study, 49% were general practitioners, 31% specialists, and 19% specialist trainees. Most participants worked in a hospital (77%), especially in a COVID-19 referral hospital (62%). Large numbers of participants reside in Jakarta (46%), Java (26%), and Sumatera (15%), while small portions live in Kalimantan, Sulawesi, and others. Forty-one per cent of the participants work for more than 40 hours per week. Most subjects were female and less than 40 years old. Only four per cent of subjects work in low-risk COVID-19 exposure areas, while 11% and 41% work in a very high and high-risk health facility (Table 1).

Most COVID-19 survivors experienced mild (47%) and moderate (25%) symptoms, with 3% suffering from critical illness. The source of COVID-19 infection comes from either a patient they treat (48%) or other health workers (23%). More than 50% of subjects had >7 days of illness duration and were self-isolated. Almost 70% of physicians treating COVID-19 patients are either suspected, probable or confirmed with COVID-19 (Table 2).

Physician hesitancy to treat COVID-19 patients were divided into two figures: including and excluding specialist trainee. When specialist trainee was included, the hesitancy was at 18%. When the trainee is excluded, hesitancy slightly increases to 20.3%. (Table 3).

All the risk factors associated with hesitancy to treat COVID-19 patients were presented in Table 4. In bivariate analysis, significant risk factors associated with hesitancy included marital status and age of more than 40 years old. In terms of occupational risk, hesitancy to treat COVID-19 patients is seen in general practitioners, specialists, and physicians who never treated COVID-19 patients. In terms of the workplace, participants who work in a private primary clinic, non-COVID-19 referral hospitals, and lower COVID-19

occupational risk were prone to hesitancy in treating COVID-19 patients after they have survived the disease. In multivariate analysis, the most dominant factor risk was age over 60 years (aOR 9.2; CI 95% 2.8-30.1) and inexperienced in treating COVID-19 patients (aOR 5.8; CI 95% 3.1-10.9). Binary logistic regression was performed with R-square at 31.2%. The detailed bivariate and multivariate results can be seen in Table 4.

3. DISCUSSION

The study's novelty lies in gathering data from Indonesian physicians who had survived COVID-19 infection. Even though the study utilizes an online survey, it still manages to collect data on survivors' locations, types of health facilities where they work (hospitals or primary health centres), age, gender, and their location of clinical service (emergency, outpatient or isolation). Most COVID-19 physician survivors are asymptomatic and have mild symptoms with less than 14 days of treatment, which are in line with the characteristics of COVID-19 survivors in health workers or doctors in developing countries like Indonesia.⁹ A higher proportion of survivors of severe symptoms was found in countries with more advanced health and treatment systems.¹⁰ The number of doctors in our study who have survived COVID-19 and require treatment at the hospital is nearly equal to those who only needed self-isolation (45:55). Most infection sources were transmitted from patients and other health workers, as per similar studies in health workers.^{11,12}

Hesitancy to re-treat COVID-19 patients may indicate a problem in doctors' productivity when returning to work after being infected. The physician's hesitancy rate of up to 20% shows that the COVID-19 impacts the doctor's thought and perspective when they are returning to work. A doctor usually has the ability and responsibility to treat all patients with any condition; hesitancy will lead doctors to presenteeism, where doctors can return to work but underperform because of reluctance or refusal to provide services under certain conditions.¹³ A possible consequence of refusal is an increase in the referral of COVID-19 patients, resulting in an accumulation of patients to units and doctors who are still (either by choice or by default) conducting COVID-19 services, thereby increasing the risk of transmission to health workers at that particular institution.

Bivariate analysis for individual risk factors found that hesitancy to treat COVID-19 patients was more common in married doctors, possibly because of the impact on their families. This condition is especially true if the doctor is the backbone of the family economy, where they strongly prefer to avoid the risk of treating COVID-19 patients (isolation or death), all of which will significantly impact the family's financial condition. Hesitancy was also found in physicians older than 60 years, associated with the potential for more comorbidities with increasing age.¹⁴

Multivariate analysis found that age was the most dominant factor causing hesitancy to treat COVID-19 patients directly. One potential solution is technical training in providing telemedicine health consultations to older expert doctors to provide safe remote services from home, although this is limited to non-surgical/surgical consultation services.^{15,16} With the current rise in telemedicine platforms and applications in Indonesia, it could be a practical solution to reduce hesitancy in older physicians.¹⁷

Bivariate analysis for occupational risk factors found that hesitancy was more common in general practitioners (21%) and those working in primary care (46%), which may be related to the low readiness of personal protective equipment facilities in smaller clinics; this is in accordance with the finding that hesitancy is also more commonly found in workplaces where the risk of COVID-19 transmission is low – resulting in somewhat lower real experience and knowledge of COVID-19 among its physician.

The possibility of limited COVID-19 skills and knowledge of physicians would also need to be considered because hesitancy is much higher for doctors who were not previously involved in treating COVID-19 patients, which is a factor that proved to be the most dominant based on multivariate analysis. Tackling this problem can be done via lectures and online classes explicitly catered to primary health care clinicians; this is especially

important considering the increasingly unspecific or asymptomatic symptoms of COVID-19 with increasing variants of the COVID-19 virus.¹⁸

The limitation of this study is that although the distribution of the location of the subject area is widespread with large sample size, it is carried out with a non-probability sampling design, resulting in an absolute error as wide as 10%. Although steps have been taken to ensure reliability, the assessment of variables was done based on an online survey without direct confirmation to the respondent.

Although cases of COVID-19 seem to have subsided, COVID-19 patients and patients with subsequent sequelae of COVID-19 are still present. With COVID-19 itself, the world has become more aware that there are still threats of other pandemics in the future. There is probable evidence that hesitancy in treating COVID-19 patients may affect physicians' performance in treating other infectious diseases, making it imperative that the causes of this hesitancy be addressed and possibly treated. COVID-19 surviving doctors who are reluctant to serve COVID-19 patients might benefit from psychological consultation support to restore their mental readiness. Hospital management also needs to consider setting work policies for doctors who have survived COVID-19 to work in places with a lower risk of COVID-19 transmission or reduce service hours to lower transmission potential and hesitancy.¹⁹

4. CONCLUSION

Despite 20% hesitancy to treat COVID-19 patients, physicians are still needed in the frontline to fight the current and any other subsequent pandemic. With support from healthcare management, physicians need to be more prepared to handle COVID-19 patients and manage their emotional readiness before and especially after COVID-19 infection. Future research involving psychology experts to manage the hesitancy is needed because physicians' roles are essential in healthcare management throughout the world.

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