

Mental health impact of COVID-19 pandemic on therapists at inpatient rehabilitation facility

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Abstract

Background: Healthcare workers have faced extraordinary work-related stress in the face of the COVID-19 pandemic. Physical therapy, occupational therapy, and speech-language pathology providers at inpatient rehabilitation facilities may represent a distinct at-risk subgroup for work-related stress during the pandemic due to the usual nature of their job duties, including close physical contact and extended treatment times.

Objective: To evaluate the impact of the COVID-19 pandemic on work-related stress and occurrence of depression and anxiety in physical therapists, occupational therapists, and speech-language pathologists during the first surge of COVID-19 hospitalizations.

Design: Cross-sectional survey.

Setting: Academic, freestanding inpatient rehabilitation facility.

Participants: Survey responses were collected from 38 therapists.

Intervention: A 26-item electronic questionnaire containing a mix of multiple-choice and open-ended questions.

Main Outcome Measures: Positive screens for depression or anxiety as measured by the Patient Health Questionnaire-9 (PHQ-9) and the General Anxiety Disorder 7-item (GAD-7) scale, respectively.

Results: Seven individuals (19%) scored at or above the clinically significant cutoff of 10 on each the PHQ-9 and GAD-7, corresponding to increased risk for depression and anxiety. Therapists younger than 30 years old had significantly higher GAD-7 scores compared to therapists between 30-39 years old ($p < .05$). Occupational stress was attributed to a number of causes including concerns for health and safety, unpredictable changes in hospital protocols and work assignments, acquisition of additional work duties, concerns about the ability to provide high-quality patient care in a restricted environment, and the psychological toll of caring for patients with or recovering from COVID-19.

Conclusion: This cross-sectional survey highlights the impact of the COVID-19 pandemic on occupational stress and mental health of therapists working at an inpatient rehabilitation facility during the first surge of COVID-19 hospitalizations. This research may help institutions identify at-risk individuals who may benefit from support and guide policy changes to resolve potentially modifiable factors at a systems level.

INTRODUCTION

In late 2019, a novel coronavirus, subsequently named SARS-CoV-2, was discovered as the etiologic agent in a cluster of pneumonia cases in Wuhan, China.¹ Cases of coronavirus disease 2019 (COVID-19), the disease caused by SARS-CoV-2, were first reported in the United States in January 2020.² In March 2020, the World Health Organization declared the rapidly spreading virus a pandemic.^{3,4} Because the virus was new and understanding of COVID-19 was rapidly evolving, interim guidance on diagnosis, treatment, and infection control was issued from multiple sources and continually updated. Guidelines differed based on patient population and setting of infection. Community settings, ambulatory care sites, acute care hospitals, nursing homes, and inpatient rehabilitation facilities (IRFs) were subject to various and evolving guidelines.

SARS-CoV-2 is spread primarily by respiratory droplets, although aerosols and fomites may contribute a small role.⁵ Risk of transmission is dependent on a number of factors including type and duration of exposure, physical distancing, and preventative measures such as wearing personal protective equipment (PPE).^{5,6} Because SARS-CoV-2 can be transmitted from asymptomatic patients,⁷ decreasing spread is challenging and requires constant vigilance.⁸

Patients admitted to IRFs are thought to be particularly vulnerable to COVID-19, given the tendency for admission of older adults often with multiple underlying chronic medical conditions. A high degree and frequency of physical contact are required in this population due to the nature of treatment needs, including hands-on therapy and nursing care. Patients are regularly treated in common areas in order to access therapy equipment.^{9,10} Typical IRF patient care practices thus pose many opportunities for exposure and transmission of SARS-CoV-2.⁹

Acute care hospitals, long-term care facilities, and IRFs rapidly implemented policies to minimize potential exposures and mitigate the spread of SARS-CoV-2 among patients and hospital personnel. There was an abrupt shift to full-time remote work for most nonclinical staff.¹¹ Patients and staff were tested for SARS-CoV-2 at various intervals.^{10,12,13} Patients who tested positive for SARS-CoV-2 were either transferred to acute care or admitted to an inpatient rehabilitation unit that allowed for physical isolation and stringent infection control precautions.¹¹ Certain facilities had dedicated COVID-19 wards¹⁴ and some cohorted clinical teams and inpatient units.^{10,15} Visitor restriction policies were common.¹¹ Infection control procedures varied among institutions and were adjusted with emerging research and global health guidelines.

Healthcare workers have encountered extraordinary work-related stress in the face of the COVID-19 pandemic.¹⁶ Common stressors include fear of exposure

and transmission of the virus in addition to work overload, with many reporting anxiety, depression, and burnout.¹⁶ Physical therapy (PT), occupational therapy (OT), and speech-language pathology (SLP) providers at IRFs may represent a distinct at-risk subgroup for work-related stress during the pandemic because of the usual nature of their job duties. Typical treatment sessions involve extended interactions in close proximity with patients, often requiring physical contact.¹⁷ In addition to mobilizing patients, therapists may work with patients on activities of daily living that involve intimate care and exposure to bodily fluids, such as toileting, bathing, and wound care.¹⁷⁻¹⁹ Some therapies involve respiratory muscle training and the use of a forceful cough to clear secretions.²⁰ Many of these activities may put therapists at particularly high risk for exposure and transmission of SARS-CoV-2 and thus influence perception of safety in the workplace and psychological well-being. Current understanding is limited regarding the effect of these occupational stressors on therapists during the COVID-19 pandemic.

The aim of this study is to evaluate the effect of the COVID-19 pandemic on work-related stress and the risk of anxiety and depression in PTs, OTs, and SLPs during the first surge of COVID-19 hospitalizations. The authors sought to identify various factors that contributed to occupational stress.

METHODS

Participants

A questionnaire was distributed via electronic mail to 83 inpatient therapists working at a single academic rehabilitation hospital. Survey recipients included 35 PTs, 35 OTs, and 13 SLPs. Therapists who reported working in the inpatient setting during the months of April 2020 through June 2020 at the IRF were included in this study. Outpatient therapists and those who did not work in the inpatient setting in the months of April 2020 through June 2020 were excluded. Survey recipients were informed that their participation was anonymous and voluntary and that there would be no penalty for not participating in the study. This study was reviewed and approved by the institutional review board.

Study period

The questionnaire was distributed to all inpatient rehabilitation therapists in October 2020. Survey questions retrospectively inquired about therapist work experiences from April 2020 through June 2020, corresponding to the first IRF surge of patients with COVID-19 admitted to the IRF. The delay between the

period of reference (April 2020 through June 2020) and survey administration (October 2020) was attributed to time needed by authors to manage their clinical duties, which included care of patients afflicted with COVID-19 and time required to prepare and administer the survey. Thus, multiple survey administrations measuring change over time were unfortunately not feasible.

Procedures

This cross-sectional study included a 26-item electronic questionnaire on Google Forms containing a mix of multiple-choice and open-ended questions. Data were collected about demographics, work assignments, factors influencing perceived health and safety, institutional practices, and mental health. Questionnaires were distributed in October 2020 via email by an inpatient therapy manager who was not involved in the creation of this study. A reminder to complete the survey was sent by email after 1 week. Data were collected over a period of 2 weeks from the date that the survey first opened. All survey questions were optional and there were no forced choice survey questions.

On the date of survey distribution at the end of October 2020, seven patients with COVID-19 were undergoing rehabilitation at the IRF (approximately 10% of the total census). This is in comparison with a peak number of 24 patients with COVID-19 admitted to the IRF at the beginning of June 2020 (approximately 25% of the total census).

Outcome measures

Primary outcomes were positive screens for depression or anxiety as measured by the Patient Health Questionnaire-9 (PHQ-9) and the General Anxiety Disorder 7-item (GAD-7) scale, respectively.^{21,22} The PHQ-9 and the GAD-7 are widely used instruments for screening patients with depression and anxiety based on Diagnostic and Statistical Manual of Mental Disorders-IV criteria.^{23,24} The PHQ-9 helps quantify symptoms and severity of depression by assessing the responder's interest, sleep, energy, appetite, among other variables.²¹ For the PHQ-9, scores of 5, 10, 15, and 20 are taken as the cutoff points for increased risk of mild, moderate, moderately-severe, and severe depression, respectively.²¹ The GAD-7 assists in screening for generalized anxiety disorder by asking about duration of restlessness, irritability, and other stressors. For the GAD-7, scores of 5, 10, and 15 are taken as the cutoff points for increased risk of mild, moderate and severe anxiety, respectively.²² Scores 10 or greater for each the PHQ-9 and GAD-7 have demonstrated high specificity and sensitivity for identifying possible anxiety and depression disorders.^{21,22}

Data analysis

Descriptive statistics were used to examine participant characteristics. Nonparametric Wilcoxon rank sum test or Kruskal-Wallis test was used to detect differences in PHQ-9 or GAD-7 scores for various participant characteristics. Median and interquartile range (IQR) were reported for each characteristic. Statistical analysis was conducted using R 4.0.0. Foundation for Statistical Computing, Vienna, Austria.

RESULTS

Demographics

In total, 38 therapists responded to the questionnaire (45% response rate). One response was excluded, because it was completed by a therapist who was not employed at the IRF during the identified time frame. Of the 37 included responses, 18 participants were PTs, 13 were OTs, and 5 were SLPs. Response rate to individual questions was variable (range = 33-36 total responses per survey). Age of the participating therapists ranged from 26 to 56, with the majority 35 years or younger ($n = 28$, 78%). Thirteen reported practicing as therapists for less than 5 years (36%), 14 reported practicing between 5-9 years (39%), and 9 reported practicing for 10 or more years (25%) at the time of survey completion. Nine (25%) reported living with a child 6 years old or younger and two (6%) reported living with a family member at least 65 years old.

Work Stressors

Most therapists reported caring for patients diagnosed with COVID-19 during the first IRF surge ($n = 24$, 71%). All therapists reported experiencing increased stress around performing their job duties ($n = 36$, 100%). The number of respondents who reported feeling safe caring for patients diagnosed with COVID-19 increased from 50% ($n = 16$) at the beginning of the first IRF surge to 76% ($n = 25$) at the end of the first IRF surge. The number of respondents who reported feeling comfortable donning/doffing PPE (gown, N95 respirator, surgical mask, gloves, and eye protection) increased from 56% ($n = 18$) at the beginning of the first IRF surge to 85% ($n = 28$) at the end of the first IRF surge. Only 70% ($n = 25$) felt that they had adequate access to PPE. Most ($n = 23$, 63.9%) expressed a preference for wearing goggles over a face shield. Of those who preferred goggles, most cited reasons included better range of movement ($n = 17$, 74%) and better comfort ($n = 9$, 40%). Only one respondent thought the goggles offered better protection.

Therapists commonly took on roles outside of their typical job duties. Most frequent roles included assisting patients in using phone or video to communicate with family outside of therapy hours ($n = 27, 77\%$), delivering meals/items to and from patient rooms ($n = 22, 63\%$), performing shift work as a nurse extender ($n = 21, 60\%$), doing patient laundry ($n = 19, 54\%$), and helping patients take diet orders ($n = 17, 49\%$). Nobody responded that their roles were unchanged.

Strict isolation precautions were reported to impact therapy delivery to patients with COVID-19. The majority of respondents felt that lack of access to therapy equipment ($n = 27, 75\%$) and lack of access to therapy space ($n = 31, 86\%$) affected their ability to deliver adequate therapy. Most therapists felt that they were not able to deliver high-quality family training for the majority of patients using a virtual platform at the time of discharge ($n = 24, 67\%$). However, most therapists reported that once there are no longer any restrictions

on in-person family training, they would be more likely to incorporate virtual family training in the future as a result of this experience ($n = 25, 69\%$).

Twenty respondents chose to share additional details about their experiences in the free text space for other comments. The most common theme emphasized was the high emotional cost and mental health burden of caring for patients with COVID-19 ($n = 6$). A number reflected on the necessity of clear policy and leadership ($n = 5$). Therapists described feeling exploited ($n = 3$) and concerned about inequitable access to PPE ($n = 2$). Many expanded on their worries about personal safety ($n = 4$). Remarks reinforced the importance of effective communication ($n = 4$) and support ($n = 3$). Therapists valued respect for their expertise ($n = 1$) and acknowledgement of their hard work ($n = 1$). Several expanded on their concerns about providing high-quality patient care. Three commented on the inadequacy of virtual training for patients requiring high levels of physical assistance. One commented on the absence of group therapy during this time.

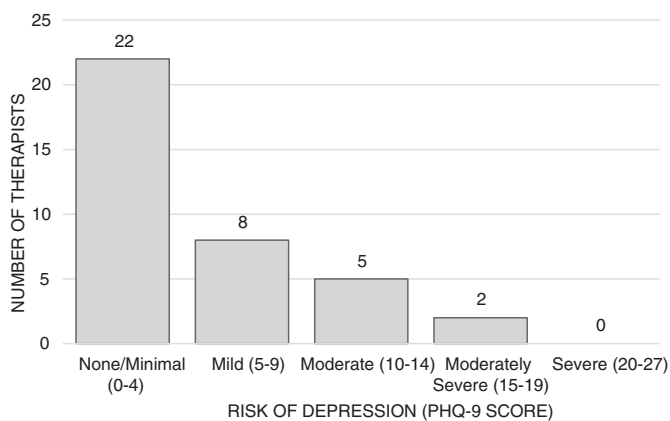


FIGURE 1 Distribution of Patient Health Questionnaire-9 (PHQ-9) scores among therapists.

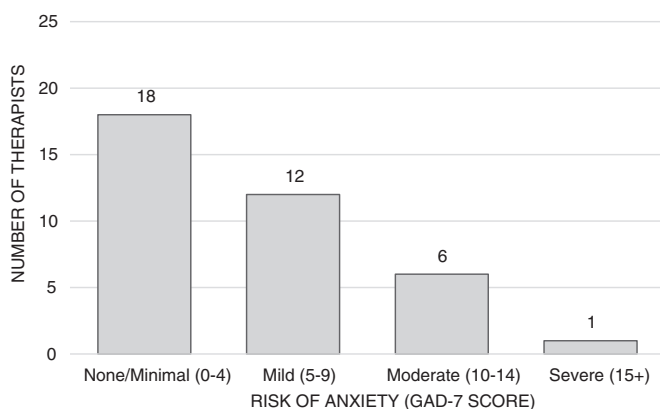


FIGURE 2 Distribution of General Anxiety Disorder 7-item scale (GAD-7) scores among therapists.

PHQ-9 and GAD-7

Median (IQR) PHQ-9 and GAD-7 scores across all survey respondents were 4.0 (2.0–6.5) and 5.0 (2.0–7.3), respectively. Figure 1 shows the distribution of PHQ-9

TABLE 1 Comparison of Patient Health Questionnaire-9 (PHQ-9) scores between therapist demographic groups

Variable	n	Median (IQR)	p value
Discipline			
Physical therapist	18	3.5 (1.2–7.5)	.702
Occupational therapist	13	4.0 (2.0–5.0)	
Speech-language pathologist	5	4.0 (1.0–5.0)	
Age group (years)			
<30	8	5.0 (4.0–9.5)	.327
30–39	22	3.0 (1.2–5.8)	
40+	6	3.5 (2.2–5.5)	
Young child at home			
Yes	9	4.0 (2.0–10.0)	.508
No	27	4.0 (1.5–5.5)	
COVID-19 provider			
Yes	24	4.0 (2.0–8.5)	.924
No	10	4.5 (1.8–5.8)	
Perceived adequate access to personal protective equipment			
Yes	25	4.0 (1.0–5.0)	.192
No	10	5.5 (2.5–7.5)	

Abbreviations: IQR, interquartile range; n, number of therapists.

The Wilcoxon rank sum test was used for items comparing two groups and the Kruskal-Wallis test was used for items comparing 3 or more groups.

TABLE 2 Comparison of General Anxiety Disorder 7-item scale (GAD-7) scores between therapist demographic groups

Variable	n	Median (IQR)	p value
Discipline			
Physical therapist	13	5.0 (3.0–7.0)	.972
Occupational therapist	13	4.0 (2.0–5.0)	
Speech-language pathologist	5	6.0 (1.0–8.0)	
Age group (years)			
<30	8	10.5 (5.8–13.2)	.025*
30–39	22	3.5 (1.0–7.0)	
40+	6	5.0 (4.0–6.8)	
Young child at home			
Yes	9	5.0 (3.0–7.0)	.927
No	27	5.0 (2.5–8.0)	
COVID-19 provider			
Yes	24	5.5 (2.0–8.0)	.985
No	10	4.0 (3.2–7.8)	
Perceived adequate access to personal protective equipment			
Yes	10	5.0 (3.2–11.2)	.608
No	24	5.5 (2.0–8.0)	.985

Abbreviations: IQR, interquartile range; n, number of therapists.

The Wilcoxon rank sum test was used for items comparing two groups and the Kruskal-Wallis test was used for items comparing three or more groups.

*Clinically significant ($p < .05$).

scores and Figure 2 shows the distribution of GAD-7 scores among therapists. Seven individuals (19%) scored at or above the clinically significant cutoff of 10 on the PHQ-9 and GAD-7, corresponding to increased risk for depression and anxiety. Five of these individuals scored ≥ 10 on both the PHQ-9 and GAD-7. For the two other individuals who scored ≥ 10 on the PHQ-9, one had a GAD-7 score in the 5–9 range and the other had a GAD-7 score in the < 5 range. For the two other individuals who scored ≥ 10 on the GAD-7, both had PHQ-9 scores in the 5–9 range. Relationships between participant characteristics and risk of depression and anxiety are presented in Tables 1 and 2, respectively. There was no significant association between discipline (PT, OT, SLP) and median PHQ-9 score. Therapists younger than 30 years old had significantly higher GAD-7 scores compared to therapists aged 30 to 39 years old (Table 2).

DISCUSSION

This study highlights the effect of the COVID-19 pandemic on occupational stress and psychological well-being in PTs, OTs, and SLPs working at an IRF during

the first surge of COVID-19 hospitalizations. Increased occupational stress was thought to be multifactorial; causes included concerns for health and safety, unpredictable changes in hospital protocols and work assignments, acquisition of additional work duties, concerns about the ability to provide high-quality patient care in a restricted environment, and the psychological toll of caring for patients with or recovering from COVID-19. In the present study, seven of 37 (19%) survey respondents scored at or above the clinically significant cutoff of 10 on each the PHQ-9 and GAD-7, corresponding to increased risk for depression and anxiety.

All therapists in this study reported experiencing increased stress around performing their job duties, irrespective of whether they provided care for patients with COVID-19 during the first IRF surge. Infection control protocols during this time period affected the entire hospital system. Universal masking and eye protection were mandated for all clinical staff, with additional PPE required for those working in areas with known or potential COVID-19 exposure. Patients were routinely tested for SARS-CoV-2 within the 72 hours preceding IRF admission and again at the IRF if clinically indicated. Patients who tested positive for SARS-CoV-2 on a polymerase chain reaction test were cohorted to a designated COVID-19 unit. Off-unit privileges and visitors were universally restricted. These infection control policies were similar to those reported at other hospital systems.¹⁰⁻¹⁴

Patients with COVID-19 were maintained on appropriate isolation precautions, and therapy sessions were conducted in the patient room. This posed a number of challenges, including inability to access the usual therapy equipment. A number of respondents perceived decreased ability to perform therapy effectively, which may have amounted to reduced job satisfaction. Because of visitor restrictions, all family training was conducted virtually. This format was suitable for most discharges but was particularly challenging for patients requiring high levels of physical assistance. In response to staffing shortages, a number of therapists were redeployed to work as nurse extenders, assisting nurses with tasks such as transferring, toileting, and personal care. Many therapists volunteered their time outside of their clinical hours to assist patients in using phone or video to communicate with family.

The changes in hospital protocols and expansion of therapist job duties during the beginning of the COVID-19 pandemic were not unique to the institution described in this study. A publication by Palacios-Cena et al. relates the hospital environment and redeployment of PTs to being on the front line of a war, explaining that PTs were asked to “help at any place and do anything,” such as working in sterilization, pharmacy, or preventive services.²⁵ The present study demonstrates that this dramatic shift in work procedures

corresponded with periods of high stress and a negative impact on mental health. Similar research conducted on PTs during the pandemic reported an increased risk of depression,²⁶ heightened stress,²⁷ and concern for personal safety.²⁶ Therapists working in IRFs have exhibited similar psychological distress and concern for safety as therapists working in the acute care hospital setting.²⁵⁻²⁷ The present analysis found that therapists younger than 30 years old had significantly higher GAD-7 scores compared to therapists aged 30 to 39 years. This is consistent with the results of an investigation that found elevated stress in physical therapists under 35 years old.²⁷ In contrast, a study by Yang et al. demonstrated a significantly increased risk of depression for PTs in their 30s and 50s compared with PTs younger than 30 years old.²⁶ Several more studies reported higher than usual rates of depression, anxiety, insomnia, posttraumatic stress disorder, and burnout in healthcare workers associated with the pandemic.²⁸⁻³⁰

In usual times, the prevalence of depression and anxiety in the general population has been reported to be about 3.9% and 1%, respectively.³¹ A study of the general public in Cyprus at the beginning of the pandemic found significant elevation of COVID-19 related depression and anxiety symptoms, with 9.2% scoring in the moderate to severe range on PHQ-9 and 23.1% scoring in the moderate to severe range on the GAD-7.³² The authors claimed that the emergence of the pandemic had great impact on the psychological state and quality of life of the general population.³² Thus, it is difficult to ascertain what degree of the anxiety and depressive symptoms noted in the studied sample are attributed directly to occupational factors vs external factors experienced by society at that time in general.

This study addresses a critical gap in the literature. There is a paucity of research examining the effect of the COVID-19 pandemic on occupational stress and psychological well-being in IRF therapists. There is some published work that describes the effect of the pandemic on mental health in PTs,²⁵⁻²⁷ but a multidisciplinary study including PTs, OTs, and SLPs had not been previously described. The results highlight a number of stressors that negatively affected therapists' mental health during the pandemic. This may help institutions identify at-risk individuals who may benefit from support and guide policy changes to resolve potentially modifiable systems factors.

This study has a number of limitations. First, it is important to note that therapists were not asked about preexisting depression or anxiety and baseline PHQ-9 and GAD-7 scores were not available. Therefore, a change in scores cannot be calculated, and it is unknown how the pandemic might have affected depression or anxiety screening scores on the sampled population. Other factors were a small sample size and moderate response rate. However, the 45% response

rate observed in this study is consistent with trends seen in other academic research.³³ Response rates of similar studies also varied greatly from 20%^{16,26} to 87%.²⁶ Incomplete response rate may be attributed to a number of factors including the voluntary nature of the survey, lack of monetary compensation, work-related time constraints, or disinterest. Response bias is a known phenomenon in self-report research.³⁴ It is possible that therapists who remembered worse experiences may have been more motivated to share their opinions. Recall bias was possible due to the time delay between the period of reference, the first IRF COVID-19 surge, and the time the survey was conducted. This study did not collect data on gender. Though the exact number is unknown, the majority of therapists employed at the time of the survey were female, which is consistent with known gender workforce distributions in healthcare.³⁵ Women are at higher risk for developing depression and anxiety, and gender patterns in the distribution of symptoms were maintained during the pandemic.³²

This study focused on work stressors and did not account for personal variables that may have affected therapists' psychological well-being during this period. The time was fraught with housing, economic, and health uncertainty.³⁶ It is imperative to acknowledge that the study corresponded with a time of increased public awareness of racial inequities in health care and policing, with a disproportionate impact on communities of color.^{37,38} A limitation and likely confounder in this study is the failure to collect data on race or account for the social circumstances of the time.

It is unclear whether this study is generalizable to other IRFs or hospital settings where patients receive therapy, such as skilled nursing facilities or acute care. Access to PPE, medical resources, and hospital protocols are expected to have varied widely among healthcare institutions during this time.

CONCLUSION

This cross-sectional survey study highlights the extensive impact of the COVID-19 pandemic on occupational stress and psychological well-being in PTs, OTs, and SLPs working at an IRF during the first surge of COVID-19 hospitalizations. Nineteen percent of the study sample was identified at increased risk for depression and anxiety. All respondents reported taking on new and different roles during the study period that could have exacerbated an already stressful time in their personal and professional lives. Occupational stress was attributed to a number of causes including concerns for health and safety, unpredictable changes in hospital protocols and work assignments, acquisition of additional work duties, concerns about the ability to provide high-quality patient care in a restricted


environment, and the psychological toll of caring for patients with or recovering from COVID-19. This research may help institutions identify at-risk individuals who may benefit from support and guide policy changes to resolve potentially modifiable factors at a systems level.

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