

ORIGINAL RESEARCH

Inclusive Leadership and Psychological Safety Among Oncology Advanced Practice Providers: Implications for Team-Based Practice

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Abstract

As health care continues to evolve in the United States, team-based care has become an essential approach to managing complex patient needs, particularly in oncology. Advanced practice providers (APPs), including nurse practitioners (NPs) and physician associates (PAs), play a pivotal role in oncology care teams; however, limited research has examined the dynamics of leadership and psychological safety (PS) within these teams. This study explored the relationship between team leadership factors, leader inclusiveness (LI) and leader-member exchange (LMX), and PS among oncology APPs. Using a national cross-sectional survey of 84 APPs, findings demonstrated that LI and LMX were positively associated with PS, whereas demographic and professional characteristics were not significant predictors. These results highlight the importance of fostering inclusive leadership and strong leader-member relationships to enhance PS and, ultimately, team effectiveness in oncology care. Implications for practice, education, and future research are discussed.

The increasing complexity of cancer care has amplified the need for effective team-based approaches. With a projected shortage of oncologists and an expanding population of cancer survivors, the demand for advanced practice providers (APPs) in oncology continues to grow (Austin et al., 2021).

Advanced practice providers, including nurse practitioners (NPs) and physician associates (PAs), have become integral members of oncology teams, delivering clinical care, managing treatment plans, and providing education and support to patients (Erikson et al., 2007; Towle et al., 2011). They bring specialized expertise and can improve patient

access, satisfaction, and outcomes (Kurtzman & Barnow, 2017).

Despite the expansion of APP roles, the organizational and leadership structures that support APPs are not always well defined, resulting in variability in team functioning and professional experiences. In collaborative practice environments, coordinated effort among physicians, APPs, nurses, and other health professionals is essential to delivering high-quality patient care. Successful integration of APPs into care teams depends on effective interprofessional collaboration and supportive leadership. Team leadership dynamics are therefore critical for ensuring effective communication, coordination, and psychological safety (PS).

Psychological safety has been identified as a key component of high-performing teams (Edmondson, 1999; Edmondson & Lei, 2014). Edmondson (1999) defined PS as a shared belief that the team is safe for interpersonal risk-taking, enabling members to speak up, report errors, and engage in learning behaviors without fear of negative consequences. Teams with high PS are more likely to demonstrate learning behaviors and innovation (Edmondson, 1999). In health care, PS facilitates open communication, encourages error reporting, and improves quality of care (Carmeli & Gittell, 2009). Conversely, a lack of PS may inhibit clinicians from raising patient safety concerns, sharing differing perspectives, or acknowledging uncertainty (Nembhard & Edmondson, 2006). A recent systematic review further identified PS as a critical teamwork competency in health care (O'Donovan & McAuliffe, 2020). Thus, fostering PS is essential not only for clinician well-being but also for optimal patient outcomes.

Leadership plays a central role in fostering PS. Team leadership behaviors such as leader inclusiveness (LI), the extent to which leaders encourage and value team members' contributions, and leader-member exchange (LMX), the quality of relationships between leaders and followers, have been associated with PS in various health-care contexts.

Leader inclusiveness involves behaviors that invite participation, acknowledge contributions, and minimize hierarchical barriers (Nembhard & Edmondson, 2006). Leaders who demonstrate accessibility, openness, and fallibility lower the perceived risk of interpersonal engagement, thereby

promoting innovation and team involvement (Carmeli et al., 2010). Inclusive leaders actively solicit input and model receptivity to feedback. In a study of nursing teams, LI served as a strong mediator of PS, creating an environment in which clinicians felt supported to voice concerns and share ideas. Enhanced PS under inclusive leadership was also associated with improved patient safety behaviors and increased willingness to speak up about errors (Lee & Dahinten, 2021). In high-risk and complex health care environments, LI is particularly important for fostering trust, facilitating interprofessional collaboration, and supporting timely communication that underpins safe, high-quality patient care.

Leader-member exchange (LMX) theory emphasizes the quality of dyadic relationships between leaders and followers (Graen & Uhl-Bien, 1995). High-quality LMX relationships are characterized by mutual trust, respect, and support. In many health-care settings, physicians serve as team leaders, while APPs, nurses, and other professionals function as team members. In team-based practice, APPs often form a dyadic relationship with their collaborating physician (CP) to deliver care. The quality of the CP-APP relationship may influence communication, team performance, and APP professional well-being (Tetzlaff et al., 2018). Prior research among nurses has linked high LMX to job satisfaction, organizational commitment, and PS (Davies et al., 2011; Thompson et al., 2011).

In hierarchical health-care environments, LMX may be particularly relevant for APPs, whose professional role often falls between physicians and nurses. Power distance, the degree to which unequal authority and decision-making are accepted, can influence communication and collaboration across professional roles (Kynärsalmi et al., 2025). High-quality LMX relationships may mitigate the effects of power distance by fostering relational trust and open communication, thereby supporting PS and effective collaboration.

Existing PS research has largely focused on nursing teams, resident physicians, and interprofessional teams within academic medical centers (O'Donovan & McAuliffe, 2020). The role of leadership in shaping PS for APPs remains less well understood, particularly in oncology, where high acuity, complex decision-making, and emotional

labor are common. Oncology APPs frequently encounter ambiguity in role expectations and limited voice within hierarchical structures, making LI and LMX particularly salient. Understanding these dynamics may inform targeted interventions to improve team climate and APP engagement. This study addresses a gap in the literature by examining whether team leadership factors predict PS among oncology APPs.

PURPOSE OF THE STUDY AND RESEARCH QUESTIONS

The primary aim of this study was to examine the relationship between team leadership factors and PS among oncology APPs. The research questions were:

1. What factors contribute to PS among oncology APPs?
2. How are LI and LMX associated with PS among oncology APP teams?

METHODS

This study employed a cross-sectional, correlational survey design to explore factors contributing to PS among APPs, specifically oncology NPs, PAs, and clinical nurse specialists. Pharmacists and other advanced practice clinicians were not included in this study. A convenience sample was recruited nationally through two professional organizations: the Association of PAs in Oncology (APAO) and the Advanced Practitioner Society for Hematology and Oncology (APSHO). Eligibility criteria included current employment as an oncology APP in the United States and participation in collaborative, team-based practice.

Data were collected via an online survey administered over a 60-day period in early 2021 during the COVID-19 pandemic. The survey included validated instruments: Edmondson's seven-item Psychological Safety Scale (1999), Nembhard's three-item Leader Inclusiveness Scale (2006), and the LMX-7 questionnaire (Graen & Uhl-Bien, 1995). Additional items captured demographic (e.g., age, gender, race) and professional characteristics (e.g., specialty, years of experience, care model). Prior to the survey items, participants were asked an open-ended question to reflect on their team-based practice experiences during the COVID-19 pandemic.

Descriptive statistics summarized sample characteristics (Table 1). Bivariate analyses (Pearson correlations, *t* tests, and analysis of variance) examined associations between PS and independent variables. Variables significantly associated with PS were entered into a hierarchical multiple linear regression model to identify unique predictors. Reminder emails were sent to nonrespondents at 2 and 4 weeks to enhance response rates. Institutional review board approval was obtained from both The University of Texas MD Anderson Cancer Center and the University of Houston. IBM SPSS Statistics version 26.0 was used for all analyses.

RESULTS

Based on inclusion and exclusion criteria, 84 oncology APPs completed the survey. The sample was predominantly female (92.9%) and represented multiple oncology specialties, including medical oncology (51.2%), surgical oncology (17.9%), and hematology oncology (17.9%). Most participants practiced in outpatient settings (81.0%) and academic or teaching hospitals (69.0%), with more than 5 years of professional experience as an APP in oncology (71.4%).

The majority of participants reported working more than 40 hours per week (67.9%). Most reported spending more than 50% of their time in direct patient care (65.5%), whereas 13.1% reported spending more than 50% of their time in indirect patient care. Approximately half of the respondents reported primarily working with two to five oncology CPs (47.6%). The most commonly reported team model was working almost exclusively with the same CP (56.0%), and over two-thirds reported an independent visit practice model (67.9%).

Bivariate analyses (Table 2) demonstrated significant positive correlations between PS and both LI ($r = 0.76, p < .01$) and LMX ($r = 0.72, p < .01$). No significant associations were identified between PS and demographic variables such as age, gender, race, education level, or years of experience (Table 3).

Hierarchical regression analysis (Table 4) indicated that LI ($\beta = 0.48, p < .001$) and LMX ($\beta = 0.27, p < .05$) were significant predictors of PS, accounting for 71% of the variance (adjusted $R^2 = 0.67$). Demographic and professional variables did not contribute additional explanatory value.

Table 1. Descriptive Analysis of Categorical Study Variables (n = 84)

Variable	N	%
Leader-member exchange (LMX)		
Out group (score = less than 25)	22	26.2
In group (score = 25 or more)	62	73.8
Age		
21-29	4	4.8
30-39	26	31.0
40-49	37	44.0
50-59	11	13.1
60+	6	7.1
APP profession and/or clinical certification		
Physician associate	39	46.4
Nurse practitioner	41	48.8
Clinical nurse specialist	4	4.8
Primary oncology specialty or subspecialty		
Medical oncology	43	51.2
Surgical oncology	15	17.9
Hematology oncology	15	17.9
Radiation oncology	4	4.8
Multispecialty	5	6.0
Pediatric or other oncology practice	2	2.4
Location		
Urban	60	71.4
Suburban	21	25.0
Rural	3	3.6
Description of clinical team leader in oncology practice		
Collaborating physician	54	64.3
APP supervisor or manager	24	28.6
Non-MD and non-APP leader	6	7.1
Marital status		
Single	17	20.2
Married	64	76.2
Partnered	1	1.2
Widowed	1	1.2
Prefer not to answer	1	1.2
Gender		
Male	6	7.1
Female	78	92.9
Race/ethnicity		
White	73	86.9
Hispanic/Latino/Spanish origin	1	1.2
Black/African American	4	4.8
Asian/Pacific Islander	3	3.6
Other/Prefer not to answer	3	3.6
Highest education level		
Bachelors	1	1.2
Masters	69	82.1
Doctorate	14	16.7
Years worked as an APP		
< 1	1	1.2
1-5	19	22.6
6-10	18	21.4
11-20	33	39.3
21+	13	15.5

Table 1. Descriptive Analysis of Categorical Study Variables (n = 84) (cont.)

Variable	N	%
Years worked as an APP in the oncology specialty		
< 1	3	3.6
1-5	21	25.0
6-10	20	23.8
11-20	29	34.5
21+	11	13.1
Predominant oncology clinical practice setting		
Outpatient	68	81.0
Inpatient	4	4.8
Both outpatient and inpatient	12	14.3
Oncology practice setting		
Community hospital	15	17.9
Private practice	10	11.9
Teaching (academic) hospital	58	69.0
VA/Other	1	1.2
Typical number of hours per week worked		
< 20	2	2.4
21-40	25	29.8
41-50	43	51.2
> 50	14	16.7
Percentage of time spent in indirect patient care		
< 25	36	42.9
25-50	37	44.0
51-75	10	11.9
> 75	1	1.2
Percentage of time spent in direct patient care		
< 25	6	7.1
25-50	23	27.4
50-75	25	29.8
> 75	30	35.7
Number of oncology collaborating physicians (CPs) primarily work with		
0	1	1.2
1	23	27.4
2 - 5	40	47.6
6 +	20	23.8
Team model with collaborating physician (CP)		
I almost always work with the same CP	34	40.5
I almost always work with the same small group of CPs	47	56.0
I rarely work with the same CP, or small group of CPs	3	3.6
Predominant oncology practice model with CP		
Independent visits	57	67.9
Shared visits	15	17.9
Mixed visits	12	14.3
Rate the quality of your relationship with your CP team leader during the COVID-19 pandemic compared to before.		
Weaker	10	11.9
No difference/stronger	74	88.1

Table 2. Pearson's *r* Correlation Between Psychological Safety Scores by Continuous Explanatory Variables (*n* = 84)

Variable	1	2	3
1. PS	–	.76 ^a	.72 ^a
2. LI		–	.80 ^a
3. LMX			–

Note. PS = psychological safety; LI = leader inclusiveness; LMX = leader-member exchange.
^a*p* < .01.

Open-ended responses revealed communication barriers, unclear role expectations, and variability in leadership support across practice settings. Several participants described limited physician engagement or inconsistent leadership behaviors as contributing to feelings of marginalization and reduced willingness to voice concerns.

DISCUSSION

The findings of this study indicate that leadership behaviors—specifically inclusive leadership and high-quality leader-member relationships—are key determinants of PS among oncology APPs. Inclusive leadership likely reduces perceived power distance within teams, creating an environment in which APPs feel safe to contribute ideas, acknowledge uncertainty, admit mistakes, and raise concerns. Consistent with prior research (Carmeli et al., 2010; Hirak et al., 2012), this study demonstrated a strong positive association between LI and PS among oncology APPs. High-quality collaborative physician-APP relationships characterized by trust, respect, and mutual support may further reinforce this climate of safety.

The absence of significant associations between demographic or professional characteristics and PS suggests that leadership behaviors may exert a stronger influence on team climate than static individual factors. This finding underscores the importance of prioritizing leadership development and relational dynamics rather than relying solely on organizational structures or workforce demographics to improve psychological safety. These results align with relational leadership theories and extend the limited literature examining PS among APPs.

Oncology APPs often work within complex team hierarchies and may experience challenges asserting their professional voice. Leadership behaviors that explicitly invite participation, normalize questions, and acknowledge APP contributions may empower APPs to engage fully in team processes. Prior studies in nursing populations support similar conclusions, demonstrating that inclusive leadership and high-quality LMX relationships predict stronger safety climates, improved communication, and greater job satisfaction (Lee & Dahinten, 2021; Thompson et al., 2011).

The oncology care environment introduces additional stressors, including emotional fatigue, complex care coordination, and ethical dilemmas, which heighten the need for psychologically safe teams (Baugh et al., 2024). The findings emphasize that PS should not be assumed to develop organically but must be intentionally cultivated through leadership behaviors. Leadership development programs that focus on inclusiveness, relational competence, and navigating hierarchical dynamics may be particularly effective in promoting PS. Interventions aimed at improving team-level culture should recognize the influence of both formal and informal leaders in shaping team norms and communication patterns.

Limitations

This study has several limitations. The relatively small sample size limits generalizability and may not fully represent the diverse population of oncology APPs nationwide. Participation was voluntary and relied on self-reported measures, introducing the potential for response and recall bias. Additionally, the cross-sectional design precludes conclusions regarding causality between leadership behaviors and PS.

Data collection occurred during the COVID-19 pandemic, which may have influenced participants' perceptions of leadership, workload, and team dynamics. Another limitation is the potential ambiguity in defining "team leader" within collaborative practice. Because APPs often work with multiple physicians or nonphysician leaders, participants may have found it difficult to identify a single leader when evaluating leadership behaviors and PS. However, oncology care frequently operates within shared

Table 3. Independent Samples T-Test and One-Way ANOVA Analysis of Psychological Safety Scores by Categorical Explanatory Variables (*n* = 84)

Variable	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>t/F(df)</i>	<i>p</i>
Age			.37 (4, 79)	.37
21-29	4	27.75 (6.18)		
30-39	26	29.46 (5.42)		
40-49	37	28.24 (5.44)		
50-59	11	27.27 (6.50)		
60 +	6	28.83 (5.04)		
APP profession			.43 (2, 81)	.65
Physician associate	39	28.67 (5.94)		
Nurse practitioner	41	28.61 (5.25)		
Clinical nurse specialist	4	26.00 (3.74)		
Primary oncology specialty or subspecialty			3.12 (3, 80)	.03 ^a
Medical oncology	43	4.75 (.72)		
Surgical oncology	15	6.89 (1.78)		
Hematology oncology	15	4.58 (1.18)		
Other	11	5.86 (1.77)		
Location			.56 (2, 81)	.57
Urban	60	28.15 (5.54)		
Suburban	21	29.62 (5.45)		
Rural	3	28.00 (3.46)		
Description of clinical team leader in oncology practice			.61 (2, 81)	.55
Collaborating physician	54	28.02 (6.28)		
APP supervisor or manager	24	29.46 (3.60)		
Non-MD and non-APP leader	6	29.17 (4.17)		
Marital status			.28 (2, 81)	.75
Single	17	28.06 (5.67)		
Married	64	28.53 (5.51)		
Other	3	30.67 (5.86)		
Gender			-3.35 (82)	.001
Male	6	21.67 (5.05)		
Female	78	29.04 (5.20)		
Race/ethnicity			-3.37 (34.79)	.06
White	73	29.11 (5.03)		
Other	11	24.55 (7.01)		
Highest education level			-.15 (82)	.88
Bachelors/Masters	70	28.47 (5.55)		
Doctorate	14	28.71 (5.44)		
% of time spent in indirect patient care			3.38 (2, 81)	.04 ^b
< 25	36	29.61 (5.55)		
25-50	37	28.54 (4.56)		
Greater than 51	11	24.82 (7.01)		
Predominant oncology practice model with CP			4.07 (2, 81)	.02 ^c
Independent visits	57	29.46 (4.74)		
Shared visits	15	25.07 (6.73)		
Mixed visits	12	28.33 (5.94)		
Quality of relationship with CP during the COVID-19 pandemic compared to before			-2.88 (82)	.005
Weaker	10	24.00 (6.55)		
No difference/stronger	74	29.12 (5.09)		

Note. ^aBonferroni post hoc analysis indicated that the mean score for the > 50 group was significantly higher than the Greater than 51 group. ^bBonferroni post hoc analysis indicated that the mean score for the < 25 group was significantly higher than the Greater than 51 group. ^cBonferroni post hoc analysis indicated that the mean score for the Independent visits group was significantly higher than the Shared visits group.

Table 4. Hierarchical Multiple Linear Regression Analysis Examining Psychological Safety (PS) Scores ($n = 84$)

Variable	<i>B</i> (<i>SE</i>)	β	<i>p</i>
<i>Step 1</i>			
Primary oncology specialty			
Medical oncology	Ref		
Surgical oncology	-4.64 (1.59)	-0.33	.005
Hematology oncology	-.84 (1.59)	-0.06	.60
Other	-2.66 (1.79)	-0.16	.14
<i>Step 2</i>			
Primary oncology specialty			
Medical oncology	Ref		
Surgical oncology	-3.40 (1.79)	-0.24	.06
Hematology oncology	-1.27 (1.59)	-0.09	.43
Other	-2.60 (1.77)	-0.16	.15
% of time spent in indirect patient care			
< 25	Ref		
25-50	-.65 (1.25)	-0.06	.60
Greater than 51	-3.68 (1.93)	-0.23	.06
Predominant oncology practice model with CP			
Independent visits	Ref		
Shared visits	-2.06 (1.81)	-0.15	.26
Mixed visits	-.28 (1.73)	-0.02	.87
<i>Step 3</i>			
Primary oncology specialty			
Medical oncology	Ref		
Surgical oncology	-.65 (1.18)	-0.05	.58
Hematology oncology	1.23 (1.02)	0.09	.23
Other	-.57 (1.10)	-0.04	.61
% of time spent in indirect patient care			
< 25	Ref		
25-50	-.54 (.78)	-0.05	.49
Greater than 51	-1.55 (1.23)	-0.1	.21
Predominant oncology practice model with CP			
Independent visits	Ref		
Shared visits	-.13 (1.13)	-0.01	.91
Mixed visits	-1.46 (1.07)	-0.09	.18
The relationship of study participants with CP during the COVID-19 pandemic compared to before the pandemic	.59 (1.15)	0.04	.61
LI	.70 (.17)	0.48	.001
LMX	.25 (.11)	0.27	.018

Note. LI = leader inclusiveness; LMX = leader-member exchange. Step 1: Model: $F(83) = 3.12, p < .05, R^2 = .11$, Adjusted $R^2 = .07$. Step 2: Model: $F(83) = 2.40, p < .05, R^2 = .18$, Adjusted $R^2 = .11$. Step 3: Model: $F(83) = 15.98, p < .001, R^2 = .71$, Adjusted $R^2 = .67$.

or distributed leadership models, in which both physician and nonphysician leaders influence team communication, PS, and clinical workflows. As such, this variability likely reflects real-world dynamics rather than measurement error and is unlikely to have meaningfully affected the direction of the results.

The study also did not examine broader organizational factors, such as institutional culture, workload, staffing resources, or support for team learning, which may interact with leadership behaviors to influence PS. Finally, the survey did not assess access to leadership development programs or formal mentoring, both of which may shape APP perceptions of leadership effectiveness and team climate.

IMPLICATIONS FOR PRACTICE

Health-care organizations should prioritize leadership development initiatives that cultivate inclusive leadership behaviors among physicians and other clinical leaders working with APPs. Training focused on inclusive practices, effective feedback exchange, and relational leadership skills may better equip leaders to foster psychologically safe environments. Embedding PS as a team performance indicator may further promote accountability and sustained cultural change.

Efforts to strengthen inclusive leadership have the potential to improve team engagement, job satisfaction, and APP retention. Creating structured opportunities for open dialogue, shared decision-making, and recognition of contributions may mitigate risks associated with poor team climate, including disengagement and turnover. Practical strategies such as routine team huddles, structured feedback mechanisms, and leadership rounding can reinforce inclusiveness at the team level. At the organizational level, incorporating inclusive leadership behaviors into performance evaluations may help institutionalize support for PS.

IMPLICATIONS FOR EDUCATION AND RESEARCH

Interprofessional education should incorporate training on PS, inclusive leadership, and effective team communication. Simulation and role-based learning may provide experiential opportunities

to practice collaborative decision-making, speaking up behaviors, and inclusive leadership skills (Reeves et al., 2013; Edmondson & Lei, 2014). Embedding PS principles into clinical and leadership curricula—including instruction on LI and relational leadership theories—can better prepare future health-care leaders to cultivate supportive team climates.

Mentorship programs that pair APPs with experienced, inclusive leaders may further strengthen leadership capacity and professional voice. Training early-career APPs in communication strategies, advocacy, and team engagement may empower them to participate actively in shaping team dynamics.

Future research should explore additional leadership constructs, such as transformational and shared leadership, as well as mediating variables including power distance and organizational culture. Longitudinal, experimental, and mixed-methods studies across specialties and practice settings would enhance understanding of leadership's influence on PS, clinician well-being, and patient outcomes. Such work may inform the development of targeted interventions to improve team functioning across health-care systems.

CONCLUSION

Inclusive leadership and high-quality LMX are significant predictors of PS among oncology APPs. Leadership behaviors that promote inclusivity, trust, and respect foster a safe team climate in which APPs can fully engage in collaborative care. Leadership development initiatives focused on PS hold promise for improving team functioning, clinician well-being, and patient outcomes in oncology settings. ●

Disclosure

The author has no conflicts of interest to disclose.

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