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Wellness of opioid use disorder healthcare professionals during the COVID-19 pandemic: Results from a national survey

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Abstract

Objective: The COVID-19 pandemic has dramatically impacted healthcare delivery and these effects are juxtaposed with healthcare professional (HCP) burnout and mental distress. The *Opioid Use Disorder Provider COVID-19 Survey* was conducted to better understand impacts on clinical practice and well-being.

Methods: The cross-sectional survey was emailed to listservs with approximately 127,000 subscribers of diverse professions between July 14 and August 15, 2020. Two dependent variables were identified to evaluate HCP functioning and work-life balance. Independent variables assessed organizational practices and HCP experiences. Covariates included participant demographics, addiction board certification, and practice setting. Multilevel multivariate logistic regression models were used for analyses.

Results: Among 812 respondents, the majority were men, white, and physicians, with 46% in urban settings. Function-impairing anxiety was reported by 17% and 28% reported more difficulty with work-life balance. Difficulty with functioning was positively associated with having staff sick with COVID-19 and feeling closer to patients, and was negatively associated with being male and

no staff changes. Difficulty with work-life balance was positively associated with addiction board certification, working in multiple settings, having layoffs/furloughs or reduced hours, staff sick with COVID-19, and group wellness check-ins, and was negatively associated with male gender, older age, and no staff changes.

Conclusions: There were demographic, provider, and organizational practice variables associated with reporting negative measures of well-being during the COVID-19 pandemic. These results should inform HCPs and their organizations on factors that may lead to burnout, with particular focus on gender and age-related concerns and the role of wellness check-ins.

Introduction

The SARS-CoV-2 (COVID-19) pandemic had devastating impacts on global economies and healthcare (1–3). Less is known about impacts on healthcare professional (HCP) wellness. Given historically high rates of burnout among HCPs (4, 5), the COVID-19 pandemic has likely had impacts on wellness. Among HCPs who treat patients with opioid use disorder, increasing patient demand for mental health treatment and rising overdoses may contribute to negative impacts on wellness (6).

Before the COVID-19 pandemic, U.S. physicians, nurse practitioners, and physician assistants reported high rates of burnout (30%–50%) (7). Among physicians, 42% reported burnout immediately prior to the COVID-19 pandemic, with higher rates among women and 40–54 year-olds (4). Compared to the general population, physicians have increased risk of burnout and less likelihood of satisfaction with work-life balance, even after adjusting for age, sex, relationship status, and hours worked per week (8). Physicians who regularly prescribed buprenorphine before COVID-19 reported less role satisfaction treating opioid use disorder than in their general medical practice (9). Surveys comparing burnout by urban versus rural physicians have not shown significant differences (10, 11). There are no surveys comparing measures of wellness during a public health emergency that differentially affected major urban centers. Data from frontline physician trainees showed significantly higher stress and burnout among those exposed to COVID-19 (12), although less is known about changes to well-being for those providing remote patient care.

The COVID-19 public health emergency triggered rapid modifications to healthcare service delivery, particularly regarding telehealth regulations at the federal and state levels (13–15). For treatment of opioid use disorder, the Drug Enforcement Agency and Substance Abuse and Mental Health Services Administration waived requirements for initial in-person visits for buprenorphine and allowed reduced in-person visits for methadone-maintained patients (16). Implementation and expansion of telehealth for psychiatric services has been systematically studied and is clinically and economically effective (17, 18). Less is known about telemedicine effectiveness for opioid use disorder treatment (19, 20). Studies have not systematically evaluated impacts of telemedicine on HCP wellness resulting from service delivery changes. There are various models of telehealth services; both the patient and HCP can be located in a clinic, their respective residences, or elsewhere in the community. Variations on telehealth delivery have not been systematically studied and there are likely unique impacts of these variations on HCP wellness.

To better understand the impact of the COVID-19 pandemic on HCPs treating patients with opioid use disorder, a consortium of stakeholder organizations (see Online Supplement) was rapidly identified, spearheaded by leadership of the American Academy of Addiction Psychiatry. The consortium created the *Opioid Use Disorder Provider COVID-19 Survey* (see Online Supplement) to explore practice changes, perspectives, and other impacts of the pandemic. To investigate impacts on opioid use disorder HCP wellness, we explored associations with demographic variables, provider type and practice setting, and reported practice changes. While we anticipated similar associations as previously described, (i.e. differences by gender and age), we also anticipated that urbanicity would be associated with HCP wellness, given more abrupt impacts of the pandemic on more densely populated U.S. cities between mid-March and mid-May (21).

Methods

Sample

Consortium members, including clinicians, educators, and policy experts, created an anonymous 35-items survey that was administered using Qualtrics (Provo, UT) online survey platform, including questions regarding HCP role and demographics, pre-pandemic clinical practices/post-pandemic changes, HCP perception of changes, and HCP wellness. The *Opioid Use Disorder Provider COVID-19 Survey* included a combination of multiple choice and open-ended questions. Questions were derived from a literature review, including a survey on behavioral health provider wellness (22). A smaller group of subject matter experts from the consortium member organizations reviewed and edited the survey (23, 24). Subject matter experts conducted two reviews of survey items and made revisions over three rounds of edits. The Yale University Institutional Review Board exempted the survey from review. The total subscribership of all listservs was approximately 127,000 (see Online Supplement for details). Among these organizations, membership type varies, including primarily non-addiction specialist physicians (e.g. American Medical Association) and a combination of addiction specialist physicians with other health professionals, including advanced practice nurses, physician assistants, psychologists, social workers, and counselors (e.g. American Society of Addiction Medicine [ASAM], American Academy of Addiction Psychiatry [AAAP], Addiction Technology Transfer Center [ATTC]). Among AAAP listserv subscribers, approximately 40% are prescribers (physicians or advanced practice providers). This break-down was not available for ASAM or ATTC listservs. Membership of these organizations and subscribership to their relevant listservs is not mutually exclusive, and may include significant overlap. We were not able to discern the number of listserv subscribers who are active prescribers of medications for opioid use disorder, which was a requirement for survey eligibility. Survey responses were received July 14-August 15, 2020.

Dependent Variables

Dependent variables measured HCP wellness by functioning and work-life balance. We used two responses to the following survey question: “please indicate any changes to staffing and provider wellness you have experienced as a result of COVID-19.” Functioning was captured via the response option “my anxiety level about COVID-19 has impacted my

functioning at home and/or work” and work-life balance was captured by “I am having a more difficult time than usual balancing work and home life.” For each question, participants could select all options that applied. There was an option for “no changes” which helps distinguish non-responders as missing, versus people who did not experience any changes. Respondents who checked a box for a response option were coded 1 for the response. Respondents who checked at least one box for the question, but left a response option blank, were coded 0 to that particular option. Respondents who left all options blank were coded as missing.

Independent Variables

Seven response options assessed organizational practices and related HCP experiences (see Table 1), which came from responses to the same survey question as dependent variables and were coded in the same manner.

Covariates

Covariates included respondent self-reported race (white, African American or Asian), ethnicity (Hispanic or not), gender, age, urbanicity (rural, suburban, urban, or other), board certification in addiction, practice setting, and whether the majority of their patients with opioid use disorder had Medicaid as their insurance type. Options for gender included “Man,” “Prefer not to say,” “Prefer to self-describe,” and “Woman.” Due to the small number of responses in “Prefer not to say” and “Prefer to self-describe” categories (15 people across both categories), people were coded 1 if they selected “Man” and 0 if they selected any other category. Survey response options for age were categorical (< 30, 30–39, 40–49, 50–59, 60–69, 70) and treated as continuous in analysis. Board certification in addiction was reported as either yes or no. Practice setting included 10 options and “other;” and multiple responses were permitted. To simplify analysis and interpretation, we used “multiple settings” as one category and collapsed categories with a small number of responses (Veterans Health Administration, Indian Health Service, Emergency setting, Prison/Jail, and other) into a single “other only” category. Only the top three categories (multiple settings, private practice only, and opioid treatment program only) were included in the model. State was reported and included options for all 50 U.S. states, Puerto Rico, and “I do not reside in the US.” Provider type was dichotomized as physician or advanced practice provider (nurse practitioner or physician assistant) and described, but not included in the model due to large portion of missing (22%), small proportion of advanced practice providers, and collinearity between this variable and other covariates, particularly gender.

Statistical Analysis

Descriptive statistics (frequency and percentage) were used across the following variables: race, ethnicity, gender, age, urbanicity, board certification, prescriber type, practice setting, Medicaid acceptance, and organizational practices/experiences. We then examined relationships between HCP wellness (described above in dependent variables section) and organizational practices/related HCP experiences using multilevel multivariate logistic regression models, with random effects at the state level. We used likelihood-ratio tests to compare multilevel models in addition to ordinary logistic regression. Models were adjusted for previously described covariates. Stata 16 was used for analysis (25).

Results

Between July 14 and August 15, 2020, 1,109 individuals answered the first question, 832 completed the entire survey, and 812 completed the survey item relevant to this analysis. The response rate could not be calculated due to the overlap among organizations' email listservs and an unknown number of listserv recipients who are active prescribers of medications for opioid use disorder. The rate of missing among variables included in regression models was less than 1%. Respondents came from all 50 states except South Dakota. There were 8 respondents from outside the U.S. (< 1% of the sample) and one respondent from Puerto Rico. The top five states were Colorado (N = 108), California (N = 50), New York (N = 49), Massachusetts (N = 43), and New Mexico (N = 35). Of remaining states, 22 had fewer than 10 respondents.

Among the 812 respondents, the majority identified their race as white (80%, N = 650), gender as male (53%, N = 430), and profession as physician (75%, N = 536). Participant age was equally distributed across categories, with the exception of those less than 30 years old representing 1% (N = 12) and those over 70 years old representing 11% (N = 92). Nearly half (46%, N = 376) reported working in an urban environment and the remaining were split between suburban (28%, N = 228) and rural (23%, N = 186). Only slightly more than a third of participants (38%, N = 309) were board-certified in addiction. More than half (57%, N = 464) reported Medicaid as their patients' primary insurance. Practice settings were diverse, with 24% (N = 192) reporting multiple settings, 17% (N = 136) private practice only, and 11% (N = 92) opioid treatment program only. Overall, 17% (N = 136) of respondents reported that COVID-19 impacted their functioning at work/home and 28% (N = 229) reported that COVID-19 disrupted balancing their work and home life (Table 1).

Bivariate Pearson's correlation tests indicated that about half of pairwise comparisons of organizational characteristics were significant, although correlations were mostly weak ($r = -0.46 - 0.30$). (see Online Supplement).

Two factors were associated with lower odds of reporting functional impacts due to anxiety about COVID-19: male gender (OR = 0.60; $p = 0.01$) and having no staff changes at work (OR = 0.51; $p = 0.01$). Two factors were associated with higher odds of reporting functional impairment due to anxiety about COVID-19: staff sick with COVID-19 (OR = 2.59; $p < 0.01$) and feeling closer to patients (OR = 1.97; $p = 0.01$) (Table 2).

Male gender was associated with lower odds of having difficulty balancing work and home life (OR = 0.56; $p < 0.01$), as was being older (OR = 0.76; $p < 0.01$) and reporting no staff changes at their organization (OR = 0.54; $p = 0.01$). Characteristics associated with higher odds of difficulty included addiction board certification (OR = 1.88, $p < 0.01$), working in multiple practice settings (OR = 1.78; $p = 0.01$), layoffs/furloughs or reduced hours (OR = 1.66, $p = 0.01$), staff sick with COVID-19 (OR = 1.66; $p = 0.01$), and group meetings to check in on staff wellness (OR = 1.85; $p = 0.01$) (Table 3).

Likelihood-ratio tests revealed no significant variation at the state level. There were no associations between urbanicity and reporting disturbances to functioning or work-life balance.

Discussion

Findings provide insights on potential impacts of COVID-19 induced transition from in-person to remote treatment on opioid use disorder HCP wellness. Only 16% were working on-site as usual, likely a dramatic change as these HCPs previously provided minimal remote treatment due to pre-pandemic regulations. A minority reported negative impacts on wellness due to COVID-19. There were disparities by gender and age, with men and older HCPs appearing less affected. Additionally, there were significant associations with addiction board certification, practice setting, organizational factors, and HCP experiences. Demographic, provider-level, and organizational practice variables warrant further investigation.

The small fraction of respondents reporting impacts on functioning due to anxiety about COVID-19 may be explained by the timing of the survey (summer 2020). Associations with reduced staffing and negative impacts on work-life balance are consistent with prior research that longer hours are associated with burnout (26, 27), as affected HCPs likely have had increased clinical and administrative demands. Telework was not specifically assessed, but the rapid transition to telework was likely disruptive for HCPs.

Our gender and age related findings are consistent with prior research showing associations between gender and age with burnout among HCPs. We did not ask respondents about having children in the home; however, associations between demographic variables (e.g. gender or age) may be explained by this factor. Our study is the first to document differences in HCP well-being by addiction board certification, with those reporting either addiction medicine or addiction psychiatry board certification having higher odds of reporting difficulty with work-life balance. A prior study of physician job satisfaction showed no differences between addiction or non-addiction specialties nor between buprenorphine waived and non-waived prescribers (9). Board-certified professionals may be treating a larger number of patients with more severe substance use and co-occurring mental health disorders, which have worsened during the pandemic. HCPs working in multiple practice settings were more likely to report negative impacts on work-life balance, possibly due to increased administrative demands. Feeling closer to patients was associated with functional impairments from anxiety. While this association was unanticipated, the survey item was included to understand the impact on rapport between HCPs and patients. It is possible that increased rapport coincided with increased worry for patient well-being. Associations between difficulty with work-life balance and meeting to check in on wellness as a group might be related to perceived infringement of work-life barriers or conversely may indicate an increased need for wellness check-ins. However, there was no significant association between functional impairments and wellness meetings, or between feeling supported by the organization and either wellness metric.

We hypothesized more negative impacts on wellness among those working in urban settings due to the precipitous impacts of COVID-19 in large U.S. cities early in the pandemic. However, we found no significant associations between urbanicity and either measure of HCP well-being after accounting for clustering of HCPs within states. This is likely because our measure was overly simplified, since some urban centers were significantly

more impacted early on (28). With a larger sample, an analysis comparing highly impacted regions to less impacted may provide a better understanding of the impact of infection rate severity.

A limitation of our survey is that we recruited a convenience sample through email distribution and had a low number of responses relative to the total listserv subscribership and to the total number of known buprenorphine waived prescribers, limiting generalizability of our findings to all opioid use disorder-treating HCPs. It is plausible that HCPs who were differentially affected by the COVID-19 pandemic may have varied on their willingness or ability to complete the survey. However, we believe that the large number of responses within a relatively small subspecialty in a short timeframe provides important insights to help understand opioid use disorder HCP wellness during this pandemic. Findings related to gender and age were consistent with previous research, increasing our confidence about the reliability of results, but is also a discouraging finding for women and younger HCPs. This convenience sample provides early insights that should be further evaluated among opioid use disorder-treating HCPs.

The changing course of the COVID-19 pandemic and survey timing may have affected results. Survey responses were obtained during a summer 2020 COVID-19 peak in national case numbers, which was followed by a period of relative stability in fall 2020, followed by another surge of cases in winter 2020 with a 7-day average more than three times that in the summer (28). Notably, the winter surge coincided with COVID-19 vaccine rollouts in the U.S. Numerous variables may have impacted HCP wellness at various timepoints during the pandemic. Our survey provides a snapshot of these impacts.

We also measured wellness broadly and did not use validated burnout scales. The intention of the survey was to begin to understand HCP practice changes related to COVID-19 and HCP perceptions and impacts of changes. In this analysis, “functioning” and “work-life balance” were identified as potential proxies for HCP wellness. We recognize that wellness and burnout are multifactorial and are not fully encompassed by these dependent variables and warrant further investigation with validated instruments.

Findings highlight the importance of emphasizing healthcare provider wellness and strategies to reduce burnout. A meta-analysis found that organization-directed interventions had significantly greater effects than physician-directed interventions (29). Effective organization-directed interventions included reducing or modifying work or on-call shifts and targeted quality improvement projects (26, 27, 30), and effective physician-directed strategies included mindfulness-based interventions (31, 32). A narrative review identified organizational approaches to prevent or treat burnout: developing and publicizing employee assistance programs, scheduled genuine break time, and regular meetings to discuss goals, hours, tasks, and fairness (33). Five physician-level principles were also identified: establishing work-life balance, identifying what is energizing and draining to make career decisions, nurturing wellness strategies, social networks, and self-care, becoming engaged or re-engaged, and building resilience.

Conclusions

This multi-organizational collaborative study was organized to understand impacts of organizational changes related to COVID-19 on opioid use disorder HCP wellness. We reported an impact on HCPs' ability to balance professional and personal life adequately during the pandemic. The results should inform organizational leadership of changes associated with well-being. Employers should consider differential needs of women, younger HCPs, and HCPs who work in multiple settings and carefully evaluate the intention of wellness check-ins and consider the structure and frequency to genuinely focus on wellness needs and avoid further work-life infringement. Further research should study trends to determine whether outcomes persist and what interventions should be implemented to mitigate harms, with a particular focus on HCPs who are Black, indigenous, and people of color, given known differential impact and disparities for healthcare delivery for these groups before and during the COVID-19 pandemic (34–37).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- COVID-19 pandemic resulted in a rapid modification of opioid use disorder treatment provision along with an increase in mental health problems and substance use among patients.
- Despite potential for negative impacts on wellness, a minority of survey respondents reported functionally impairing anxiety related to COVID-19 and more difficulty with work-life balance.
- Male gender, older age, and having no staff changes appeared to be protective against negative impacts on wellness.
- Staff being sick with COVID-19, reduced clinic staff, feeling closer to patients, addiction board certification, working in multiple practice settings, and meeting as a group for staff wellness check-ins were associated with negative impacts on wellness.

Table 1:

Description of the sample

	N	%
Race & Ethnicity (N = 809)		
White	650	80%
African American	27	3%
Asian	46	6%
Hispanic	47	6%
Male (N = 810)	430	53%
Age (N = 810)		
< 30	12	1%
30 – 39	158	20%
40 – 49	159	20%
50 – 59	180	22%
60 – 69	208	26%
70	92	11%
Urbanicity (N = 812)		
Rural	186	23%
Suburban	228	28%
Urban	376	46%
Other	22	3%
Board certified addiction medicine (N = 812)	309	38%
Prescriber type (N = 718)		
Physician	536	75%
NP or PA	182	25%
Practice setting (N = 812)		
Multiple settings	192	24%
Private practice only	136	17%
OTP only	92	11%
Primary care only	62	8%
Academic only	73	9%
Specialty only	62	8%
FQHC only	62	8%
Other only	133	16%
Medicaid is primary insurance of patients (N = 811)	464	57%
Organizational practices/ experiences (N = 812)		
No staff changes	252	31%
Had layoffs/furloughs or reduced hours	374	46%
Most staff work at home	238	29%
Staff sick with COVID-19	221	27%

	N	%
Meet as a group to check-in on staff wellness	150	18%
Feel supported by organization	311	38%
Feel closer to patients	105	13%
Outcomes (N= 812)		
Function-impairing anxiety	136	17%
More difficulty with work-life balance	229	28%

Note: Other practice setting includes "other", veterans administration, jail and emergency department; NP = nurse practitioner; PA = physician assistant; OTP = opioid treatment program; FQHC = federally qualified health center

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Table 2:

Factors associated with “anxiety level about COVID-19 impacted my functioning at home and/or work”:
Multilevel multivariate logistic regression

	OR	95% CI	p
Race (reference: all other races)			
White	0.92	0.48 – 1.76	0.80
African American	0.77	0.22 – 2.73	0.69
Asian	1.32	0.53 – 3.29	0.55
Hispanic (reference: not Hispanic)	1.52	0.64 – 3.61	0.35
Male (reference: not male)	0.60	0.39 – 0.90	0.01
Age (treated as continuous)	0.88	0.74 – 1.04	0.12
Urbanicity (reference: Urban)			
Rural	1.40	0.84 – 2.34	0.20
Suburban	0.95	0.59 – 1.53	0.82
Other	0.51	0.11 – 2.38	0.39
Board certified addiction medicine (reference: not certified)	1.16	0.76 – 1.79	0.49
Practice setting (reference: all other settings)			
Multiple settings	1.52	0.95 – 2.41	0.08
Private practice only	1.45	0.80 – 2.65	0.22
OTP only	0.68	0.30 – 1.52	0.35
Medicaid primary insurance of patients (reference: Medicaid not primary insurance)	0.90	0.59 – 1.39	0.65
Organizational practices/ experiences (reference: did not report the experience)			
No staff changes	0.51	0.30 – 0.86	0.01
Had layoffs/furloughs or reduced hours	0.75	0.48 – 1.17	0.20
Most staff work at home	1.19	0.78 – 1.82	0.43
Staff sick with COVID-19	2.59	1.70 – 3.95	< 0.01
Meet as a group to check-in on staff wellness	0.99	0.59 – 1.66	0.98
Feel supported by organization	0.90	0.59 – 1.39	0.64
Feel closer to patients	1.97	1.16 – 3.34	0.01
constant	0.32	0.12 – 0.86	0.03

Note: N = 806; OR = Odds Ratio, CI = Confidence Interval; OTP = Opioid Treatment Program; Bold = p value < 0.05

Table 3:

Factors associated with “having a more difficult time than usual balancing work and home life”: Multilevel multivariate logistic regression

	OR	95% CI	p
Race (reference: all other races)			
White	1.74	0.94 – 3.22	0.08
African American	2.33	0.82 – 6.66	0.11
Asian	1.99	0.87 – 4.55	0.10
Hispanic (reference: not Hispanic)	1.59	0.70 – 3.60	0.27
Male (reference: not male)	0.56	0.39 – 0.80	< 0.01
Age (treated as continuous)	0.76	0.66 – 0.87	< 0.01
Urbanicity (reference: Urban)			
Rural	1.07	0.68 – 1.68	0.77
Suburban	0.75	0.50 – 1.14	0.18
Other	0.74	0.25 – 2.22	0.59
Board certified addiction medicine (reference: not certified)	1.88	1.30 – 2.73	< 0.01
Practice setting (reference: all other settings)			
Multiple settings	1.78	1.19 – 2.66	0.01
Private practice only	1.04	0.61 – 1.80	0.88
OTP only	0.69	0.37 – 1.30	0.26
Medicaid primary insurance of patients (reference: Medicaid not primary insurance)	0.90	0.62 – 1.30	0.57
Organizational practices/ experiences (reference: did not report the experience)			
No staff changes	0.54	0.34 – 0.86	0.01
Had layoffs/furloughs or reduced hours	1.66	1.13 – 2.43	0.01
Most staff work at home	1.41	0.98 – 2.03	0.07
Staff sick with COVID-19	1.66	1.14 – 2.40	0.01
Meet as a group to check-in on staff wellness	1.85	1.20 – 2.84	0.01
Feel supported by organization	0.86	0.59 – 1.24	0.41
Feel closer to patients	1.07	0.65 – 1.78	0.79
constant	0.43	0.18 – 1.05	0.06

Note: N = 806; OR = Odds Ratio, CI = Confidence Interval; OTP = Opioid Treatment Program; Bold = p value < 0.05