

Impact of the Corona Virus Disease 2019 Pandemic on Hepatology Practice and Provider Burnout

Mark W. Russo,¹ Ryan Kwok,^{2,3} Marina Serper,⁴ Nneka Ufere,⁵ Bilal Hameed,⁶ Jaime Chu,⁷ Elizabeth Goacher,⁸ John Lingerfelt,⁹ Norah Terrault,¹⁰ and K. Rajender Reddy ⁴

The corona virus disease 2019 (COVID-19) pandemic has had a wide-ranging impact on the clinical practice of medicine and emotional well-being of providers. Our aim was to determine the impact of the COVID-19 pandemic on practice and burnout among hepatology providers. From February to March 2021, we conducted an electronic survey of American Association for the Study of Liver Diseases (AASLD) members who were hepatologists, gastroenterologists, and advanced practice providers (APPs). The survey included 26 questions on clinical practice and emotional well-being derived from validated instruments. A total of 230 eligible members completed the survey as follows: 107 (47%) were adult transplant hepatologists, 43 (19%) were adult general hepatologists, 14 (6%) were adult gastroenterologists, 11 (5%) were pediatric hepatologists, 45 (19%) were APPs, and 9 (4%) were other providers. We found that 69 (30%) experienced a reduction in compensation, 92 (40%) experienced a reduction in staff, and 9 (4%) closed their practice; 100 (43%) respondents reported experiencing burnout. In univariate analysis, burnout was more frequently reported in those ≤ 55 years old (odds ratio [OR], 2.2; 95% confidence interval [CI], 1.2-4.2), women (OR, 2.2; 95% CI, 1.3-3.7), nontransplant hepatology (OR, 2.0; 95% CI, 1.1-3.3), APPs (OR, 2.7; 95% CI, 1.4-5.1), and those less than 10 years in practice (OR, 1.9; 95% CI, 1.1-3.3). In multivariable analysis, only age ≤ 55 years was associated with burnout (OR, 2.3; 95% CI, 1.1-4.8). The most common ways the respondents suggested the AASLD could help was through virtual platforms for networking, mentoring, and coping with the changes in practice due to the COVID-19 pandemic. *Conclusion:* The COVID-19 pandemic has had a substantial impact on the clinical practice of hepatology as well as burnout and emotional well-being. Women, APPs, and early and mid-career clinicians more frequently reported burnout. Identified strategies to cope with burnout include virtual platforms to facilitate networking and mentoring. (*Hepatology Communications* 2022;6:1236-1247).

The corona virus disease 2019 (COVID-19) pandemic has had widespread impact on the practice of medicine and on the physical and emotional health of health care professionals.^(1,2) Among gastroenterology practices, 55% and 21% partly or fully closed during the pandemic, respectively.⁽²⁾ Gastroenterology and hepatology practices

transitioned from 5% of visits through telemedicine before the pandemic to 94% of visits through telemedicine during the pandemic.^(2,3) There has been an emotional toll as well from the pandemic. Among gastroenterologists, 40%-50% reported burnout, and among transplant hepatology fellows and early career transplant hepatologists, 35% reported burnout.⁽⁴⁻⁶⁾

Abbreviations: AASLD, American Association for the Study of Liver Diseases; APP, advanced practice provider; CI, confidence interval; COVID-19, corona virus disease 2019; OR, odds ratio.

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A major concern arising from the pandemic is the impact on physician burnout, which can have severe consequences, including lower patient care quality, medical errors, physician substance abuse, increased physician turnover, and increased costs for the health care system.⁽¹⁾ There are several drivers of burnout, including loss of job control, excessive workload, a feeling of lack of control of workload, and challenges in balancing personal life. Potential remedial solutions include decreasing clinical demands, better job control, teamwork, shared decision making, physician-directed wellness programs, and cognitive behavioral therapy.⁽⁷⁾ To that end, a joint statement by several societies advocating for clinician health in the post-COVID-19 pandemic has been released and endorses removing barriers to mental health care for clinicians and health care staff.⁽⁸⁾

The impact the COVID-19 pandemic has had on hepatology and the prevalence of burnout among hepatologists, gastroenterologists, and advanced practice providers (APPs) is unknown. The goals of our study were to survey American Association for the Study of Liver Diseases (AASLD) members to determine the rates of burnout and to describe the impact of COVID-19 on clinical practice in hepatology. In contrast to an earlier survey,⁽⁶⁾ we included transplant hepatologists at all stages of their career as well as general hepatologists, pediatric hepatologists, gastroenterologists, and APPs.

Participants and Methods

We conducted a cross-sectional survey of US AASLD members who practiced hepatology to determine rates

of burnout and the impact of the COVID-19 pandemic on hepatology practice. Survey development occurred within a working group that included the authors. The survey consisted of the following three sections: 1) The impact of COVID-19 on clinical practice; 2) assessing work-related well-being, including engagement, burnout, and professional satisfaction; and 3) demographics. The section on burnout included questions from two validated surveys, the Maslach Burnout Model and Stanford Professional Fulfillment Index.^(9,10) The survey also included questions on burnout from a survey conducted by the AASLD in 2018 of members who practiced hepatology.⁽¹¹⁾ The survey was pilot tested among the AASLD COVID-19 Clinical Oversight and Education Subcommittee and the COVID-19 Taskforce. Revisions were made based on comments from committee members. The final version is available in the Supporting Materials.

The final survey was emailed on January 26, February 5, and February 9, 2021, as an electronic survey to AASLD members. Eligible participants included full-time members who were in clinical practice, identified as adult and pediatric transplant and general hepatologists, gastroenterologists, or APPs. Individuals who were retired, did not practice hepatology, or international members were excluded.

A total of three emails were sent from the AASLD Marketing and Communications Team with each email separated by 7-14 days. The first email was sent to 2,810 individuals, had a 38% open rate, 4% click-through rate, and 0% bounce-back rate. The second email was sent to 2,807 individuals, had a 37% open rate, 2% click-through rate, and 1% bounce-back

ARTICLE INFORMATION:

From the ¹Division of Hepatology, Atrium Health Wake Forest School of Medicine, Charlotte, NC, USA; ²Uniformed Services University, Bethesda, MD, USA; ³Madigan Army Medical Center, Tacoma, WA, USA; ⁴Division of Gastroenterology and Hepatology, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA; ⁵Division of Gastroenterology, Department of Medicine, Massachusetts General Hospital Boston, MA, USA; ⁶Division of Gastroenterology and Hepatology, University of California San Francisco School of Medicine, San Francisco, CA, USA; ⁷Division of Pediatric Hepatology, Icahn School of Medicine at Mount Sinai, New York, NY, USA; ⁸Division of Gastroenterology, Duke University School of Medicine, Durham, NC, USA; ⁹American Association for the Study of Liver Diseases, Alexandria, VA, USA; ¹⁰Division of Gastroenterology and Liver, Keck Medicine at University of Southern California, Los Angeles, CA, USA.

ADDRESS CORRESPONDENCE AND REPRINT REQUESTS TO:

Mark W. Russo, M.D., M.P.H.
 Carolinas Medical Center-Atrium Health
 6th Floor MMP
 1025 Morehead Medical Drive

Charlotte, NC 28204, USA
 E-mail: Mark.russo@atriumhealth.org
 Tel.: +1-704-355-6649

rate. The third email was sent to 2,803 individuals, had a 34% open rate, 2% click-through rate, and 1% bounce-back rate. Among the 2,803 individuals who received the email, 2,390 members were eligible for the study for a response rate of 9.6% among all those who received the survey and a response rate of 24% for those who opened the survey.

STATISTICAL ANALYSIS

Means were compared with the Student *t* test for normally distributed variables and nonparametric test for nonnormally distributed variables. Proportions were compared with Fisher’s exact test. Multivariable analysis was performed using logistic regression, adjusting for age >55 years (age 55 years was chosen to separate early and midcareer from senior career), sex, profession (M.D. vs. APP), race, practice type (transplant vs. nontransplant), and specialty. *P* ≤ 0.05 was considered statistically significant.

Results

A total of 230 eligible members responded to the survey between February and March 2021 of which 107 (47%) were adult transplant hepatologists, 43 (19%) were adult general hepatologists, 14 (6%) were adult gastroenterologists, 12 (5%) were pediatric hepatologists, 45 (19%) were APPs, 9 (4%) were other specialists (Table 1). Respondents were women (106; 46%), Asian (45; 20%), Black (5; 2%), 55 years old or younger (166; 72%), and in practice 10 years or less (115; 50%). In general, geographic areas were well represented except with fewer respondents from the Southeast (Table 1).

IMPACT OF COVID-19 ON CLINICAL PRACTICE

A total of 124 (54%) respondents reported switching to primarily telemedicine sometime during the pandemic (Fig. 1). Most respondents (93%) wanted to ensure telemedicine was widely available after the pandemic, but most agreed that the widespread use of telemedicine will not continue unless reimbursement for telemedicine is comparable to in-person services. Although 88% of respondents viewed telemedicine favorably and almost all (98%) were increasingly using

TABLE 1. CHARACTERISTICS OF THE STUDY POPULATION

Characteristic	n = 230 (%)
Age (years)	
25-35	23 (10)
36-45	89 (39)
46-55	54 (23)
56-65	39 (17)
>65	25 (11)
Female	106 (46)
Hispanic Latino	12 (5)
Black	5 (2)
Asian	45 (20)
White	159 (69)
Adult transplant hepatologist	107 (47)
APP	45 (20)
Adult general hepatologist	43 (19)
Adult gastroenterologist	15 (6)
Pediatric general or transplant hepatologist	13 (5)
Other*	7 (3)
Practice setting	
University hospital with transplant program	146 (64)
Non-university hospital with transplant program	32 (14)
University hospital without transplant program	14 (6)
Community-based health system	11 (5)
Single specialty, gastroenterology	10 (4)
Government (Veterans Affairs)	10 (4)
Multispecialty/solo	7 (3)
Region:	
Mid-Atlantic	54 (24)
West	48 (21)
Northeast	45 (20)
Great Lakes	40 (17)
Southeast, South Central	19 (8)
Northwest, North Central	17 (7)
Southwest	7 (3)
Years in practice	
<5	43 (19)
5-10	72 (31)
11-15	33 (14)
16-20	21 (9)
21-25	20 (9)
>25	41 (18)

*Other: Pharm.D., R.D., R.N. (n = 3), which included infectious disease (n = 1), internal medicine (n = 1), transplant surgeon (n = 1), pathologist (n = 1).

telemedicine to increase access, only 35% agreed or strongly agreed that most patients preferred telemedicine over in-person visits. Other strategies to address access during the pandemic in descending order of

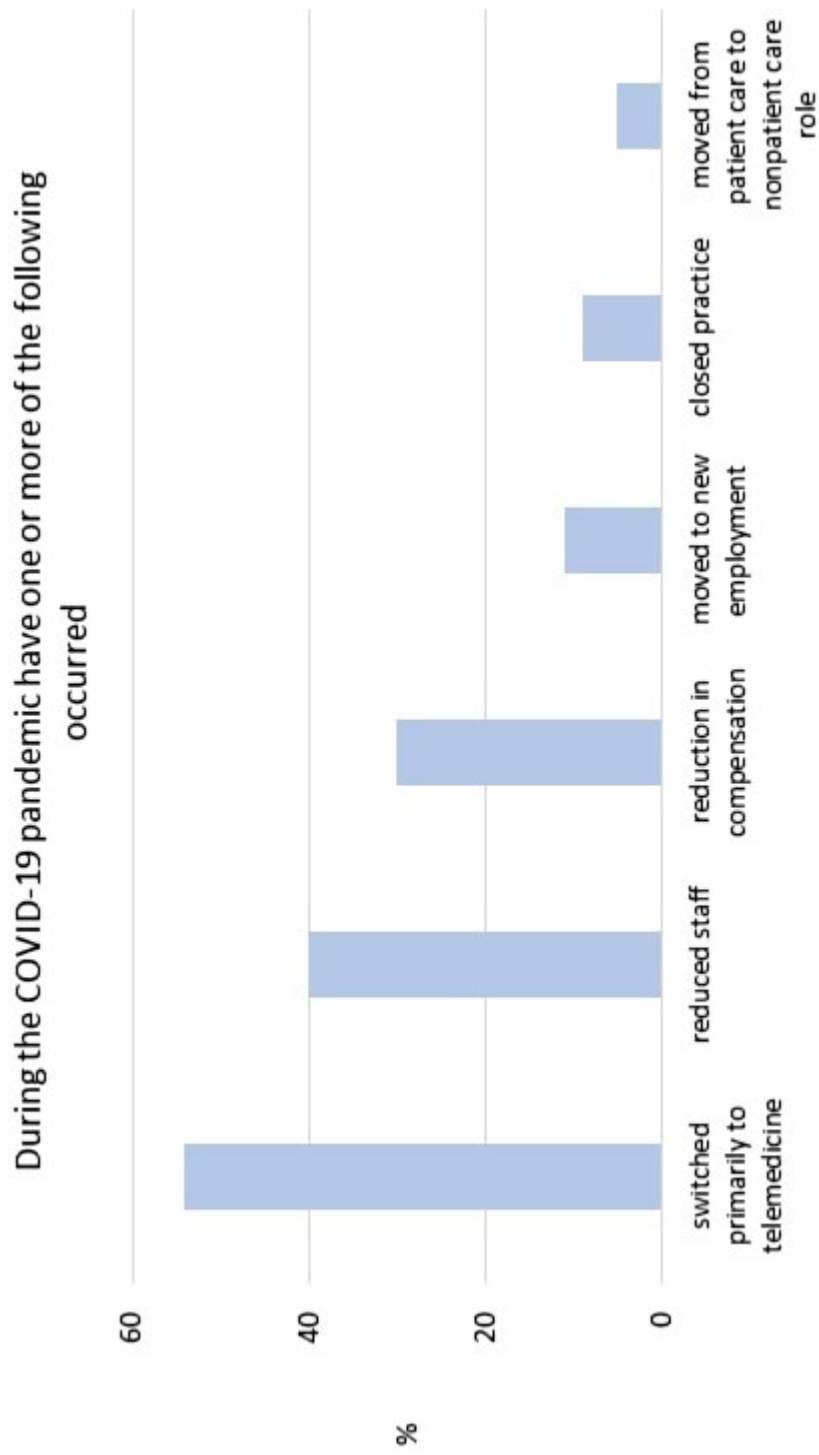


FIG. 1. Responses to changes that occurred in clinical practice during the COVID-19 pandemic.

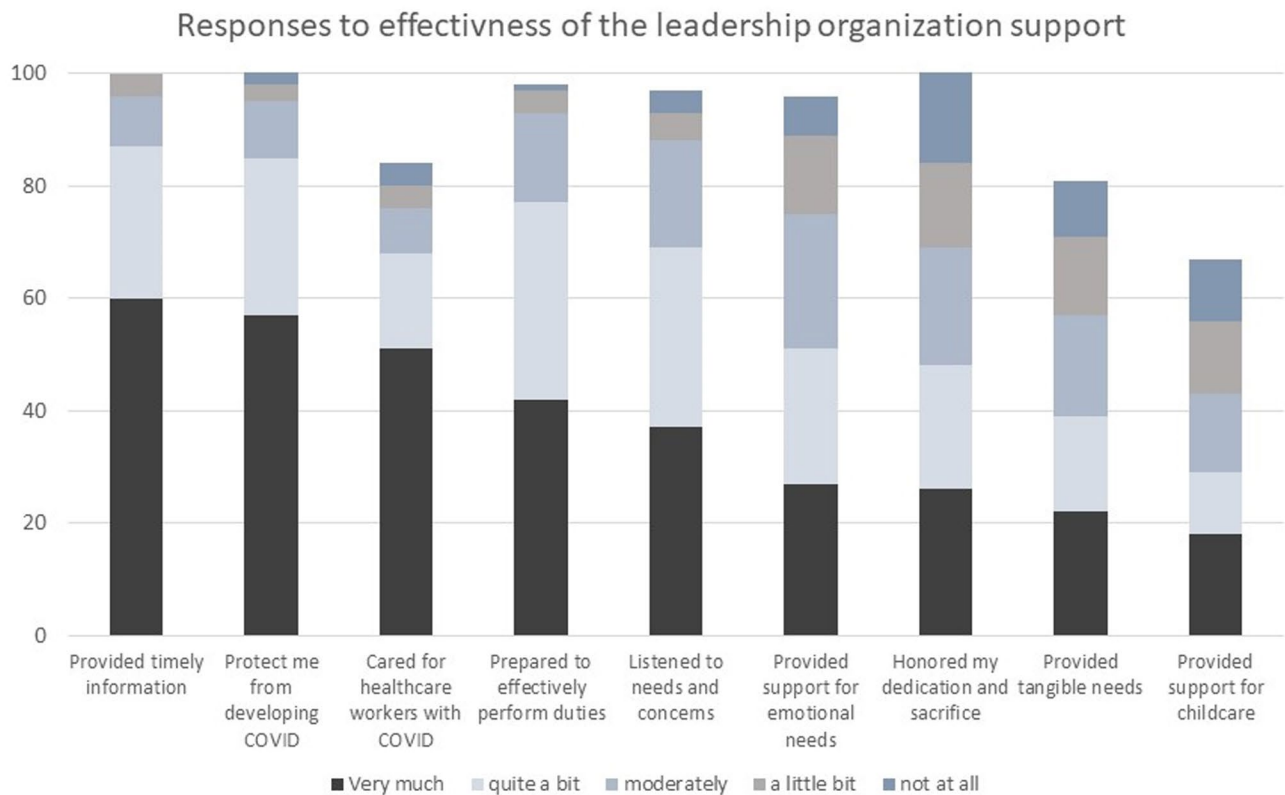


FIG. 2. Responses to effectiveness of leadership organization and support.

frequency included electronic consultations (e-consults), longer hours during weekdays, satellite clinics, weekend clinics, and hiring new providers. A reduction in compensation was experienced by 69 (30%) respondents, 92 (40%) experienced a reduction in staff, and 9% reported closure of practice (Fig. 1).

ATTITUDES TOWARD EMPLOYER DURING THE PANDEMIC

The majority of respondents reported their leadership took appropriate steps to protect them from COVID-19 infection, prepared them to perform duties, and provided timely information to keep them informed (Fig. 2). In contrast, the majority of respondents felt their employer did not honor their dedication and sacrifice, provide tangible needs, or provide support for childcare.

BURNOUT

Among the 230 respondents, 100 (43%) reported experiencing burnout, 61 (27%) reported that it was

somewhat true/not at all true that they felt happy at work, 50 (22%) reported that this was moderately true, and 119 (52%) reported that it was very or completely true. Respondents reported that it was not at all true or somewhat true that 1) they felt worthwhile at work (21%), 2) work was satisfying (16%), 3) they felt in control when dealing with difficult problems at work (27%), or 4) they contributed professionally in ways they valued most (19%).

Seventy-three (32%) respondents reported that the amount of time they enjoyed work was too little or far too little, and 58 (25%) respondents reported rarely or never having control of their workload. Respondents reported that it was very true or completely true that during the past 2 weeks before the survey they experienced a sense of dread when they thought about the work they have to do (35; 16%), are physically exhausted at work (37; 16%), or are emotionally exhausted at work (43; 19%). Thirty-eight (17%) respondents reported that it was very true or completely true they felt less connected with colleagues. Fewer than 5% of respondents reported

TABLE 2. SELECTED COMMENTS FROM THE SURVEY

Survey	Comment
Write in statement regarding burnout and workload	<p>"I am falling behind with work/research tasks because of increased family needs due to the pandemic."</p> <p>"I sometimes wish for a car accident just to be able to have an extended break."</p> <p>"I love my work, but I have been disrespected, insulted, humiliated. I am too old to start again, and I am trying to concentrate on what I love, my patients and my clinical research, but it's hard to believe that we are in 2021 and a woman can be treated poorly by an institution. [I] just hope my daughter who is in med school will have a different experience..."</p> <p>"The problem is not so much time to do things that are enjoyable but the ability to do them at all. Cannot travel, haven't seen family in >1 year, cannot do any of the things that used to provide enjoyment. If I travel, I lose access to childcare for a week, which is not an option."</p>
Write in statement regarding how AASLD can help	<p>"Provide guidance for being better patient advocates, help us educate patients in preventing liver disease, research and communicate efforts to improve disparities."</p> <p>"...more awards/recognitions for APPs: consider 'low hanging fruit,' i.e., modest awards for DNP [Doctor of Nursing Practice] projects or mentorship stipends, podcast updates (5-10-minute snippets), better access to liver-learning modules (was difficult to find/register a new employee for fundamentals course). Consider regional 'chapters' on engage platform..."</p>

it was very true or completely true that they felt less empathetic with patients or colleagues, less sensitive to others' feelings or emotions, and less interested in talking with patients.

The most common reasons for burnout in descending order of frequency included too many bureaucratic tasks, lack of time to take care of themselves, not enough time to spend with family and friends, spending too many hours at work, irritable at work/home, and feeling stressed most of the time. Select comments from the survey are shown in Table 2.

Respondents who reported feeling burnout felt less supported by their employer or leadership during the pandemic. The most notable differences among those who did and did not report burnout were feeling their employer or leadership did not listen to their needs and concerns or provide support for tangible needs, childcare or emotional needs and that their dedication and sacrifices were not honored in a meaningful way (Table 3). Factors that were not associated with burnout included closing a practice, reduction in staff, reduction in pay, moving jobs, moving from direct patient care, and switching to telemedicine.

FACTORS ASSOCIATED WITH BURNOUT: SUBGROUP ANALYSIS

Significant differences were found in burnout by age, sex, APP (compared to hepatologist), and practice setting.

Age and Years in Practice

Among those 55 years old and younger, 82 (49%) reported feeling burnout compared to 19 (30%) respondents who were older (odds ratio [OR], 2.2; 95% confidence interval [CI], 1.2-4.2; $P = 0.011$) (Fig. 3). Compared to respondents >55 years of age, those ≤55 years old were less likely to feel in control at work when dealing with difficult problems (38% vs. 64%, $P = 0.004$) and more likely to have a loss of empathy with patients ($P = 0.049$); they were also more likely to be very dissatisfied or dissatisfied with their annual salary (30% vs. 13%, $P = 0.017$). Among respondents ≤55 years old, 33% reported it was moderately to completely true they experienced emotional exhaustion at work compared to 19% of those >55 years old ($P = 0.059$). Sixteen percent of participants ≤55 years old reported it was moderately to completely true they felt less empathetic with colleagues compared to 5% of those >55 years old ($P = 0.057$).

Rates of burnout for those in practice 5-10 years, 11-15 years, 16-20 years, 21-25 years, and >25 years were 53%, 53%, 33%, 30%, and 23%, respectively. Those in practice less than 10 years were more likely to report burnout compared to those in practice more than 20 years (OR, 1.9; 95% CI, 1.1-3.3; $P = 0.016$).

Sex

Women were more likely than men to report experiencing burnout (OR, 2.2; 95% CI, 1.3-3.7;

TABLE 3. ATTITUDES TOWARD EMPLOYER IN RESPONDENTS WHO DID AND DID NOT FEEL BURNOUT*

Statement	Amount	Burnout, No n = 164 (%)	Burnout, Yes n = 60 (%)	PValue
Took appropriate steps to protect me from developing COVID-19 infection	Not at all/a little bit	3 (2)	6 (10)	P = 0.015
	Moderately	16 (10)	8 (13)	
	Quite a bit/very much	144 (88.)	46 (77)	
Prepared me to effectively perform duties I was asked to perform	Not at all/a little bit	6 (4)	6 (10)	P = 0.013
	Moderately	22 (14)	15 (26)	
	Quite a bit/very much	133 (83)	38 (64)	
Listened and understood my needs and concerns	Not at all/a little bit	10 (6)	10 (17)	P = 0.003
	Moderately	26 (16)	17 (29)	
	Quite a bit/very much	122 (77)	43 (54)	
Provided timely information to keep me informed	Not at all/a little bit	4 (2)	5 (8)	P = 0.03
	Moderately	11 (7)	8 (13)	
	Quite a bit/very much	149 (91)	47 (78)	
Provided support for health care workers' childcare needs	Not at all/a little bit	34 (33)	17 (39)	P = 0.006
	Moderately	17 (17)	16 (36)	
	Quite a bit/very much	52 (51)	11 (25)	
Provided support for health care workers' tangible needs	Not at all/a little bit	30 (23)	21 (40)	P = 0.003
	Moderately	26 (20)	16 (31)	
	Quite a bit/very much	72 (56)	15 (29)	
Provided support for my emotional needs	Not at all/a little bit	24 (16)	22 (37)	P < 0.001
	Moderately	32 (21)	22 (37)	
	Quite a bit/very much	99(64)	16 (26)	
Cared for health care workers at our center who developed COVID-19 infection	Not at all/a little bit	11 (8)	8 (17)	P = 0.21
	Moderately	11 (8)	4 (8)	
	Quite a bit/very much	118 (84)	36 (75)	
Honored my dedication and sacrifice in a meaningful way	Not at all/a little bit	35 (22)	24 (41)	P = 0.002
	Moderately	32 (21)	16 (27)	
	Quite a bit/very much	89 (57)	18 (31)	

*Columns may not add up to total number due to missing responses or because question was not applicable (i.e., childcare).

P = 0.005) (Fig. 3). A lower proportion of women compared to men reported that their program leadership had provided support for childcare needs (30% vs. 55%, *P* = 0.007); tangible needs, such as food, lodging, or transportation (37% vs. 59%, *P* = 0.006); and emotional needs (46% vs. 61%, *P* = 0.014). Women were less likely than men to report that their program leadership honored their dedication and sacrifices during the COVID-19 pandemic (39% vs. 60%, *P* = 0.004) and were less likely to report that quite a bit or very much of the work they did was worthwhile (53% vs. 68%, *P* = 0.032) (Fig. 4). There were no significant differences in overall job satisfaction between men and women, with the majority reporting that they felt satisfied or very satisfied with their work (86% vs. 87%, *P* = 0.84).

APPs

Characteristics of APPs are shown in Table 4. APPs more frequently reported burnout compared to hepatologists (29 [71%] and 67 [40%], respectively) (OR, 2.7; 95% CI, 1.4-5.1; *P* = 0.002). Compared to hepatologists, APPs were less likely to report feeling happy at work quite a bit or very much of the time (32% vs. 59%, *P* = 0.002). APPs were more likely to report feeling less in control at work with difficult issues (42% vs. 24%, *P* = 0.049) and physically exhausted at work (26% vs. 13%, *P* = 0.007).

Practice Setting

Respondents were stratified into those practicing either within or outside a transplant center. Transplant

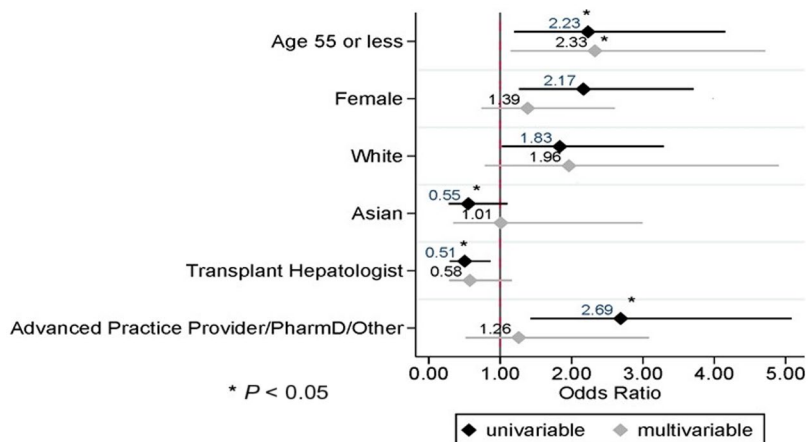


FIG. 3. Factors associated with burnout.

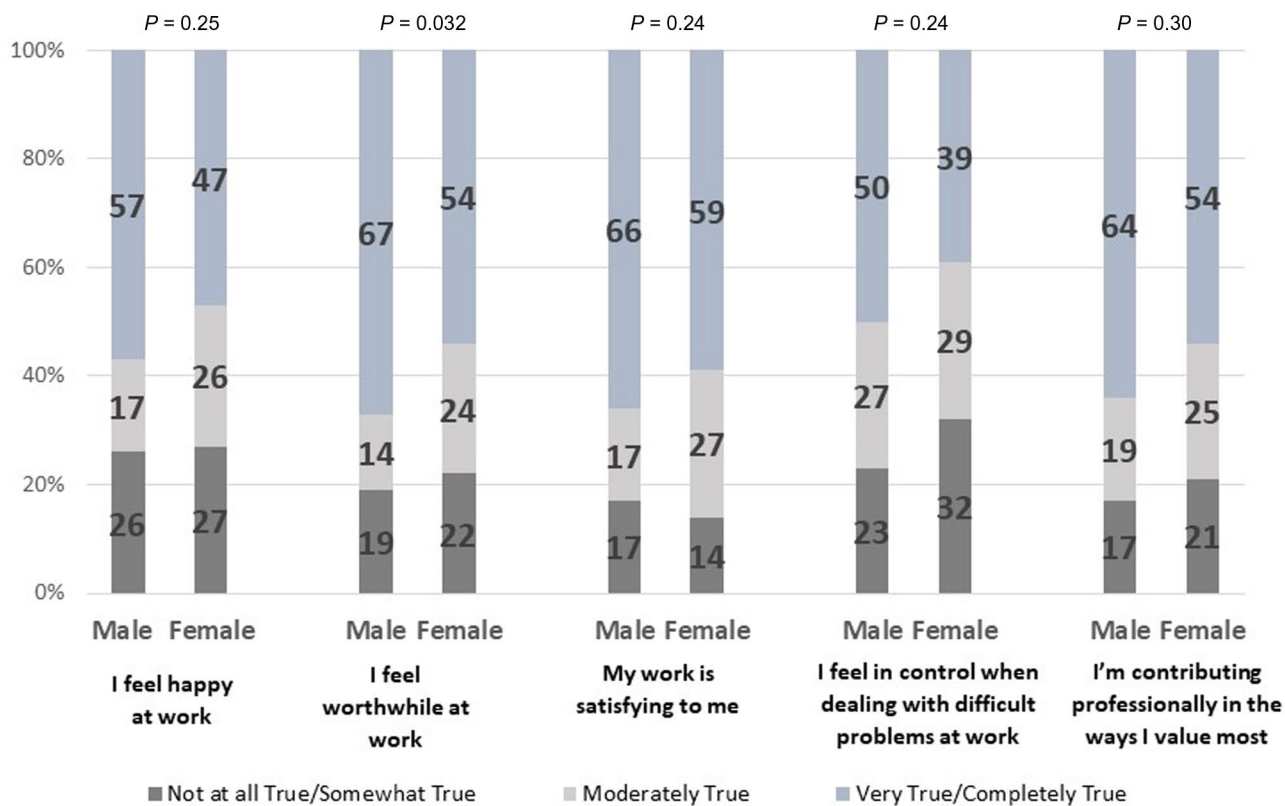


FIG. 4. Responses associated with fulfillment.

hepatologists were less likely to report experiencing burnout (OR, 0.5; 95% CI, 0.3-0.9; $P = 0.013$). Those practicing within a transplant center reported significantly more happiness ($P < 0.001$), satisfaction ($P = 0.015$), and

making a valuable professional contribution ($P = 0.042$) at work when compared to those practicing outside a transplant setting. Respondents working in a transplant center reported more control over their workload

TABLE 4. CHARACTERISTICS OF APPS

Characteristic	n (%)
Age (years)	
25-35	9 (19)
36-45	19 (40)
46-55	14 (29)
56-65	5 (10)
>65	1 (2)
Female	42 (88)
Region	
Mid-Atlantic	19 (40)
Great Lakes	11 (23)
West	8 (17)
Northeast	3 (6)
Southeast, South Central	3 (6)
North Central	2 (4)
Southwest	1 (2)
Northwest	1 (2)
Practice setting	
University hospital with transplant program	31 (65)
Non-university hospital with transplant program	9 (19)
Community-based health system	3 (6)
Single specialty, gastroenterology	3 (6)
Government (Veterans Affairs)	2 (4)
Experienced burnout (yes)	29 (71)
Do not plan to reduce workload	36 (75)

compared to those who did not work at a transplant center (77% and 57%, respectively; $P = 0.057$).

Transplant hepatologists compared to the rest reported more frequently that they felt happy at work quite a bit or very much of the time (65% vs. 39%, $P < 0.001$), that their work was satisfying (70% vs. 53%, $P = 0.015$), and that they were more satisfied with their benefits (92% vs. 81%, $P = 0.037$) and job security (93% vs. 83%, $P = 0.037$). In multivariable analysis, only age ≤ 55 years was associated with burnout (OR, 2.3; 95% CI, 1.1-4.8; $P = 0.019$) (Fig. 3).

WAYS AASLD CAN HELP

The most common responses to “rank the importance of the following existing or potential AASLD products or services as they support you in your role in hepatology” in descending order of frequency were to expand mentoring and networking through virtual platforms, facilitate virtual discussions among colleagues on solutions to address challenges in clinical practice resulting from the COVID-19 pandemic, facilitate virtual support groups to address ways to

cope with burnout, and expand eligibility for bridge awards. The ranking of products or services to support their role in hepatology was similar for APPs, women, and those ≤ 55 years old.

COMPARISON TO THE WORKFORCE SURVEY

The previously published workforce survey⁽¹¹⁾ included 152 adult transplant hepatologists, 84 adult general hepatologists, 86 adult gastroenterologists, and 108 APPs; 44% were >55 years old. In that survey, 39% of respondents reported feeling burnout (unpublished data) versus 43% in the current survey, and 39% of the respondents intended to reduce their workload over the next 5 years compared to 26% in the current survey.

Discussion

The current study is the first survey of hepatologists and APPs on the impact of the COVID-19 pandemic on clinical practice and burnout. Key findings from our study indicate that burnout is common, as reported by 43% of respondents. Further, burnout is more common in younger clinicians and women. Importantly we also surveyed APPs who experienced more burnout, reported feeling less happy at work, and experienced increased physical exhaustion compared to physicians. In addition, the COVID-19 pandemic has had a significant impact on hepatology practices, with greater use of telemedicine, a reduction in compensation and staff, or closure of a practice.

The Center for Medicare and Medicaid services expanded telemedicine benefits on an emergency and temporary basis through the Coronavirus Preparedness Response Supplemental Appropriations Act on March 27, 2020.⁽¹²⁾ Telemedicine in gastroenterology increased by 4,000% during the pandemic, and 94% of gastroenterology/hepatology visits were virtual telemedicine visits compared to 5% 2 weeks before the onset of the COVID-19 pandemic.^(13,14) Using video technology for health care is not new to hepatology and has been successfully deployed in improving access to help manage patients with chronic hepatitis through the Extension of Community Healthcare Outcomes project.⁽¹⁵⁾ In our survey, almost all providers had a favorable opinion of telemedicine,

although they believed patients preferred in-person visits. However, this is contrary to results from other studies that have found most patients had a favorable opinion of telemedicine.⁽¹⁶⁾ It is likely telemedicine will become a permanent part of clinical hepatology, although this is partly dependent on reimbursement.

A unique finding of our study was there were substantial decreases in compensation and staffing reported by 30%-40% of respondents. This is consistent with an earlier study in gastroenterology that noted a decline in mean number of patients visits, although the economic impact from this decline was not reported.⁽¹⁶⁾ In a survey of North American gastroenterology practices, 65% of centers reported they were operating at less than 10% of normal endoscopy volume during the pandemic.⁽²⁾ Neither of these studies reported on the impact that the reduction in patient volume or endoscopy had on compensation or burnout nor were either specific to hepatology. In the current study, changes in practice, such as reduction in staffing or compensation, were not associated with burnout.

Burnout is pervasive in medicine, and hepatology is not spared. Before the pandemic, a workforce survey conducted by AASLD found that burnout was reported among 39% of the 367 hepatologists and 108 APPs surveyed, similar to the rate reported in the current study.⁽¹¹⁾ In contrast to the prior survey, the current study asked for more detail about domains of burnout, such as workload and job satisfaction, which are important to identify so appropriate remedies can be developed. Those who reported burnout felt less supported and less appreciated by their employer or leadership, both of which are potentially easily remedied. Burnout was more common among women, APPs, those in practice less than 10 years, and younger hepatology providers, although the association between burnout and women, APPs, and years in practice was confounded by age. Similar to our study, a survey of hepatology trainees and junior faculty found that job satisfaction was associated with burnout, but their study was limited to hepatology trainees as well as hepatologists within 7 years of a fellowship and did not include APPs.⁽⁶⁾ Our survey excluded trainees, included a broader range of hepatologists, and included physician assistants and nurse practitioners.

To our knowledge, our study is the first to survey burnout among hepatology APPs, who constitute 13% of the current hepatology workforce; this is estimated to increase to 22% over the next decade.⁽¹¹⁾ After

adjusting for age, the association between burnout and APPs was no longer significant, and it may be that APPs who responded to the survey were younger as a whole compared to the physicians who responded. Nevertheless, the care provided by APPs is associated with improved quality in patients with cirrhosis, and their role will become increasingly important as the population ages and the prevalence of liver disease, especially cirrhosis from nonalcoholic fatty liver disease, increases.⁽¹⁷⁾ Identifying factors associated with burnout is important in attracting and retaining APPs in the workforce. Specific areas identified among APPs in our survey that should be targeted for improvement include feeling a lack of control and physical exhaustion at work. Strategies to reduce burnout include mindfulness-based stress-reduction exercises, participation in meaningful hospital committee work or national societies, and mentorship.⁽¹⁸⁾ However, these methods are not necessarily specific to APPs, nor is it known if they specifically address the reported issues of lack of control and physical exhaustion. Other interventions should include strategies developed at a local or division level, control of schedule, and job description. Further studies are needed on interventions to reduce APP burnout in hepatology.

The most common ways respondents identified that AASLD can provide support are through expanded mentoring and networking through virtual platforms and to facilitate virtual discussions among colleagues on solutions to address challenges in clinical practice resulting from the COVID pandemic. The priority of potential services that AASLD could offer to provide support members was the same among hepatologists, APPs, women, and those ≤ 55 years of age. In addition, organization-directed interventions that introduce changes in resources, the working environment, and/or work tasks to decrease stress or change intensity of workload are more effective in reducing burnout than physician-led interventions that focus on individuals, such as cognitive behavioral therapy or mindfulness techniques.⁽⁷⁾

A limitation of our survey includes a low-response rate, but our response rate of 9.6% is similar to other published surveys of physicians on burnout.^(19,20) There were few respondents who were Black, Hispanic, or pediatric hepatologists/APPs. While the response rates for these groups are similar to the composition of AASLD membership, this highlights the need to increase efforts toward improving diversity

within our workforce. We were not able to compare specific domains of burnout to the previously published workforce survey because burnout was not a focus of that survey.⁽¹¹⁾ An unexpected finding was that burnout was not higher in our survey compared to the workforce survey. One explanation is sampling error and that different populations responded to the workforce survey and the current survey. Lastly, we did not survey the members on specific research-related challenges. Yet, the strength of this survey is that it provides insights into the career and burnout challenges faced by members of AASLD and provides an opportunity to examine in more depth how some of these issues could be addressed at various levels.

In conclusion, the COVID-19 pandemic has had a substantial impact on the practice of hepatology and the well-being of hepatology providers. One third to 40% of hepatology practices saw a reduction in compensation or staff, and almost all providers have used telemedicine. Burnout is common and reported more frequently by women, APPs, and early and midcareer hepatologists. Common issues included feeling a lack of control of workload and feeling physically exhausted at work. Uniformly, across sex, age, and profession, respondents identified that the most common ways AASLD can help are by providing virtual platforms for networking and mentoring and virtual platforms for discussions on how members have developed strategies to cope with changes due to the pandemic. There were some troubling comments from respondents to the survey regarding dread, e.g., “sometimes wish for a car accident for extended break,” and humiliation, e.g., “I have been disrespected, insulted, humiliated.” As a professional society, AASLD can support its membership through the pandemic and beyond by enhancing or developing virtual platforms for networking, mentoring, and coping with the pandemic. Some of the necessary interventions should continue beyond the pandemic to effectively combat the reported issues so that Hepatology as a discipline remains attractive and so we can maintain an adequate workforce.

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