original contributions

Evaluation of Burnout in a National Sample of Hematology-Oncology Pharmacists

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QUESTION ASKED: What is the prevalence of burnout among hematology-oncology pharmacists and what factors are associated with an increased rate of burnout?

SUMMARY ANSWER: Of the 614 pharmacists who responded to the survey, 61.8% reported high burnout. Multivariable analysis revealed several factors associated with an increased risk of high burnout including increasing age, more hours worked per week, more administrative hours worked per week, being unaware of available wellness programs, and decreased wellness because of the COVID-19 pandemic.

WHAT WE DID: Between October and November 2020, members of the Hematology/Oncology Pharmacy Association were invited to complete a cross-sectional, anonymous, online survey. The survey included 58 questions composed of the Maslach Burnout Inventory, Well-Being Index, and sociodemographic and occupational factors linked with burnout.

WHAT WE FOUND: The majority (61.8%) of hematology-oncology pharmacists were experiencing symptoms of burnout based on their Maslach Burnout Inventory subscale scores. Pharmacists were at greater risk for experiencing burnout as they aged, worked more hours per week, spent more time on administrative hours per week, reported decreased wellness secondary to the COVID-19 pandemic, and were unaware of wellness programs available to them. Pharmacists with burnout were four times as likely to report they had made a major medication error in the past 3 months and were more likely to report an intent to leave their current position within 2 years.

BIAS, CONFOUNDING FACTOR(S): The survey was completed amid the global COVID-19 pandemic, which could have affected some of the findings. Additionally, responder bias should be considered since the response rate to the survey was 20.3% and there were differences in the demographics found between those who responded and the overall Hematology/Oncology Pharmacy Association membership.

REAL-LIFE IMPLICATIONS: Burnout is highly prevalent among hematology-oncology pharmacists and may have detrimental effects on individual pharmacists and their institutions, as well as affect patient safety. This study identified several risk factors that may be targets for burnout mitigation and prevention strategies to reduce the impact of burnout on hematology-oncology pharmacists, maintain our current workforce, and improve cancer care for patients.

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ASSOCIATED CONTENT

Appendix

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STATE OF CANCER CARE IN AMERICA

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Evaluation of Burnout in a National Sample of Hematology-Oncology Pharmacists

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abstract

PURPOSE To evaluate the prevalence of burnout among hematology-oncology pharmacists and factors associated with an increased risk of high burnout.

METHODS Between October and November 2020, members of the Hematology/Oncology Pharmacy Association were invited to complete an anonymous survey. Questions included the Maslach Burnout Inventory (MBI), Well-Being Index, and sociodemographic and occupational factors linked with burnout.

RESULTS Of 3,024 pharmacists contacted, 614 pharmacists (20.3%) responded to an online survey and 550 (18.2% of overall sample) completed the MBI and were included for analysis. Overall, high levels of burnout were observed in 61.8% of respondents based on the MBI, with 57.9% of respondents scoring high on the emotional exhaustion domain and 31.3% high in the depersonalization domain. Pharmacists with burnout worked on average 48.6 (±9.6) hours per week compared with 44.5 (±9.6) hours per week for those without high burnout and spent more time on administrative tasks per week (7.5 hours *v* 4.3 hours; all $P < .001$). Pharmacists reporting high burnout were more likely to report concern they had made a major medication error within the past 3 months (27.6% *v* 8.1%; $P < .001$) and greater intent to leave their current job within 2 years (60.3% *v* 19.0%; $P < .001$).

CONCLUSION Burnout is prevalent among hematology-oncology pharmacists and may affect both patient safety and the adequacy of the workforce. Risk factors for burnout among hematology-oncology pharmacists in this study may be targets for burnout mitigation and prevention strategies to reduce the impact on pharmacists and improve cancer care for patients.

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INTRODUCTION

Burnout is characterized by feelings of energy depletion or exhaustion, increased mental distance from one's job, or feelings of negativism or cynicism related to one's job, and reduced professional efficacy.[1,2] In February 2021, ASCO published a 5-year plan to address provider burnout and well-being, underscoring the severity of the problem facing oncology professionals.[3] The ASCO plan focuses on engaging in clinician well-being, broadening well-being resources, and promoting research to identify clinician and practice needs.[3] ASCO also published recommendations to optimize cancer care delivery that emphasize the need to recognize and address threats to clinician, provider, and patient well-being and highlight ASCOs' commitment to deepening its understanding of the needs of the oncology workforce to prevent burnout and departure from the field of oncology.[4]

Studies have shown that burnout is associated with several mental and physical health conditions including depression, anxiety, heart disease, headaches, and gastrointestinal issues.[5,6] Burnout contributes to increased job turnover, which can have a substantial financial impact on organizations.[7-9] Additionally, the association between burnout and decreased patient safety has been well established.[10-14] Increased workload, external job demands, and work stress negatively affect medication safety and self-reported medication errors.[13,15]

Burnout is present in at least half of pharmacists, and prevalence in pharmacists has been reported to be similar to physicians, nurses, and advanced practice providers.[12,16-18] Hematology-oncology pharmacists are of particular interest because of the variability in practice settings and potential distress associated with caring for patients with cancer. Previous research on burnout in medical oncologists demonstrated that

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taxing professional experiences, such as dealing with the stress of administrative tasks, can increase levels of burnout.[19-22] Hematology-oncology pharmacists play a key role in managing prior authorizations, the dominant payer pressure identified in the 2017 ASCO Practice Census Survey. In addition, 27% of new drug approvals are in hematology-oncology, creating an increased implementation burden to incorporate new regimens in patient care.[23-25] Additionally, oncology clinical trials account for 20% of all clinical trials, more than any other specialty, which require pharmacist expertise to manage drug therapy including dispensing, inventory management, and identification of potential drug-drug interactions.[26-28] Hematology-oncology pharmacists manage patients across a spectrum of care goals from curative to palliative, including those receiving toxic chemotherapy with a narrow therapeutic window and a high burden of adverse effects.[20,28] In 2020, the COVID-19 pandemic added another layer of complexity including navigation of drug shortages, administration of complex regimens as outpatients or changes in chemotherapy regimens to minimize risk of health care exposure, reductions in personnel to manage patient care, shifting providers roles, changes in clinical trial access and workflows, and rapid implementation of telehealth.[29-36] Assessing burnout among pharmacists practicing in cancer care will allow for exploration of both occupational and sociodemographic variables and their association with burnout. It is crucial to identify risk factors for burnout to help facilitate development of strategies to decrease burnout in at-risk individuals as burnout is associated with negative sequelae. To our knowledge, this is the first study to describe burnout among hematology-oncology pharmacists.

METHODS

Participants

Study participants included pharmacist and resident members of the Hematology/Oncology Pharmacy Association (HOPA) who completed the survey between October 2020 and November 2020. The Mayo Clinic Survey Research Center sent e-mails to 3,024 HOPA members with a link to the online survey. Three reminder requests were sent over the ensuing 3 weeks to nonrespondents. Participation in the study was voluntary, and all data were deidentified before analysis. Human subject oversight was provided by the Institutional Review Board of the Mayo Clinic (Rochester, MN).

Survey

The full-length survey included 58 questions composed of the 22-item Maslach Burnout Inventory (MBI) Human Services Survey, the 9-item Well-Being Index (WBI), and 27 questions exploring a variety of personal and professional factors to measure burnout and career satisfaction. The MBI is a validated survey, deemed the gold standard for assessing burnout, and has been used in multiple burnout studies.[6,11,17,18,20,37-40] Three subscales are used in the MBI to evaluate each domain of burnout: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment. The WBI is a validated questionnaire designed to measure multiple dimensions of distress including anxiety, stress, depression, fatigue and help predict the risk of burnout.[41] Threshold scores to identify those at high risk of adverse outcomes vary between professions.[12,41-45] Items assessing level of fatigue, concern for making a major medical error, and likelihood to leave current position within 2 years for reasons other than retirement were included. Participants were asked about sociodemographic (ie, age, sex, and marital status) and occupational factors (ie, pharmacist role, practice location, hours worked, and percent of time spent doing different work activities) that may affect burnout. Items assessing impact of the COVID-19 pandemic and awareness of wellness programs were also included.

Statistical Analysis

A high level of burnout was defined per the MBI subscales, including EE $\geq$ 27 or DP $\geq$ 10.[40,46-50] A low sense of personal accomplishment, defined as $\leq$ 33, was assessed. AWBI scores of $\geq$ 5 has been associated with increased risk of adverse outcomes among pharmacists and was used as the threshold score.[12] Descriptive statistics were calculated as means and standard deviations or medians and interquartile ranges for continuous data, and frequencies and percentages for categorical data. The percentage of pharmacists with burnout and corresponding 95% CI were calculated. Comparisons of variables between those with and without high burnout were made using *t*-tests or Wilcoxon rank sum tests for continuous variables, Wilcoxon rank sum tests for variables on the Likert scale, and chi-square or Fisher's exact tests for categorical data. Multivariable logistic regression was used to determine whether associations between burnout and other variables held true after adjustment. All tests were two-sided, and *P*-values $\leq$ .05 were considered statistically significant. All analyses were performed using SAS version 9.4 software (SAS Institute, Cary, NC).

RESULTS

Personal and Professional Characteristics

Of the 3,024 pharmacists who received an electronic survey, 614 pharmacists (20.3%) submitted at least one survey answer. The WBI was completed by 598 pharmacists (19.8%) and the MBI was completed by 550 pharmacists (18.2%) and were used in multivariable analyses. Sociodemographic and occupational factors are reported in Table 1. The median age of participants was 34 (23-69) years with almost half of the participants between the age 30 and 40 years. Study respondents identified as White (82.8%), Asian (13.7%), Black or African American

TABLE 1. Comparison of Demographic Factors in Respondents With or Without High Burnout

Characteristic	High Burnout (EE ≥ 27 or DP ≥ 10)		
	No (n = 210)	Yes (n = 340)	*P*
Age, years, median (range)	34 (25-69)	35 (23-67)	.55
Sex, No. (%)			.87
Male	51 (25.0)	82 (24.5)	
Female	151 (74.0)	248 (74.0)	
Race, No. (%)			
American Indian or Alaskan Native	1 (0.5)	3 (0.9)	.60
Asian	35 (17.3)	38 (11.4)	.055
Black or African American	3 (1.5)	8 (2.4)	.47
Native Hawaiian or Other Pacific Islander	0 (0.0)	1 (0.3)	.43
White	163 (80.7)	279 (84.0)	.32
Other	4 (2.0)	12 (3.6)	.28
Ethnicity, No. (%)			.47
Hispanic or Latino or Spanish Origin	3 (1.5)	8 (2.5)	
Not Hispanic or Latino or Spanish Origin	193 (98.5)	316 (97.5)	
Relationship status, No. (%)			.42
Single (never married)	52 (25.6)	90 (27.0)	
Married or in a domestic partnership	139 (68.5)	229 (68.8)	
Widowed	1 (0.5)	0 (0.0)	
Divorced	11 (5.4)	12 (3.6)	
Separated	0 (0.0)	2 (0.6)	
Children, No. (%)			.50
Yes	96 (47.3)	148 (44.3)	
No	107 (52.7)	186 (55.7)	
Years as a licensed pharmacist, mean (SD)	11.8 (10.2)	12.0 (9.4)	.38
Years as a hematology-oncology pharmacist, mean (SD)	8.4 (7.8)	8.2 (6.9)	.56
Years in current position, mean (SD)	4.9 (5.7)	5.1 (5.3)	.073
Pharmacy role, No. (%)			.97
Pharmacist—direct patient care	135 (65.2)	222 (65.9)	
Pharmacist—dispensing	22 (10.6)	28 (8.3)	
Resident or fellow	8 (3.9)	16 (4.8)	
Investigational drug services	8 (3.9)	12 (3.6)	
Supervisor or manager or director	27 (13.0)	46 (13.6)	
Professor or assistant professor	5 (2.4)	7 (2.1)	
Industry	2 (1.0)	6 (1.8)	
Practice location (select options), No. (%)			
Hospital or inpatient	93 (44.7)	169 (49.9)	.24
Ambulatory clinic	109 (52.4)	193 (56.9)	.30
Infusion clinic	82 (39.4)	145 (42.8)	.44
Academic medical center	72 (34.6)	136 (40.1)	.20
Academia	11 (5.3)	17 (5.0)	.89
Pharmaceutical industry	2 (1.0)	6 (1.8)	.44
Administration	8 (3.8)	23 (6.8)	.15
Special pharmacy	13 (6.3)	19 (5.6)	.75
Other	6 (2.9)	9 (2.7)	.87

Abbreviations: DP, depersonalization; EE, emotional exhaustion; SD, standard deviation.

(2.1%), American Indian or Alaska Native (0.7%), and Native Hawaiian or Pacific Islander (0.2%). Most respondents reported ethnicity not of Hispanic or Latino or Spanish Origin (97.9%). Most participants (74%) identified as female. The majority of respondents identified being married (68.7%) and 45.4% reported having children. Most pharmacists were board-certified in oncology pharmacy (68.8%) and many held additional certifications: board-certified pharmacotherapy specialist (16.1%), board-certified ambulatory care pharmacist (0.4%), board-certified sterile compounding pharmacist (0.9%), board-certified nutrition support pharmacist (0.6%), and board-certified pediatric pharmacy specialist (0.6%).

Pharmacists worked in a variety of settings, including ambulatory clinics (55.2%), hospital or inpatient (47.9%), infusion clinics (41.5%), academic medical center (38.0%), specialty pharmacy (5.9%), administration (5.7%), and academia (5.1%). Respondents had worked on average 12 (±9.7) years as a licensed pharmacist, 8.3 (±7.2) years as a hematology-oncology pharmacist, and 5.0 (±5.4) years in their current role. Most participants (95.7%) worked full-time for an average of 47.1 (±9.8) hours per week. Pharmacists reported spending an average of 20 hours per week on direct patient care, 10 hours per week on administrative tasks, 6 hours dispensing, 5 hours per week teaching, 4 hours on research, and 1 hour on other tasks at work.

Pharmacist Well-Being Based on MBI and WBI

When assessed using the MBI, 61.8% (95% CI, 57.7 to 65.9) of participants reported high burnout based on a high score on the DP or EE domain. Within each subscale, 57.9% of pharmacists scored high for EE, 31.3% scored high for DP, and 32.5% reported a low sense of personal accomplishment. No demographic characteristics assessed were associated with burnout on univariable analysis. When assessed using the WBI, 27.3% of participants scored ≥ 5. Of those who had high burnout based on MBI, 40% scored ≥ 5 on the WBI.

Medication Errors

In the total population, 20.2% of pharmacists reported they were concerned they had made a major medication error in the past 3 months. Pharmacists with high burnout were more likely than their counterparts without high burnout to report concern for having made a major medication error in the past 3 months (27.6% *v* 8.1%; $P < .001$).

Leaving the Profession

Of the pharmacists with high burnout based on the MBI, 26.8% responded they were likely or definitely leaving their current position within the next 2 years for reasons other than retirement compared with 8.1% of pharmacists without high burnout ($P < .001$; Fig 1). In total, 91 pharmacists with high burnout on the MBI reported they are likely or definitely leaving their current position within 2 years compared with 17 pharmacists without high burnout.

COVID-19 Pandemic

The survey was distributed approximately 7 months after the start of the COVID-19 pandemic. Overall, 62.0% reported a decrease in wellness during the COVID-19 pandemic, 4.1% reported improvement in wellness during the COVID-19 pandemic, and 33.9% reported no change. A higher proportion of pharmacists reporting high burnout reported the COVID-19 pandemic negatively affected their wellness compared with those without high levels of burnout (68.0% *v* 52.0%; $P < .001$).

Wellness Programs

Overall, 58.4% of pharmacists felt they would benefit from a wellness program; however, 26.9% of pharmacists were unaware of any wellness program. Pharmacists with high burnout reported more frequently they would benefit from a wellness program compared with participants without high levels of burnout (62.7% *v* 51.2%; $P < .001$). Of pharmacists with high burnout, 29.3% had accessed and 40.2% were aware of a wellness program; however, 30.5% of those with high burnout were not aware of any wellness programs available to them.

Multivariable Analysis

We performed multivariable analysis to identify personal and professional characteristics associated with burnout and well-being (Table 2). Increasing age was associated with an increased risk of burnout. Compared with those age < 30 years, odds ratio (OR) for high burnout was 2.27 for participants age 30 to < 40 years (95% CI, 1.29 to 3.99), 3.05 for participants age 40 to < 50 years (95% CI, 1.45 to 6.38), and 3.56 for those age 50 years and older (95% CI, 1.65 to 7.69). Increasing hours worked per week (per 4 hours) and more administrative hours per week (≥ 4 *v* < 4 hours) were associated with an increased risk for burnout (OR 1.22; 95% CI, 1.10 to 1.35 and OR 2.40; 95% CI, 1.52 to 3.78, respectively). Respondents who were unaware of any wellness programs were 2.4 times more likely to report high burnout (95% CI, 1.46 to 3.96). Those who responded their wellness decreased during the COVID-19 pandemic were at increased risk for high burnout compared with participants who reported the COVID-19 pandemic had no impact on wellness (OR 1.89; 95% CI, 1.24 to 2.89). Factors that were not found to significantly affect risk of burnout included sex, relationship status, having children, and percentage of time spent in the most meaningful area of work. Participants who reported concern for making a major medical error were 4 times as likely to report high levels of burnout (OR 4.07; 95% CI, 2.25 to 7.35).

DISCUSSION

As the first national survey of burnout in hematology-oncology pharmacists in the United States, our study directly supports ASCO's goal of promoting research to help identify clinician and practice needs to support well-being.

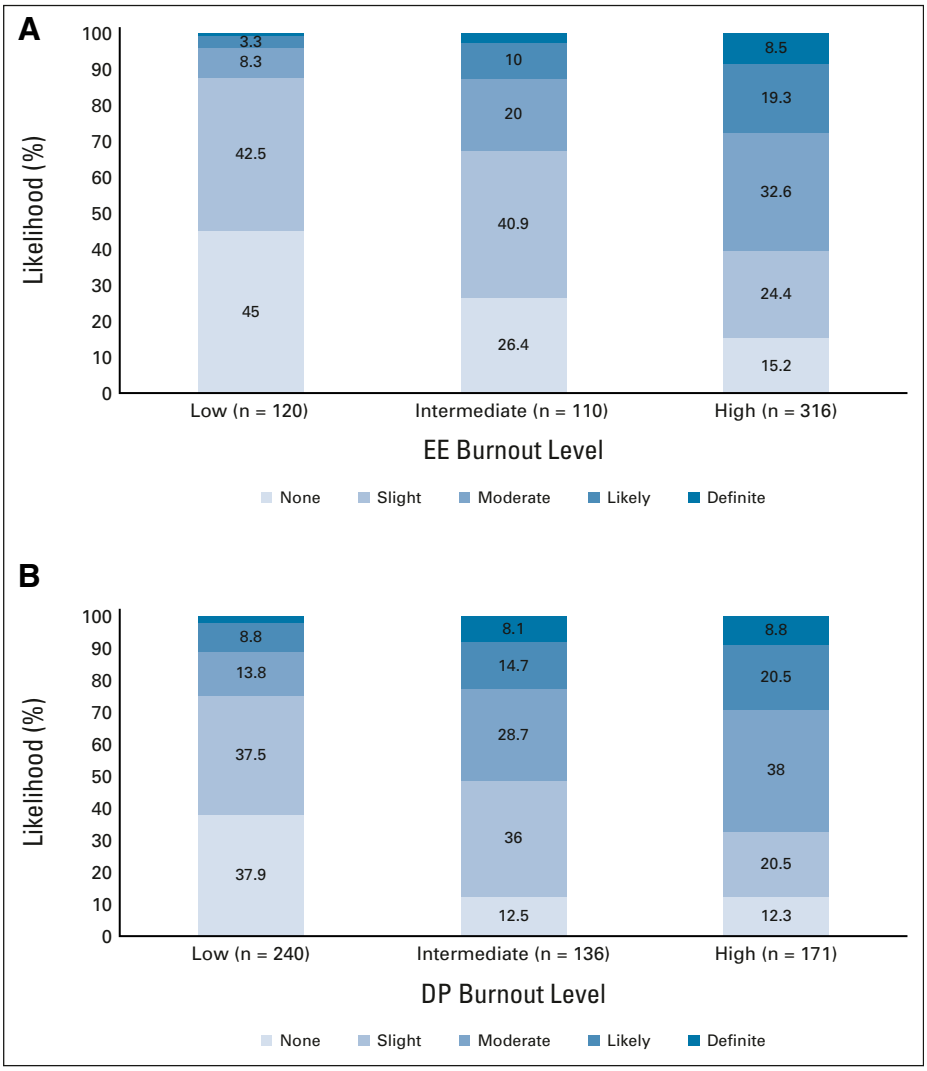

FIG 1. Level of burnout based on the MBI (A) EE and (B) DP subscales was associated with an increased risk that a pharmacist would leave their position within the next 2 years for reasons other than retirement. DP, depersonalization; EE, emotional exhaustion; MBI, Maslach Burnout Inventory.

Overall, we identified that 61.8% of hematology-oncology pharmacists were suffering from high levels of burnout. A small number of studies have surveyed pharmacists in various practice settings and have reported similar rates of burnout, ranging from 53.2% to 61.2% of pharmacists as assessed on the MBI or WBI.[12,16,17] In studies focusing on hematology-oncology professionals, Shanafelt et al[22] observed 44.7% of US oncologists experienced burnout based on their scores on the EE and/or DP subscales of the MBI, the same measure used in our study. Neumann et al[18] studied health care professionals working in hematopoietic stem-cell transplant and found that pharmacists had a higher rate of burnout (53%) based on their scores on the EE and/or DP subscales of the MBI compared with physicians (41%), advanced practice providers (45%), nurses (38%), and social workers (30%). Overall, the high prevalence of burnout among hematology-oncology pharmacists in our study seems higher than previously reported by other hematology-oncology health care professionals. It is noteworthy that although the MBI and WBI are frequently used for scoring burnout in health care professionals, the authors do not always define burnout using the same scoring.

Our study ended approximately 8 months into the COVID-19 pandemic. This should be considered as an important contextual variable and may have affected the rates of burnout observed. Indeed, pharmacists who reported decreased wellness because of the COVID-19 pandemic on the survey were more likely to report experiencing high levels of burnout. ASCO illuminated the risk of the COVID-19 pandemic intensifying burnout among clinicians, and several studies have described the negative impact COVID-19 has had on the stress and well-being of pharmacists.[4,35,36,51,52] Emerging literature has identified factors that may increase risk of burnout among health care professionals during a

TABLE 2. Multivariable Analysis of Factors Associated With Burnout

Variable	OR (95% CI)	*P*
Age (per 5 years)		
< 30 (n = 104, 19.5%)	Reference	
30 to < 40 (n = 251, 47.0%)	2.27 (1.29 to 3.99)	.005
40 to < 50 (n = 97, 18.2%)	3.05 (1.45 to 6.38)	.003
≥ 50 (n = 82, 15.4%)	3.56 (1.65 to 7.69)	.001
Sex (female *v* male)	1.05 (0.67 to 1.65)	.83
Relationship status		
Single (never married)	Reference	
Married	0.91 (0.52 to 1.57)	.73
Divorced or separated or widowed	0.58 (0.20 to 1.63)	.30
Have kids (yes *v* no)	0.76 (0.46 to 1.26)	.29
Are concerned they made a major medication error in the past 3 months (yes *v* no)	4.07 (2.25 to 7.35)	< .001
Hours work per week (per 4 hours)	1.22 (1.10 to 1.35)	.002
Admin hours per week (≥ 4 *v* < 4 hours)	2.40 (1.52 to 3.78)	< .001
Percent of time spent in meaningful area (per 10%)	1.03 (0.96 to 1.11)	.42
With respect to programs to improve your wellness		
I know how to access a wellness program	Reference	
I have accessed a wellness program	1.11 (0.70 to 1.76)	.67
I am not aware of any wellness programs	2.40 (1.46 to 3.96)	< .001
How has the COVID-19 pandemic affected your wellness?		
No change	Reference	
Improved	0.83 (0.32 to 2.18)	.71
Decreased	1.89 (1.24 to 2.89)	.003

Abbreviation: OR, odds ratio.

pandemic, including concern for personal and family members' well-being, adaptation to ever-changing regulations on safety, dealing with drug shortages, changes in care delivery such as personnel shortages, telemedicine, social isolation, and financial loss because of employment changes or loss of child care.[36,52,53] Continued employer support through the pandemic and beyond will be critical to maintain and improve the well-being of health care providers.

Several other findings of our study should be emphasized, including that 27.6% of hematology-oncology pharmacists experiencing burnout reported concern they had made a major medical error in the past 3 months—more than four times higher than participants without high levels of burnout. A recent study of 2,231 pharmacists found 25.9% of pharmacists reported concern for having made a major medication error in the past 3 months and participants reporting concern they had made an error had significantly less favorable WBI scores.[12] Previous literature evaluating the association between major medical errors and burnout among other health care professionals found similar results,[10,14,54,55] with longitudinal studies suggesting a reciprocal relationship between burnout and errors (burnout increases risk of errors; errors increase risk of burnout).[14] It is important to highlight that hematology-oncology pharmacists are responsible for verifying chemotherapy doses for indication, body weight and organ function, evaluating appropriate use of high-cost therapy, and checking pharmacy technician work for accurate compounding of intravenous therapy.[56] Even a small mistake or oversight could put a patient at increased risk for adverse effects, significant toxicities, or potentially fatal consequences. Identifying contributing factors for burnout is the first step to mitigating the risk for chemotherapy medication errors associated with burnout.

A 2018 study found that 69.3% of hospitals try to prevent and mitigate burnout through various methods.[57] Studies in physicians suggest both individual and organizational interventions can reduce burnout.[58] Multivariable analysis of our data showed several factors associated with increased risk of burnout that may be helpful when implementing strategies to alleviate burnout. We found an increasing risk of high burnout as pharmacists worked more hours per week and more administrative hours per week. Identifying pharmacists with more demanding hours and increased administrative responsibilities may be a method to help target individuals at higher risk for burnout. Understanding

the needs of these employees and potential factors that could be modified to help alleviate some occupational stress and reduce burnout is an important initial step. One fourth of pharmacists were unaware of any wellness program in our study and those who were unaware of wellness programs were 2.4 times more likely to have burnout. Implementing additional education and visibility of available wellness programs is a critical initial step to mitigate burnout as most respondents reported they would benefit from a wellness program. Pharmacists could use the resources already available to them to help manage symptoms of burnout while organizations work to implement larger changes targeting the root causes of burnout at their specific institution. It is critical for organizations providing cancer care to address the workload and workflow of hematology-oncology pharmacists and mitigate factors contributing to burnout to both ensure patient safety and an adequate future workforce.

Our study does have several limitations. Our participation rate was 20.3% overall, which suggests some potential responder bias; however, this is consistent with other burnout survey studies.[18,43,44,46,59,60] We included trainees in our study, which could have affected our results, given they have different potential risk factors for burnout, although our data did not show a difference between trainees and pharmacist respondents. Demographics of survey respondents were similar to demographics described in the 2019 National Pharmacy Workforce Study, where 61.8% were female.[61] To assess differences between survey respondents and the full HOPA membership, we compared available demographic and occupational factors (Appendix Table A1, online only). We noted several significant differences between those who responded to our survey and the full HOPA membership. There were significant differences in pharmacy roles, work location, and board certifications, which could have affected our findings. Survey bias is another risk, given we only included members of HOPA. Members of a professional organization may go above and beyond the prescribed duties of their position. Additionally, the use of a WBI threshold score of ≥ 5 based on the study completed by Skrupky et al may not be applicable, given the majority of pharmacists in that study worked in the community or retail and were not specialized in hematology-oncology.

In conclusion, more than 60% of hematology-oncology pharmacists were experiencing high levels of burnout at the time of our survey. Pharmacists with high burnout report concern for having made a major medical error in the past 3 months and intent to leave their current position more often than those without. The results from our study can be used to help develop targeted and organizational interventions to alleviate burnout among hematology-oncology pharmacists in an effort to provide better cancer care to patients. Further research is needed to assess additional contributing factors and evince the benefit of interventions to prevent or mitigate burnout.

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Evaluation of Burnout in a National Sample of Hematology-Oncology Pharmacists

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APPENDIX

TABLE A1. Baseline Demographics of Survey Participants and HOPA Membership

Characteristic	HOPA (N = 3,071)	Responders (N = 550)	*P*
Age, years, mean (SD)	40.7 (11.0)	37.7 (9.8)	.42
Pharmacy role, No. (%)			< .001
Pharmacist—direct patient care	1,600 (58.4)	357 (65.6)	
Pharmacist—medication dispensing	208 (7.6)	50 (9.2)	
Resident or fellow (trainee)	329 (12.0)	24 (4.5)	
Investigational drug services	63 (2.3)	20 (3.7)	
Supervisor or manager or director	331 (12.1)	73 (13.4)	
Professor or assistant professor	68 (2.5)	12 (2.2)	
Industry	143 (5.2)	8 (1.5)	
Specialty (can choose multiple), No. (%)	N = 2,414	N = 546	
Disease-specific subspecialty focus in hematology	911 (37.7)	102 (18.7)	< .001
Disease-specific subspecialty focus in oncology	1,493 (61.8)	128 (23.4)	< .001
Disease-specific subspecialty focus on bone marrow transplant	364 (15.1)	77 (14.1)	.61
Investigational drug services or research pharmacy	362 (15.0)	60 (11.0)	.019
Palliative care	181 (7.5)	27 (4.9)	.044
Pediatric hematology-oncology	147 (6.1)	48 (8.8)	.028
Work location (can choose multiple), No. (%)	N = 2,806	N = 547	
Hospital or inpatient	488 (17.4)	262 (47.9)	< .001
Ambulatory clinic	395 (14.1)	302 (55.2)	< .001
Infusion clinic	86 (3.1)	227 (41.5)	< .001
Academic medical center	1,041 (37.1)	208 (38.0)	.72
Pharmaceutical industry	240 (8.6)	8 (1.5)	< .001
Government	95 (3.4)	13 (2.4)	.28
Health plans or managed care or third-party insurers	35 (1.2)	5 (0.9)	.66
Specialty pharmacy	16 (0.6)	32 (5.9)	< .001
BPS certifications, No. (%)	N = 2,971	N = 541	
None	1,307 (44.0)	134 (24.8)	< .001
BCOP	1,465 (49.3)	372 (68.8)	< .001
BCPS	416 (14.0)	87 (16.1)	.23
BCACP	8 (0.3)	2 (0.4)	.66
BCSCP	13 (0.4)	5 (0.9)	.18
BCNSP	7 (0.2)	3 (0.6)	.19
BCPPS	12 (0.4)	3 (0.6)	.72
Years in practice, No. (%)	N = 190	N = 544	.092
0-2	34 (17.9)	110 (20.2)	
3-5	37 (19.5)	138 (25.4)	
5-10	39 (20.5)	120 (22.1)	
≥ 10	80 (42.1)	176 (32.4)	

Abbreviations: BCACP, board-certified ambulatory care pharmacist; BCNSP, board-certified nutrition support pharmacist; BCOP, board-certified oncology pharmacist; BCPS, board-certified pharmacotherapy specialist; BCPPS, board-certified pediatric pharmacy specialist; BCSCP, board-certified sterile compounding pharmacist; BPS, Board of Pharmacy Specialties; HOPA, Hematology/Oncology Pharmacy Association; SD, standard deviation.