


Factors affecting job stress among physical therapists during the COVID-19 pandemic in Saudi Arabia

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ABSTRACT

Background: Physical therapists (PTs), like other healthcare professionals, are susceptible to job stress when involved in patient care, and several factors contribute to it. Therefore, this study aims to assess PTs' knowledge, attitude, and practices (KAP) adopted by PTs during the COVID-19 pandemic and its impact on their job stress.

Methods: A cross-sectional design was used. 300 PTs from the government and private healthcare organizations in Saudi Arabia were randomly picked and invited to participate. Data were collected using a pre-tested content-validated KAP tool using a Google Form between January and March 2022. Data were analyzed quantitatively through SPSS 24.0.

Results: The findings revealed that 85% of PTs whose job involves direct contact with the patients are susceptible to higher stress (perceived stress score [PSS]=22.82) than others. Specifically, female and unmarried PTs are prone to more job stress than others ($p<0.05$). In addition, PTs who were apprehensive about managing COVID-19 patients and worried about acquiring COVID-19 disease are prone to more job stress. Lastly, 89% of PTs who adopted the practice of wearing N-95 masks and proper handwashing techniques (>80%) experience less stress than others ($p<0.05$).

Conclusion: The KAP of PTs influences job stress during the COVID-19 pandemic. PTs with sufficient knowledge about measures to adopt, show a positive attitude, and practice wearing proper PPEs, handwashing procedures, and waste disposal systems during patient care are prone to less job stress than others.

Keywords: job stress, physical therapists, COVID-19 pandemic, Saudi Arabia

INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) began in mainland China in late 2019 and spread worldwide to cause a global pandemic [1]. Kingdom of Saudi Arabia (KSA) has no exception where the number of confirmed cases rose to 824,747 with 9,438 deaths as of December 2022 [2]. Such a scenario affects not only general public health in KSA; but also healthcare workers, who are most affected by COVID-19 outbreaks and reported a higher level of physical and psychological stress [3, 4]. Unlike other HCPs, Physical therapists' (PTs) role is not only restricted to the respiratory system management of COVID-19 virus-infected patients but also plays a crucial role for hospitalized patients during the acute stages of illness- performing exercises to increase peripheral muscle strength, modifying patient positions and facilitate physical movement to keep the patient active and minimize musculoskeletal complications [5, 6]. Thus, the work of PTs is physically challenging, involving repetitive tasks, the utility of diverse manual techniques, and the discomfort of joints during typical prolonged constrained postures while handling patients [7]. Also, during the management of COVID-19 patients, PTs perform aerosol-generating procedures by

having close contact with these patients who require long-term lung rehabilitation [8, 9]. Such a physically demanding nature of the job is fueled by the psychological consequences of managing patients during the COVID-19 pandemic prone PTs to mental health problems, including a high level of job stress [10-12]. Likewise, studies have reported anxiety among PTs while managing COVID patients, which is most contiguous [13]. It is also notable that during the pandemic, job demands are more than an employee's skills and resources, leading to work-related stress and, consequently, burnout [14].

Studies have been conducted and demonstrated PTs' knowledge level about the COVID-19 virus, their attitudes towards it, and practices adopted while managing patients during the COVID-19 pandemic [10, 15]. Likewise, a few research have been conducted across the globe to ascertain job stress experienced by PTs during COVID-19 [16, 17]. An earlier study observed that KAP concerning radiation protection is a significant predictor of job stress for radiation workers. Those workers with high scores of KAP about radiation protection showed significantly lower job stress [18]. Another study revealed that the nurses' attitude and practice toward COVID-19 had significantly influenced their job stress [19]. But a recent study concluded that the COVID-19 pandemic resulted in a high level of stress among dental professionals

despite owning a high level of knowledge and a positive attitude [20]. Concerning the COVID-19 pandemic, these two studies analyzed the influence of KAP on job stress among the nursing or dentist population. However, studies have yet to be conducted to analyze the factors influencing Job stress among PTs, considering their level of knowledge, attitude, and practices in hospitals across Saudi Arabia. Thus, this study was conducted with 3-fold objectives to ascertain the difference between job stress levels perceived by PTs concerning their:

- (1) sociodemographic characteristics,
- (2) knowledge about coronavirus and its implications during patient care, and
- (3) attitude and practices adopted to manage patients during the COVID-19 pandemic across healthcare organizations (HCOs) in Saudi Arabia.

MATERIALS AND METHODS

Study Design and Settings

A cross-sectional design was used to ascertain the factors affecting job stress among PTs during the COVID-19 pandemic belonging to the public and private HCOs in KSA, including academic medical centers (AMCs).

Respondents

All PTs (n=1,179), both male and female, registered with the Saudi Commission for Health Specialties (SCFHS) [15] and working at both private and government sector organizations, have formed this study population. Considering the population size, confidence level (95%), and acceptable margin of error (5%), the author randomly picked 300 samples to participate in this study. This study was conducted during the first quarter of 2022. All the respondents were mandated to complete an informed concern form before beginning the survey.

Instrumentation

This study was conducted as a part of a larger research project, and a well-structured, pre-tested questionnaire was used to capture PT's KAP, and their perception of job stress encountered during the COVID-19 pandemic in Saudi Arabia. The questionnaire consists of five parts. Part-1 consists of 10 items that collect socio-demographic information (i.e., age, gender, marital status, educational qualification, occupational setup, the existence of children in the family, the governance structure of the firm where they are employed, duration of employment, and nature of patient interaction or contact). Part-2 of the questionnaire has items to ascertain the knowledge possessed by the PTs concerning the COVID-19 disease by counting the correct answers given by them to each

item in the KAP tool using the binary response option ('yes' or 'no') (11 items). The next section of the KAP tool (n=10 Items) captures the attitude possessed by the PTs while managing COVID-19 patients using Likert scale options ('strongly agree', 'agree', 'neutral', 'disagree', and 'strongly disagree'). Except for two items under the attitude scale (namely, items 1 and 9 were reverse-worded) of the KAP tool, other items were designed as direct-worded questions that captured the PTs' attitude toward acquiring COVID-19 disease when they get involved in in-patient care. The fourth section of the KAP tool deals with those practices adopted by the PTs (six items) and is captured using Likert scale options such as 'always', 'usually', 'sometimes', 'rarely', and 'never'.

The tool's last section comprises ten items devised to uncover the job stress encountered by PTs during the COVID-19 pandemic. All the items related to perceived job stress were in the form of statements, and the responses were recorded on a Likert scale such as 'never' (score 0), 'almost never' (score 1), 'sometimes' (score 2), 'fairly often' (score 3), and 'very often' (score 4). The maximum perceived stress score (PSS) for the job was supposed to be the aggregate of all items (a total score of ten). The individual scores on the PSS range from 0 to 40, with higher scores meaning higher perceived stress [21].

Analytical Methods

Descriptive statistics consisted of frequencies for categorical data, mean, and 95% confidence interval (CI) for PSS-10 scores. In addition, a one-way analysis of variance (ANOVA) and t-test was applied to analyze the difference between PSS-10 and each independent variable. Specifically, a t-test was used to study whether there is any significance between genders, marital status, occupational setup, type of governance, and PSS-10. Likewise, a one-way ANOVA was used to study the difference between PTs' perceived stress and other variables, focusing on their knowledge, attitude, and practices while managing patients during the COVID-19 pandemic in KSA.

RESULTS

Socio-Demographic Characteristics of the Respondents

The questionnaire was sent to the targeted respondents (n=300), and 281 completed responses were received, with a response rate of 94%. Considering the total respondents, 65% (n=182) were male, and the rest were females (n=99). Also, 70% of them worked in clinical setup, and remaining samples (n=85) belonged to various AMCs in KSA. Notably, most participating PTs (n=208) interact directly with patients during the COVID-19 pandemic. The socio-demographic characteristics of PTs who participated in this study are shown in **Table 1**.

Table 1. Relationship between sociodemographic characteristics & PSS-10 score perceived by PTs during pandemic in KSA

Sociodemographic characteristic	n (%)	Mean PSS-10 score (95% CI)	Statistical test applied	p
Sex				
Male	182 (64.8)	21.36 (20.60 to 22.12)	t-test	0.000*
Female	99 (35.2)	23.70 (22.80 to 24.60)		
Age				
18 to 29	74 (26.3)	23.74 (22.61 to 24.88)	One-way ANOVA	0.496
30 to 39	90 (32.0)	22.12 (21.09 to 23.15)		
40 to 49	87 (31.0)	22.60 (21.58 to 23.61)		
50 to 59	28 (10.0)	19.43 (17.17 to 21.69)		
60 & above	2 (0.7)	-		

Table 1 (Continued). Relationship between sociodemographic characteristics & PSS-10 score perceived by PTs during pandemic in KSA

Sociodemographic characteristic	n (%)	Mean PSS-10 score (95% CI)	Statistical test applied	p-value
Marital status				
Married	200 (71.2)	21.79 (21.12 to 22.46)	t-test	0.000*
Not married	81 (28.8)	24.00 (22.81 to 25.19)		
Qualification				
PhD	40 (14.0)	19.98 (18.55 to 21.40)	One-way ANOVA	0.013*
Master's degree	70 (25.0)	23.13 (22.29 to 23.97)		
Bachelor	168 (60.0)	23.28 (22.32 to 24.24)		
Diploma	3 (1.0)	16.00 (12.66 to 19.34)		
Occupational setup (working area)				
Clinical setup	196 (70.0)	22.69 (21.88 to 23.49)	t-test	0.032*
Academic medical centers	85 (30.0)	22.08 (21.20 to 22.96)		
Type of governance of occupational setup				
Government	225 (80.0)	21.86 (21.00 to 22.72)	t-test	0.911
Private	56 (20.0)	23.06 (22.25 to 23.87)		
How long have you been working in that hospital/AMC?				
Less than 1 year	48 (17.0)	23.96 (22.91 to 25.01)	One-way ANOVA	0.452
1 to 5 years	78 (28.0)	20.49 (19.22 to 21.76)		
6 to 10 years	107 (38.0)	22.62 (21.58 to 23.67)		
More than 11 years	48 (17.0)	22.74 (21.42 to 24.06)		
Direct interaction with patients				
No	73 (26.0)	21.62 (20.45 to 22.79)	t-test	0.018*
Yes	208 (74.0)	22.71 (22.02 to 23.40)		

Note. *Significant at 0.05 level

Table 2. One-way ANOVA of PTs' perception of job stress concerning their knowledge about the COVID-19

Knowledge-related variables	Correctness of response*		Stress level	F-ratio (p-value)
	Response	n (%)	Mean PSS (CI 95%)	
"Virus causing COVID-19 disease"	Yes	234 (83.3%)	22.44 (21.81-23.06)	1.221 (p=0.223)
	No	47 (16.7%)	22.38 (20.63-24.13)	
"Spread of COVID-19 virus"	Yes	249 (88.6%)	22.32 (21.32-22.96)	1.014 (p=0.410)
	No	32 (11.4%)	23.25 (21.70-24.80)	
"Incubation period of COVID-19 virus"	Yes	267 (95%)	22.39 (21.78-23.00)	1.104 (p=0.339)
	No	14 (5.0%)	23.14 (20.31-25.98)	
"COVID-19 survival period"	Yes	243 (86.5%)	22.30 (21.66-22.93)	0.967 (p=0.511)
	No	38 (13.5%)	23.26 (21.48-25.04)	
"Common age group affected by COVID-19 virus"	Yes	243 (86.5%)	22.33 (21.67-22.99)	1.210 (p=0.260)
	No	38 (13.5%)	23.00 (21.65-24.35)	
"Signs and symptoms of COVID-19"	Yes	211 (75.1%)	22.52 (21.85-23.18)	1.558 (p=0.059)
	No	70 (24.9%)	22.16 (20.82-23.49)	
"Measures not recommended upon arrival of COVID-19 infected patients"	Yes	212 (75.4%)	22.44 (21.75-23.12)	2.644 (p<0.05)
	No	69 (24.6%)	22.39 (21.17-23.61)	
"Most recommended methods to contain the incidence of COVID-19"	Yes	277 (98.6%)	22.56 (21.98-23.14)	12.045 (p<0.05)
	No	4 (1.4%)	21.00 (19.25-22.75)	
"Treatments currently not available to manage COVID-19 patients"	Yes	263 (93.6%)	22.35 (21.76-22.94)	6.756 (p<0.05)
	No	18 (6.4%)	23.56 (19.82-27.29)	
"How to enhance the immune system against COVID-19"	Yes	247 (87.9%)	22.62 (21.99-23.26)	1.639 (p=0.034)
	No	34 (12.1%)	21.00 (19.25-22.75)	

Table 1, considering the variables such as gender, marital status, educational qualification, area of work (i.e., occupational setup), and nature of patient interaction, a significant difference is observed in PSS of the respondents ($p<0.05$). On the other hand, the duration of work ($p=0.452$), age ($p=0.496$), as well as type of organizational governance ($p=0.911$) do not reveal a significant difference in PSS among the participating PTs. Specifically, females (mean=23.70) show a higher PSS than males (mean=21.36), and married PTs (mean=21.79) perceive less stress than unmarried PTs (mean=24). Further, those PTs (mean=22.71) who directly interact with patients are prone to higher job stress than those engaged in the administrative and clinical teaching functions (mean=21.62).

Table 2 indicates that those knowledge-related variables studied consisting of the type of virus causing COVID-19 disease

($p=0.223$), its spread ($p=0.410$), the incubation period ($p=0.339$), survival period ($p=0.511$), signs and symptoms ($p=0.260$), and the age group affected ($p=0.059$) do not show a significant difference in PSS among the participants. Contrarily, while considering the knowledge-related variables that mainly focus on applying the gained knowledge, such as those measures not recommended to perform upon arrival of COVID-19 patients, the most recommended methods to contain the incidence of COVID-19, treatment methods currently available, and the methods to enhance immunity against COVID-19, a significant difference in PSS observed among the respondents ($p<0.05$).

Table 3 indicates a significant difference in PSS expressed by the participants ($p<0.05$) about those attitude-related variables, consisting of the reluctance of PTs in treating COVID-19 patients, adherence to CDC guidelines, adoption of proper

Table 3. One-way ANOVA of PTs' perception of job stress concerning their attitude while managing patients during COVID-19 pandemic in Saudi Arabia

Attitude-related items	Response of PTs		Stress level mean PSS (CI 95%)	F-ratio (p-value)
	Likert scale response	n (%)		
"Coronavirus transmitted from animals to humans & vice versa"	Strongly agree & agree	274 (97.5%)	22.46 (21.86-23.06)	1.135
	Neutral, disagree, & strongly disagree	7 (2.5%)	21.14 (16.76-25.53)	(0.127)
"COVID-19 is a contagious disease"	Strongly agree & agree	270 (96.1%)	22.45 (21.80-23.11)	1.400
	Neutral, disagree, & strongly disagree	11 (3.9%)	22.26 (20.83-23.69)	(0.106)
"There is a possibility that COVID-19 can affect humans more than once"	Strongly agree & agree	241(85.8%)	22.59 (21.94-23.23)	1.638
	Neutral, disagree, & strongly disagree	40 (14.2%)	21.48 (19.99-22.96)	(0.082)
"Coronavirus is a danger to our community"	Strongly agree & agree	271 (96.4%)	22.53 (21.93-23.13)	1.059
	Neutral, disagree, & strongly disagree	10 (3.6%)	19.60 (15.86-23.34)	(0.392)
"I am hesitant to treat covid 19 patients, and I have come across those patients during practice"	Strongly agree & agree	179(63.7%)	22.81 (21.92-23.71)	3.361*
	Neutral, disagree & strongly disagree	102 (36.3%)	22.21 (21.24-22.79)	(0.000)
"I adopt CDC guidelines for patient care"	Strongly agree & agree	257 (91.5%)	22.64 (22.02-23.26)	2.299*
	Neutral, disagree, & strongly disagree	24 (8.5%)	20.17 (18.15-22.18)	(0.001)
"Spread of COVID-19 disease can be prevented if proper preventive procedures are followed while handling COVID-19 patients"	Strongly agree & agree	270 (96.1%)	22.51 (21.90-23.13)	3.724*
	Neutral, disagree, & strongly disagree	11 (9.5%)	20.27 (18.30-22.24)	(0.000)
"Transmission of COVID-19 can be contained through regular & frequent hand washing with soap"	Strongly agree & agree	273 (97.2%)	22.41 (21.81-23.02)	2.191*
	Neutral, disagree, & strongly disagree	8 (2.8%)	23.00 (19.16-26.84)	(0.001)
"I always worry about being prone to COVID-19 infection when involved in in-patient care"	Strongly agree & agree	68 (24.2%)	23.03 (22.40-23.66)	3.432*
	Neutral, disagree, & strongly disagree	213 (75.8%)	20.53 (19.12-21.93)	(0.000)
"Due to my job that involves direct contact with patients, I am worried that one of my family members may get an infection"	Strongly agree & agree	239 (85.1%)	22.82 (22.22-23.42)	4.971*
	Neutral, disagree, & strongly disagree	42 (14.9%)	20.19 (18.18-22.20)	(0.000)

Note. *Significant at 0.05 level

preventive procedures, regular practice of washing hands with soap, worrying about the acquisition of COVID-19 disease by themselves as well their family members when involved in in-patient care.

Specifically, those PTs who follow CDC guidelines and proper preventive procedures while managing COVID-19 patients are prone to more stress than others. On the contrary, those PTs who believe that the spread of COVID-19 infection can be contained by frequently washing hands with soap were prone to less stress than others. In addition, over 85% of PTs whose work assignment involves direct contact with the patients are apprehensive that one of their family members may get an infection and are susceptible to higher stress than others.

From **Table 4**, it is inferred that there is a significant difference between all the practice-related variables and the PSS expressed by the participating PTs ($p < 0.05$). Those PTs who always/usually wore N-95 masks while treating patients and used double-layered bags to secure waste from COVID-19 isolation wards are prone to less job stress than others, as observed through the PSS. Similarly, those PTs who adopted proper handwashing procedures and removed PPEs in the correct sequence upon treating patients are exposed to less stress than others. Further, those PTs who agreed that their hospitals always have sufficient PPEs per guidelines and follow the practice of utilizing yellow-colored containers with biohazard symbols at home to dispose of masks and gloves felt less stress than others who did not adopt such an approach.

DISCUSSION

The finding implies a significant difference in job stress concerning the socio-demographic variables such as gender, marital status, and educational status of PTs—specifically, females prone to more stress than male PTs in clinical settings. Our findings conformed to earlier studies where the female

gender was a risk factor for higher psychological impact during stressful situations such as the COVID-19 pandemic [22-24]. This excessive stress experienced by female PTs might be because they were susceptible to more emotions and feelings that were hard to manage and cope with during the COVID-19 pandemic [27]. Further, our findings imply that unmarried PTs (mean PSS=24) perceive more stress than married PTs (mean=21.79). Such a finding is supported by an earlier study that unmarried singles were prone to higher PSS than those who were married or partnered where the marital status/those living with partners mitigate the risk of developing symptoms of anxiety, depression, or stress during the COVID-19 pandemic [26].

The current study's findings indicate that those PTs working full-time in the clinical setup (PSS=22.69) were prone to more job stress than those working in AMCs (22.08). This might be due to the fact those PTs employed in AMCs were not involved in direct patient care on a full-time basis since they have tripartite balanced job functions consisting of scheduled clinical duties, teaching/training, and research supervision [27]. Thus, those PTs working fulltime in the rehabilitation team in healthcare settings and directly involved in patient care may fear direct transmission of COVID-19 infection while handling those patients in the intensive care unit beds, and such attitude predisposes them to stress and anxiety during the COVID-19 pandemic [10].

This study is worth emphasizing that those participating PTs with adequate knowledge about the measures not to be taken while handling COVID-19 patients and familiarity with preventing the incidence of infection were prone to less job stress than those unaware. This finding is consistent with the earlier study, which stated that stress level is associated with preventive knowledge for COVID-19 [28]. Especially, it is indirectly proportional to knowledge of active measures to manage the pandemic [29]. A previous study in China observed that nurses having confidence in their preventive knowledge and skills related to the COVID-19 infection experienced low-

Table 4. One-way ANOVA of PTs' perception of job stress concerning those clinical practices adopted by them while managing patients during COVID-19 pandemic in Saudi Arabia

The practice adopted by PTs in the hospital during the COVID-19 pandemic	Likert scale response	n (%)	Stress level mean PSS (CI 95%)	F-ratio (p-value)
"I wear N-95 masks while treating patients"	Always	171 (60.9)	21.77 (21.02-22.52)	3.894* (0.000)
	Usually	79 (28.1)	23.46 (22.22-24.69)	
	Sometimes	20 (7.1)	22.45 (21.02-23.88)	
	Rarely	8 (2.8)	25.75 (21.94-29.56)	
	Never	3 (1.1)	24.00 (12.62-35.38)	
"Double-layered bags are utilized to secure waste from COVID-19 isolation wards"	Always	125 (44.5)	22.18 (21.30-23.05)	2.121* (0.032)
	Usually	100 (35.6)	22.40 (21.41-23.39)	
	Sometimes	42 (14.9)	22.95 (21.37-24.54)	
	Rarely	11 (3.9)	23.09 (18.32-27.86)	
	Never	3 (1.1)	24.00 (12.62-35.38)	
"Utilizing yellow-colored containers with biohazard symbols at home to dispose of masks and gloves"	Always	175 (62.3)	22.55 (21.82-23.29)	2.510* (0.006)
	Usually	83 (29.5)	21.90 (20.67-23.13)	
	Sometimes	16 (5.7)	23.06 (21.59-24.54)	
	Rarely	5 (1.8)	23.20 (15.83-30.57)	
	Never	2 (0.7)	26.00 (12.12-64.12)	
"Proper adoption of handwashing procedure for 20 seconds and wearing (donning) PPE kits"	Always	143 (50.9)	22.16 (21.34-22.98)	1.713* (0.040)
	Usually	85 (30.2)	22.58 (20.58-24.58)	
	Sometimes	31 (11)	22.74 (21.64-23.84)	
	Rarely	15 (5.3)	23.07 (20.71-25.42)	
	Never	7 (2.5)	22.00 (15.16-28.84)	
"Follow the practice of removing the PPE kit in proper sequence"	Always	99 (35.2)	21.61 (19.89-23.34)	2.147* (0.007)
	Usually	63 (22.4)	22.54 (21.61-23.46)	
	Sometimes	54 (19.2)	22.56 (21.41-23.70)	
	Rarely	38 (13.5)	22.92 (21.19-24.65)	
	Never	27 (9.6)	23.08 (20.81-24.52)	
"Availability of PPE in the institution as per the guidelines"	Always	122 (43.4)	20.90 (19.50-22.31)	1.966* (0.012)
	Usually	81 (28.8)	21.89 (19.62-24.17)	
	Sometimes	52 (18.5)	22.68 (21.74-23.62)	
	Rarely	19 (6.8)	23.01 (21.96-24.06)	
	Never	7 (2.5)	24.00 (19.47-28.53)	

Note. *Significant at 0.05 level

stress levels than those who sensed less prepared [30]. However, the cognitive activation theory of stress stated that individuals obtain knowledge while handling risks and normal well-balanced stress experienced during such conditions could be common [31]. Likewise, PTs with sufficient knowledge about the treatment available to manage COVID-19 patients and how to improve their immunity during the COVID-19 pandemic were prone to less job stress than those unaware. Again, this observation is consistent with a recent study revealed that HCWs with poor knowledge about the measures to be taken during the COVID-19 pandemic perceive 11.1 times more stress than those who possess adequate knowledge [32].

Another important finding is the attitude adopted by PTs and their proneness to job stress, where a significant difference was observed (Table 3). It is observed that those PTs (63.7%) reluctant to come across/handle COVID-19 patients during their clinical practice were prone to more job stress (PSS=22.81). Such a finding might be due to the moderate fear and anxiety of getting a COVID-19 infection although all precautionary measures were taken during the patient's treatment [33]. Moreover, a spike in COVID-19 cases and treatment for them and witnessing their colleagues getting infected might lead to a high level of stress among HCWs, particularly during the pandemic period when full vaccination against coronavirus is not existed [34]. Furthermore, those PTs who followed CDC guidelines (91.5%) and adopted a proper preventive measure (96.1%) during the COVID-19 pandemic were susceptible to more job stress than others (Table 3). This might be because of strict COVID-19 specific regulations

enforced by the Ministry of Health (MoH) on HCPs, including PTs while handling patients during the pandemic, which predisposes them to more stress due to work-related anxiety of adopting to those COVID-19 regulations [35]. On the other hand, 97.2% of the practicing PTs who adopt regular, more frequent washing hands techniques were exposed to less job stress, and this is because Saudi HCWs are adopting routine hand washing during their clinical practice as they are most accustomed to them [36, 37].

Even though this study's findings imply that most practicing PTs were not worried about acquiring COVID-19 disease (76%); however, a significant proportion felt that one of their family members might get exposed to infection (85.1%) if they were getting involved in in-patient care and it prone them to higher job stress (mean PSS=22.82). Individuals' attitude toward the disease is an influencing factor for their perception of the disease [38]. Thus, it is paramount that hospital administrators provide necessary awareness and training to PTs to have a positive attitude while managing COVID-19-infected patients.

A previous study stated that proper preventive practices and the use of PPE are paramount for healthcare workers during the COVID-19 pandemic and such practices are connected to various psychological effects [39]. Our findings imply that those PTs who always (60.9%) and usually (28.1%) wear N-95 masks and adopt proper hand washing techniques (>80%) were prone to less stress than others. A recent study in South Africa supported our observation and reported that HCWs showing poor compliance with recommended

protective practices concerning COVID-19 (i.e., wearing an N95 gown or apron) experienced psychological distress [40]. Moreover, the availability of PPEs in the hospital and HCPs' knowledge about its utility directly impact their proneness to job stress [41, 42]. In conformance with the findings of earlier studies, this study also shows that those PTs (>75%) agreed about the availability of PPEs in their hospitals, and those who knew how to use PPE correctly (>55%) were prone to less stress than others (**Table 4**). The availability of N-19 masks and the HCPs' proper knowledge of their utility help them overcome the fear of getting an infection during the pandemic, making them prone to less job stress.

CONCLUSION

This study is the first trial to examine the influence of PTs' KAP in managing patients during COVID-19 on their job stress. A significant difference is observed in perceived job stress among PTs' who have sufficient knowledge about measures to perform upon arrival of COVID-19 patients, currently available treatment methods, methods to control the incidence of COVID-19, and the immune system against COVID-19 than those who do not have such knowledge. Thus, those PTs with sufficient knowledge about measures to be adopted while managing COVID-19 patients are less prone to job stress than others. Contrarily, those participating PTs reported higher job stress, were apprehensive about managing COVID-19 patients and were worried about acquiring COVID-19 disease by themselves and their family members. Further, PTs adopting proper wearing of N-95 masks and handwashing procedures during patient care were prone to less job stress than those who do not follow it regularly. Besides, several other factors, such as gender, marital status, occupational settings, and PTs' educational status, influence their job stress. Precisely, female and unmarried PTs are more susceptible to job stress than others. Exploring the logic behind these observed disparities is over and above the scope of this study, and additional investigation is warranted. Thus, this study sheds light on the existence of practice-related knowledge, attitude, and those practices adopted by the PTs in managing patients during the COVID-19 pandemic and how it impacts their job stress. Further, this study's findings emphasize that providing PTs with adequate knowledge about PPE usage and inculcating the safety culture of wearing them during patient care would help them overcome the fear of being infected during the pandemic, making them less prone to job stress.

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Data sharing statement: Data supporting the findings and conclusions are available upon request from the author.

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