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National Study of Burnout and Career Satisfaction Among Physician Assistants in Oncology: Implications for Team-Based Care

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QUESTION ASKED: What are the personal and professional characteristics associated with burnout and career satisfaction among physician assistants (PAs) in oncology?

SUMMARY ANSWER: Oncology PAs are at significant risk of burnout despite a high level of satisfaction with the PA profession and their specialty choice. Perceived leadership qualities of the collaborating physician (CP) were independently associated with the rate of burnout for the oncology PA (Fig).

WHAT WE DID: From September 2015 to January 2016, a national survey of PAs in oncology was completed. The survey assessed personal and professional characteristics of PAs in oncology, the organizational structure in which they worked, their career and specialty satisfaction, and the perceived leadership qualities of their collaborating physician. Burnout was measured using the Maslach Burnout Inventory.

WHAT WE FOUND: Among the 250 oncology PAs who completed the survey, 34.8% reported professional burnout, 30.4% reported high emotional exhaustion, 17.6% reported high depersonalization, and 19.6% reported a low sense of personal accomplishment. In multivariable analysis, age, time spent on indirect patient care, oncology subspecialty, and relationship with collaborating physician were factors associated with burnout. High levels of satisfaction with the PA career and oncology specialty were reported (86.4% and 88.8%, respectively). In the next 2 years, only 3.6% of PAs plan to pursue a different career or specialty and only 2.0% plan to retire.

BIAS, CONFOUNDING FACTOR(S), DRAWBACKS: One limitation of our study was that it was a cross-sectional exploration of burnout limited to PAs in oncology. Therefore, causality between variables and effect over time cannot be assessed. In addition, the response rate of the study was 29.2% which could suggest the results will suffer from response bias. However, the response rate for our survey is similar to, or higher than other survey studies of the PA profession.

REAL-LIFE IMPLICATIONS: Oncology PAs are at significant risk of burnout despite a high level of satisfaction with the PA profession and their specialty choice. Although negligible short-term attrition of the current oncology PA workforce is anticipated, if burnout is not addressed, the impact of PAs helping to meet the demand for oncology care may be hindered. Mitigation strategies that optimize the PA's role and responsibilities and improve the collaborative practice team-based model may decrease burnout for the oncology PA and strengthen the oncologic workforce. JOP

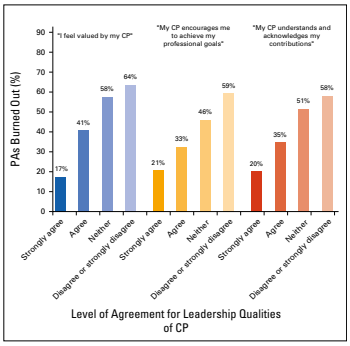

Fig. The relationship between the perception of CP leadership qualities and PA burnout. The frequency of burnout is reported for each of the three items that explored the perceived leadership qualities of the PAs' CP. The x-axis shows the level of agreement with the three leadership qualities, and the y-axis shows the frequency of burnout. As the level of agreement for each statement decreases, the rate of burnout increases ($P < .001$ for all three items).

National Study of Burnout and Career Satisfaction Among Physician Assistants in Oncology: Implications for Team-Based Care

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Abstract

Purpose

A high rate of burnout has been reported in oncology physicians. Physician assistants (PAs) may also face similar risks of burnout. We sought to measure the personal and professional characteristics associated with burnout and career satisfaction and the potential impact on the oncology PA workforce.

Participants and Methods

A national survey of PAs in oncology was completed by using the Maslach Burnout Inventory from September 2015 to January 2016.

Results

In all, 855 PAs were contacted and 250 submitted complete surveys (response rate, 29.2%). Respondents were representative of PAs in oncology with a mean age of 41.8 years, females (88.8%), academic practice (55.2%), urban location (61.2%), outpatient (74.4%), medical oncology (75.2%), worked 41 to 50 hours per week (52.8%), and had a mean of 9.6 years as a PA in oncology. Burnout was reported in 34.8% of PAs, 30.4% reported high emotional exhaustion, 17.6% reported high depersonalization, and 19.6% reported a low sense of personal accomplishment. In multivariable analysis, age, time spent on indirect patient care, oncology subspecialty, and relationship with collaborating physician were factors associated with burnout. Career and specialty satisfaction was high (86.4% and 88.8%, respectively). In the next 2 years, only 3.6% of PAs plan to pursue a different career or specialty and only 2.0% plan to retire.

Conclusion

Despite high career and specialty satisfaction, burnout is reported in one third of PAs in oncology. Further exploration of the relationship between PAs and collaborating physicians may provide insight on methods to decrease burnout. Negligible short-term attrition of the current oncology PA workforce is anticipated.

ASSOCIATED CONTENT

Appendix and Data Supplement available online

INTRODUCTION

Burnout, a syndrome marked by emotional exhaustion, decreased perception of personal accomplishment, and loss of empathic connections poses a significant threat to the effective delivery of compassionate health care to patients with cancer.[1] In the largest study of burnout in oncologists conducted in the United States, 44.7% of oncologists were found to experience symptoms of

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burnout.[2] Key drivers of burnout include deficiencies in teamwork and organizational leadership.[3-6] These factors are at the core of successful collaborative physician-advanced practice provider (APP) teams in oncology and suggest that APPs may be at significant risk of burnout.

With significant oncologist workforce shortages looming, APPs have consistently been identified as part of the solution for meeting the demand for cancer care.[7] The benefits of the collaborative practice model have been validated by the ASCO study of collaborative practice arrangements, which reported that the use of APPs increased productivity and that APPs were a reliable means of helping to meet the demand for oncologic services.[8] As the number of physician assistants (PAs) in oncology increases, it will be important to understand the characteristics of the PA workforce and the challenges faced in meeting the expected demand for oncology care.[9]

Despite high career and specialty satisfaction, oncologists remain at risk for burnout. Factors independently associated with burnout included younger age and greater number of hours seeing patients.[10] These findings may have significant implications for PAs in oncology and the potential workforce demands. PAs in oncology dedicate a significant amount of time to patient care duties with little or no time dedicated to administrative, research, or educational responsibilities.[11] Although numerous studies have examined burnout and career satisfaction among oncologists, no data exist for PAs in oncology.[10,12-15] In this study, we sought to understand the rate of burnout in oncology PAs and identify personal and professional characteristics associated with burnout. We believe that through improved understanding of the well-being of PAs in oncology, meaningful interventions in the design and effectiveness of team-based models in oncology can be implemented.

PARTICIPANTS AND METHODS

Participants and Survey Administration

Potential participants for the study were identified from the membership database of the Association of Physician Assistants in Oncology (APAO) and from the attendee registration database at the 18th Annual APAO Continuing Medical Education Conference. Participants were recruited either in person during the annual conference or via an e-mail–based survey. During the conference, potential participants were invited to complete a paper-based survey to be returned during the conference proceedings. Participants who completed the paper-based survey were excluded from the e-mail–based recruitment strategy. After the conference, PAs from the APAO membership database were sent an e-mail invitation to participate in the study. The invitation included a brief description of the study as well as an electronic link to the secure Research Electronic Data Capture (REDCap) system to complete an identical electronic version of the survey. Study data were collected and managed by using REDCap tools hosted at the Fox Chase Cancer Center. REDCap is a secure, Web-based application designed to support data capture for research studies.[16] Three reminder e-mail requests were sent over a 3-week period to potential participants who had not completed the survey. Participants who completed either survey were provided with a $10 gift card as appreciation for their time and effort. This study was approved by the Fox Chase Cancer Center Institutional Review Board.

Study Measures

An initial literature search was performed to identify current drivers and factors associated with burnout in oncology health care providers. The survey was subsequently developed by the study team and included both newly created items and previously validated survey items.[1,4,10] The final survey assessed personal and professional characteristics (21 items), organizational structure (three items), career and specialty satisfaction (eight items), perceived leadership qualities (three items), and burnout (22 items).

Three items were developed to explore the relationship between the oncology PA and his or her collaborating physician (CP), focusing specifically on the PA's perception of select leadership qualities of the CP. PAs were asked for their level of agreement with statements about being valued by their physician, being encouraged by their physician to develop and achieve professional goals, and whether their CP recognized their contribution to the practice. PAs rated these items on a five-point Likert-type scale ranging from positive to negative (strongly agree, 2; agree, 1; neither agree nor disagree, 0; disagree, −1; strongly disagree, −2). An overall composite score for perceived CP leadership was created by summing the values of the three items (possible range, −6 to +6).

The Maslach Burnout Inventory (MBI) was used to assess burnout.[1] The MBI is a 22-item questionnaire considered to be the leading standard for measurement of burnout. It has been used in numerous studies on burnout in multiple health care specialties including oncology.[13,17-20] The key aspects of burnout are assessed on three dimensions: emotional exhaustion, depersonalization, and

lack of personal accomplishment. Within each dimension, low, intermediate and high scores are defined by using thresholds specific for medical workers.[1] Professional burnout was defined by using two dimensions, consistent with prior studies: a high score on the emotional exhaustion subscale ($\geq$ 27) and/or a high score on the depersonalization subscale ($\geq$ 10).[10,21]

Statistical Analysis

All completed surveys received by January 9, 2016, were included in the final analysis. Standard descriptive statistics were used to describe the personal and professional characteristics of the oncology PAs. Wilcoxon rank sum or Kruskal-Wallis tests (continuous variables) and χ^2 or Fisher's exact tests (categorical variables) were used to assess association between variables. The Cochran-Armitage test was used to analyze trends associated with burnout. In addition, multivariable logistic regression analysis was used to identify potential risk factors associated with burnout. Statistical analyses were performed by using SAS, version 9.4 (SAS Institute, Cary, NC) and R software, version 3.2.1.

RESULTS

Personal and Professional Characteristics

By using the APAO databases, 855 current and former members of APAO were invited to complete the survey over a 4-month period ending January 9, 2016. This yielded 274 responses, of which 24 were partially completed and subsequently excluded from the analysis. The 250 complete surveys represent a response rate of 29.2%. All participants confirmed they were a PA currently in clinical practice and in the specialty of oncology. The study was limited to PAs in the United States.

The mean age of participants was 41.8 years, and the majority were female (88.8%) and married (74.0%). On average, participants had been a PA in oncology for 9.6 years, and slightly more than half (55.6%) had previously worked in a field other than oncology (Table 1). Most PAs reported working more than 40 hours per week (72.8%) and most often in an outpatient setting (74.4%). On average, participants reported spending 65.2% of their time on direct patient care, 22.7% on indirect patient care (phone calls, reviewing laboratories, charting), and only 12.1% on other activities (administration, teaching, precepting, research). Medical oncology was the most common subspecialty (n = 188 respondents [75.2%]), followed by surgical oncology (n = 30 [12.0%]) and radiation oncology (n = 13 [5.2%]). The percentage of time spent on direct patient care, indirect patient care, and other activities was similar among all oncology subspecialties.

More respondents reported working in an academic practice (AP) compared with a private practice (PP) setting (55.2% *v* 40.0%). A minority of PAs reported working for the Department of Veteran Affairs or other settings (4.8%). In comparison with AP, PAs in PP were older (median age, 42.0 *v* 39.0 years; $P = .037$) and more often married (79.0% *v* 69.6%; $P = .012$). PAs in PP also reported working primarily in the outpatient setting (82.0% *v* 68.1%; $P \leq .001$), in a suburban practice setting, and without a focus on a specific type of cancer. PAs in PP spent a greater percentage of time on direct patient care (70.9% *v* 60.9%; $P \leq .001$) and less time on indirect patient care or other activities compared with PAs in AP. There was no difference between AP and PP oncology PAs with respect to sex, hours worked, and method of compensation (Table 1).

Burnout and Career Satisfaction

Overall, 34.8% of oncology PAs had MBI scores that indicated professional burnout (ie, high scores on either the emotional exhaustion and/or depersonalization subscales). For the individual subscales of burnout, 30.4% of PAs reported high emotional exhaustion, 17.6% reported high depersonalization, and 19.6% reported a low sense of personal accomplishment (Table 2). In univariable analysis, factors associated with professional burnout included the average number of hours worked per week and the percentage of time spent on work-related activities. Compared with those who were not burned out, PAs who were burned out reported spending a lower percentage of time on direct patient care (60.0% *v* 70.0%; $P = .005$) and a greater percentage of time on indirect patient care (25.0% *v* 20.0%; $P < .001$). PAs who felt they were fairly compensated had lower burnout rates than those who did not (18.8% burnout for those strongly agreeing that they were fairly compensated, increasing to 64.7% burnout for those strongly disagreeing; $P < .001$). Although the rate of burnout was highest for PAs in the medical oncology subspecialty (38.8%), this did not reach statistical significance ($P = .082$) in univariable analysis. There were no significant differences in the reporting of burnout for PAs with respect to sex, relationship status, years as a PA in oncology, compensation model, and practice settings (Appendix Table A1, online only).

Table 1. Personal and Professional Characteristics of Survey Participants

			AP *v* PP				Subspecialty								
	Total (N = 250)		AP (n = 138)		PP (n = 100)		Medical Oncology (n = 188)		Surgical Oncology (n = 30)		Radiation Oncology (n = 13)		Pediatric Oncology/ Other (n = 19)		
Characteristic	No.	%	No.	%	No.	%	*P**	No.	%	No.	%	No.	%	No.	%	*P*†
Age, years							.037									.170
Mean	41.8		40.6		43.2			41.5		40.1		45.8		45.3		
Median	40.0		39.0		42.0			40.0		38.5		50.0		43.0		
Sex							.657									.886
Male	27	10.8	15	10.9	11	11.0		21	11.2	3	10.0	2	15.4	1	5.3	
Female	222	88.8	123	89.1	88	88.0		166	88.3	27	90.0	11	84.6	18	94.7	
Prefer not to answer	1	0.4	0	0.0	1	1.0		1	0.5	0	0.0	0	0.0	0	0.0	
Relationship							.012									.508
Married/partnered	185	74.0	96	69.6	79	79.0		139	73.9	22	73.3	7	53.8	17	89.5	
Single/widowed	46	18.4	35	25.4	11	11.0		34	18.1	6	20.0	4	30.8	2	10.5	
Divorced/separated	15	6.0	5	3.6	9	9.0		12	6.4	1	3.3	2	15.4	0	0.0	
Prefer not to answer	4	1.6	2	1.4	1	1.0		3	1.6	1	3.3	0	0.0	0	0.0	
Years as a PA in oncology							.432									.740
Mean	9.6		9.8		9.5			9.7		9.6		8.8		9.7		
Median	8.8		9.0		8.0			9.0		8.0		4.0		8.5		
Worked as a PA in a field other than oncology?							.287									.322
No	110	44.0	67	48.6	41	41.0		86	45.7	10	33.3	5	38.5	9	47.4	
Yes	139	55.6	70	50.7	59	59.0		102	54.3	19	63.3	8	61.5	10	52.6	
Missing	1	0.4	1	0.7	0	0.00		0	0.0	1	3.3	0	0.0	0	0.0	
Primary practice setting							< .001									.005
Inpatient	39	15.6	34	24.6	5	5.0		28	14.9	3	10.0	0	0.0	8	42.1	
Outpatient	186	74.4	94	68.1	82	82.0		145	77.1	20	66.7	12	92.3	9	47.4	
Both	25	10.0	10	7.3	13	13.0		15	8.0	7	23.3	1	7.7	2	10.5	
Hours work per week							.560									.975
< 30	17	6.8	7	5.1	9	9.0		15	8.0	1	3.3	0	0.0	1	5.3	
31-40	50	20.0	25	18.1	21	21.0		38	20.2	6	20.0	1	7.7	5	26.3	
41-50	132	52.8	79	57.3	49	49.0		94	50.0	18	60.0	10	76.9	10	52.6	
51-60	43	17.2	21	15.2	19	19.0		33	17.6	5	16.7	2	15.4	3	15.8	
> 60	7	2.8	5	3.6	2	2.0		7	3.7	0	0.0	0	0.0	0	0.0	
Prefer not to answer	1	0.4	1	0.7	0	0.0		1	0.5	0	0.0	0	0.0	0	0.0	
% of time spent on patient care																
Direct patient care‡	224		123		89		< .001	169		27		12		16		.416
Mean		65.2		60.9		70.9			65.0		63.3		62.7		72.5	
Median		70.0		60.0		75.0			70.0		65.0		69.2		72.5	
Indirect patient care§	224		123		89		.031	169		27		12		16		.337
Mean		22.7		24.5		20.5			23.0		24.0		24.2		16.4	
Median		20.0		20.0		20.0			20.0		22.7		20.0		15.0	
Other‖	224		123		89		< .001	169		27		12		16		.836
Mean		12.1		14.6		8.6			12.0		12.7		13.1		11.1	
Median		10.0		10.0		5.0			10.0		9.1		12.5		10.0	

(continued on following page)

Table 1. Personal and Professional Characteristics of Survey Participants (continued)

			AP *v* PP					Subspecialty								
	Total (N = 250)		AP (n = 138)		PP (n = 100)			Medical Oncology (n = 188)		Surgical Oncology (n = 30)		Radiation Oncology (n = 13)		Pediatric Oncology/ Other (n = 19)		
Characteristic	No.	%	No.	%	No.	%	*P**	No.	%	No.	%	No.	%	No.	%	*P*†
Focus on a specific cancer							< .001									< .001
No	132	52.8	39	28.3	82	82.0		112	59.6	3	10.0	9	69.2	8	42.1	
Yes	118	47.2	99	71.7	18	18.0		76	40.4	27	90.0	4	30.8	11	57.9	
Method of compensation							.334									.106
Salary alone	180	72.0	102	73.9	70	70.0		135	71.8	18	60.0	10	76.9	17	89.5	
Salary with bonus/incentives	52	20.8	25	18.1	25	25.0		39	20.7	11	36.7	1	7.7	1	5.3	
Hourly/per diem	18	7.2	11	8.0	5	5.0		14	7.5	1	3.3	2	15.4	1	5.3	
Practice location							< .001									.010
Urban	153	61.2	116	84.1	33	33.0		103	54.8	25	83.3	8	61.5	17	89.5	
Suburban	81	32.4	18	13.0	60	60.0		72	38.3	4	13.3	3	23.1	2	10.5	
Rural	15	6.0	3	2.2	7	7.0		12	6.4	1	3.3	2	15.4	0	0.0	
Prefer not to answer	1	0.4	1	0.7	0	0.0		1	0.5	0	0.0	0	0.0	0	0.0	

Abbreviations: AP, academic practice; PA, physician assistant; PP, private practice.
*Two-sample Wilcoxon test (continuous variables) or χ^2/Fisher's exact test (categorical variables).
†Kruskal-Wallis test (continuous variables) or χ^2/Fisher's exact test (categorical variables).
‡Direct face-to-face patient care.
§Indirect patient care such as phone calls, reviewing laboratories, and charting.
||Other includes administration, research, precepting, teaching, and continuing education.

Career and specialty satisfaction for oncology PAs was high; 86.4% and 88.8%, respectively. When asked about their career plans in the next 2 years, only 3.6% of PAs indicated they planned to pursue a different career or specialty and only 2.0% planned to retire.

Perception of CP Leadership and PA Burnout

PAs were asked to indicate their agreement/disagreement with three statements about their perception of select leadership qualities of their CP. For the statement "I feel valued by my collaborating physician," 81% agreed or strongly agreed, 10% were neutral, and 9% disagreed or strongly disagreed. Similar patterns were observed for statements on perception of being encouraged by the CP and having the CP understand and acknowledge contributions of the PA (Fig 1A).

Burnout was more likely to be reported by PAs who did not feel valued by their CP, who did not feel encouraged to achieve professional goals, or whose contributions to the practice were not acknowledged by their CP ($P < .001$ for all items; Fig 1B). Using an overall composite score for the perceived CP leadership qualities, there was a significant increase in burnout with decreasing perceived level of leadership qualities (burnout for favorable leadership score, 20% *v* unfavorable leadership score, 62%; $P < .001$; Fig 1C).

Multivariable Analysis

We used multivariable logistic regression to examine whether lower perceived CP leadership and the portion of time spent on direct and indirect patient care remained predictors of higher PA burnout after accounting for other PA characteristics. We included factors known to be associated with burnout rate, in this study or in previous studies, including age, sex, years as a PA in oncology, hours worked per week, type of practice, and subspecialty.

After adjustment for covariates, the association between lower perceived CP leadership and burnout remained statistically significant. Compared with those who strongly agreed with the CP leadership statements, those who disagreed and those who were neutral were more likely to be burned out (adjusted odds ratio [OR], 3.37 [95% CI, 1.05 to 10.80] and OR, 7.85 [95% CI, 2.76 to 22.31), respectively). PAs who spent more time on indirect patient care were more likely to be burned out.

Table 2. Burnout and Career Satisfaction of Survey Participants

Characteristic	Total (N = 250) No.	%
Burned out*	87	34.8
Burnout subscales†		
Emotional exhaustion		
Median	22	
Low (≤ 18)	96	38.4
Moderate (19-26)	78	31.2
High (≥ 27)	76	30.4
Depersonalization		
Median	4	
Low (≤ 5)	153	61.2
Moderate (6-9)	53	21.2
High (≥ 10)	44	17.6
Personal accomplishment		
Median	40	
High (≤ 40)	126	50.4
Moderate (34-39)	75	30.0
Low (≤ 33)	49	19.6
Career satisfaction‡	216	86.4
Specialty satisfaction§	222	88.8

*High score on emotional exhaustion and/or depersonalization subscale.
†Standard scoring for subscales based on the medicine subgroup from the Maslach Burnout Inventory were used.
‡Would you choose to be a physician assistant again?
§Would you choose to be a physician assistant in oncology again?

For PAs who reported spending 50% or more of their time on indirect patient care compared with PAs who reported spending less than 15%, the odds of burnout were 12-fold higher (OR, 12.45; $P = .009$). In contrast, after adjustment for covariates, the time spent on direct patient care was a borderline significant predictor ($P = .098$) of burnout. The subspecialty in which PAs practiced was also independently associated with burnout. When compared with medical oncology PAs, those in radiation oncology and pediatric or other subspecialties were significantly less likely to be burned out ($P = .010$).

DISCUSSION

This is the first national study to explore rates of burnout and career satisfaction among PAs in oncology. The rate of burnout for all PAs in oncology was 34.8%, with the highest rate reported for PAs in medical and surgical oncology subspecialties (38.8% and 30.0%, respectively). Factors associated with an increased rate of burnout on univariable analysis included increased number of hours worked per week, greater percentage of time spent on indirect patient care, and decreased satisfaction with compensation. In addition, PAs who did not feel valued by their collaborating physician, did not feel encouraged to achieve professional goals, or whose contributions to the practice were not acknowledged by their CP were more likely to be burned out. These factors remained independently associated with burnout on multivariable analysis in addition to age and subspecialty.

Despite the high rate of burnout, PAs in oncology reported a high level of career and specialty satisfaction, and few PAs indicated plans to leave the field of oncology or retire. This is not surprising because oncology PAs report the rewards of working in oncology include the intellectual challenges, the spectrum of responsibility in providing complex care, and the relationships cultivated with patients and their families when caring for patients with cancer.[22] These entities may not be influenced by the factors we identified as being associated with burnout, but they do explain the high risk and reward nature of being a provider in the field of oncology.

There are two findings of our study that have significant implications for the oncology workforce. The first is the relationship between a PA and his or her CP and the impact on PA burnout. Our study suggests that the PAs' opinions of leadership provided by their CP has a significant impact on the risk of burnout. Similar findings were reported in a study of physicians and scientists working in a large health care organization.[4] In that study, the impact on physician burnout in relation to the leadership qualities of the immediate supervisor was examined. It was found that higher rates of physician burnout were associated with lower ratings in the leadership qualities of the immediate supervisor. Our results suggest there may be opportunities to improve the collaborative practice model by focusing interventions on teamwork, development of leadership competencies, and communication.[23] Doing this may help reduce the interplay between PAs, their CP, and burnout.

The second finding that warrants further discussion is the distribution of work effort for PAs and the impact on burnout. It is recognized that using PAs results in increased efficiency and productivity for the practice.[24] However, how PAs are integrated (eg, role, responsibilities, deployment) and the impact on the health of the oncologic PA workforce has not

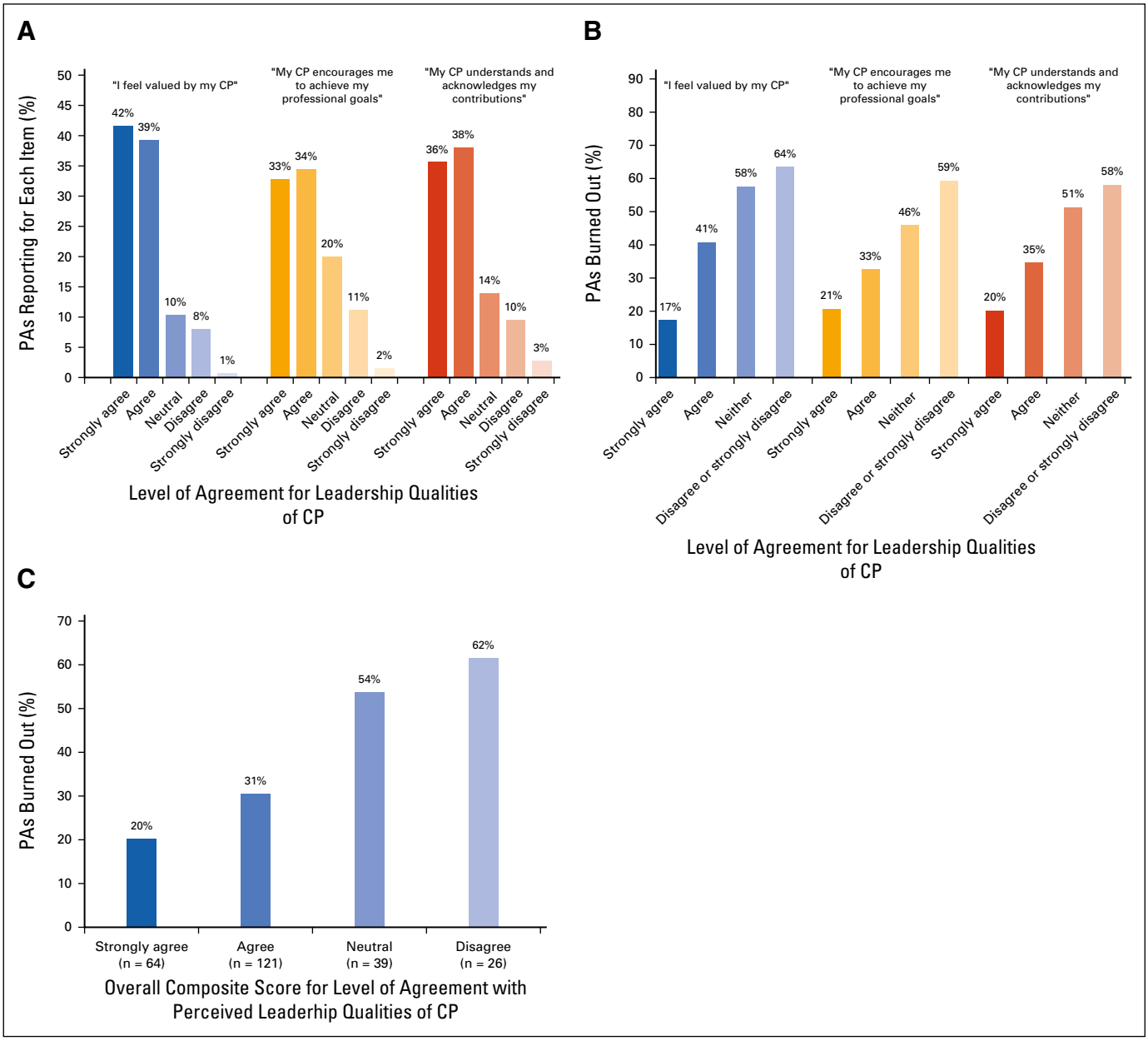

Fig 1. (A) Perception of collaborating physician (CP) leadership qualities. Physician assistants (PAs) reported their level of agreement or disagreement on three items exploring the perceived leadership qualities of their CP. Level of agreement is shown on the x-axis, and frequency of each response is shown on the y-axis. (B) The relationship between the perception of CP leadership qualities and PA burnout. The frequency of burnout is reported for each of the three items that explored the perceived leadership qualities of the PAs' CP. The x-axis shows the level of agreement with the three leadership qualities, and the y-axis shows the frequency of burnout. As the level of agreement for each statement decreases, the rate of burnout increases ($P < .001$ for all three items). (C) Overall composite score for perceived CP leadership qualities and PA burnout. The rate of burnout is reported in relation to the overall composite score created for the perceived leadership qualities of the PAs' CP. The overall composite score was created with positive and negative values (−2 to 2) assigned to each of the three perceived CP leadership variables. Composite scores were categorized as strongly agree, 6; agree, 2 to 5; neutral, −1 to 1; disagree, −6 to −2. As the overall level of agreement decreases for the composite physician leadership score, the rate of burnout increases for the oncology PA. The x-axis shows the composite score (level of agreement), and the y-axis reports the rate of burnout ($P < .001$; Cochran-Armitage trend test).

previously been reported. In our study, PAs who spent more time on indirect patient care were at greater risk of burnout. This is significant in that in a team-based care delivery model, providers who work at the top of their competency have lower rates of burnout compared with providers who spend more time engaged in activities below their level of competency.[25] Although the entirety of all indirect patient care provided by PAs in our study was not cataloged, it is likely that some of the activities may not have required a PA (or physician) for completion. As the health care landscape evolves and team-based approaches are leveraged to improve comprehensive oncology care,[23] a focus on improving the deployment of PAs to ensure that they are working to the level of their training will be vital to the success of team-based care.

There is scant data available that explores burnout in PAs; reports are limited to emergency medicine, military service providers, and rural community PAs.[26-28] In those studies, PAs frequently reported moderate or high levels of emotional exhaustion (50% to 64%) and depersonalization (64% to 66%), or a low to moderate sense of personal accomplishment (18% to 34%). In a brief report from a survey of nurse practitioners (NPs) in oncology, moderate to high levels of emotional exhaustion and depersonalization were reported by 58.5% and 27.5% of NPs, respectively.[29] Because of the varied reporting of results for PAs and NPs, comparisons with the results of this study are limited. However, there are robust data available on burnout in oncology physicians. In comparison with oncologists, it seems that the overall rate of burnout for oncology PAs is slightly lower. By using the same definition of professional burnout, the most recent study of burnout among US oncologists reported that 44.7% of physicians were burned out, and high scores on emotional exhaustion and depersonalization were reported by 38.3% and 24.9% of physicians, respectively.[2] However, the median scores for emotional exhaustion (22), depersonalization (5), and personal accomplishment (42) are similar to the median scores reported for PAs in our study (22, 4, and 40, respectively). For oncologists, characteristics associated with burnout included age, hours spent seeing patients, and focusing on a specific type of cancer. Similarly, in our study, hours worked per week and age were independently associated with burnout. Interestingly, in our study, PAs who spent less time on direct patient care reported higher rates of burnout, whereas oncologists were at greater risk of burnout as the number of hours spent per week in direct patient care increased.[2]

It is important to acknowledge the limitations of our study. First, the response rate of the study was 29.2% which could suggest the results will suffer from response bias. However, the response rate for our survey is similar to or higher than other survey studies of the PA profession.[11,27,28] In addition, the provider characteristics of our study are similar to those of other reports of PAs in oncology with respect to age, sex, hours worked, practice setting, and other characteristics.[11,30,31] The consistency in characteristics, despite different methods for selection of participants would suggest that our sample is representative of the larger population of PAs in oncology with a low risk for selection or response bias. Our study was also a cross-sectional exploration of burnout limited to PAs in oncology. Therefore, causality between variables and effect over time cannot be assessed.

In conclusion, oncology PAs are at significant risk of burnout despite a high level of satisfaction with the PA profession and their specialty choice. The rate of burnout is of significant concern because the wellness of providers has been associated with quality of care and patients' safety.[32] Furthermore, although a negligible short-term attrition of the current oncology PA workforce is anticipated, if burnout is not addressed, the impact of PAs to help meet the demand for oncology care may be hindered. Mitigation strategies that optimize the PA's role and responsibilities and improve the collaborative practice, team-based model may decrease burnout for the oncology PA and strengthen the oncologic workforce. JOP

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

National Study of Burnout and Career Satisfaction Among Physician Assistants in Oncology: Implications for Team-Based Care

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Appendix

Table A1. Factors Associated With Burnout

Factor	Total (N = 250) No.	%	Burned Out: No (n = 163) No.	%	Burned Out: Yes (n = 87) No.	%	P*	Trend Test†
Age, years							.068	
Mean	41.8		41.0		43.5			
Median	40.0		39.0		42.0			
Sex							.891	
Male	27		17	63.0	10	37.0		
Female	222		145	65.3	77	34.7		
Prefer not to answer	1		1	100.0	0	0.0		
Relationship							.830	
Married/partnered	185		123	66.5	62	33.5		
Single/widowed	46		28	60.9	18	39.1		
Divorced/separated	15		9	60.0	6	40.0		
Prefer not to answer	4		3	75.0	1	25.0		
Years as a PA in oncology							.248	
Mean	9.6		9.4		10.0			
Median	8.8		8.0		9.0			
Setting							.594	
Inpatient	39		27	69.2	12	30.8		
Outpatient	186		118	63.4	68	36.6		
Both	25		18	72.0	7	28.0		
Hours worked per week							.018	0.004
< 30	17		16	94.1	1	5.9		
31-40	50		36	72.0	14	28.0		
41-50	132		84	63.6	48	36.4		
51-60	43		22	51.2	21	48.8		
> 60	7		4	57.1	3	42.9		
Prefer not to answer	1		1	100.0	0	0.0		
Practice setting							.707	
Academic	138		91	65.9	47	34.1		
Private	100		63	63.0	37	37.0		
VA/other	12		9	75.0	3	25.0		
Subspecialty							.082	
Medical oncology	188		115	61.2	73	38.8		
Surgical oncology	30		21	70.0	9	30.0		
Radiation oncology	13		11	84.6	2	15.4		
Pediatric oncology/other	19		16	84.2	3	15.8		
Practice location							.661	
Urban	153		98	64.1	55	35.9		
Suburban	81		52	64.2	29	35.8		
Rural	15		12	80.0	3	20.0		
Prefer not to answer	1		1	100.0	0	0.0		

(continued on following page)

Table A1. Factors Associated With Burnout (continued)

Factor	Total (N = 250) No.	Total (N = 250) %	Burned Out: No (n = 163) No.	Burned Out: No (n = 163) %	Burned Out: Yes (n = 87) No.	Burned Out: Yes (n = 87) %	P*	Trend Test†
Time spent at work (%)								
Direct patient care‡§								
N	224		147		77		.005	
Mean		65.2		67.3		61.2		
Median		70.0		70.0		60.0		
							.0126	0.0154‡
< 50	33		22	66.7	11	33.3		
50-65	57		28	49.2	29	50.9		
65-70	77		51	66.2	26	33.8		
80-100	57		46	80.7	11	19.3		
Indirect patient care‖¶								
N	224		147		77		< .001	
Mean		22.7		20.3		27.3		
Median		20.0		20.0		25.0		
							.0037	0.0002‡
< 15	65		52	80.0	13	20.0		
15-24	69		50	72.5	19	27.5		
25-34	47		24	51.1	23	48.9		
35-49	22		10	45.5	12	54.6		
≥ 50	21		11	52.4	10	47.6		
Other¶								
N	224		147		77		.404	
Mean		12.1		12.4		11.5		
Median		10.0		10.0		10.0		
Method of compensation								
Salary alone	180		120	66.7	60	33.3	.637	
Salary with bonus/incentives	52		31	59.6	21	40.4		
Hourly/per diem	18		12	66.7	6	33.3		
I am compensated fairly for the work I do							.001	< 0.001
Strongly agree	32		26	81.3	6	18.8		
Agree	119		86	72.3	33	27.7		
Neither agree nor disagree	31		20	64.5	11	35.5		
Disagree	51		25	49.0	26	51.0		
Strongly disagree	17		6	35.3	11	64.7		
Do you focus on a specific type of cancer or cancer of a specific body system?							.777	
No	132		85	64.4	47	35.6		
Yes	118		78	66.1	40	33.9		
Have you worked as a PA in a field other than oncology?							.357	
No	110		74	67.3	36	32.7		
Yes	139		89	64.0	50	36.0		
Missing	1		0	0.0	1	100.0		

Abbreviations: PA, physician assistant; VA, Veterans Administration.

*Two-sample Wilcoxon test (continuous variables) or χ^2/Fisher's exact test as appropriate (categorical variables).

†Cochran-Armitage trend test.

‡Twenty-five responses were excluded because of significant deviation from totaling 100%, and one "prefer not to answer" was excluded.

§Direct face-to-face patient care.

‖Indirect patient care such as phone calls, reviewing laboratories, and charting.

¶Other includes administration, research, precepting, teaching, and continuing education.