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Physician leadership style predicts advanced practice provider job satisfaction

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Abstract

Purpose – This paper aims to examine the relationship between physician leadership style and advanced practice health-care provider job satisfaction.

Design/methodology/approach – A total of 320 advanced practice providers (nurse practitioners and physician assistants) in Texas rated their supervising/collaborating physicians' leadership style using the Multifactor Leadership Questionnaire 5X Short (Bass and Avolio, 2000) and assessed their own job satisfaction using the Abridged Job Descriptive Index (Smith, Kendall and Hulin, 1969). Regression models tested the relationships between physician leadership styles and several facets of job satisfaction of advanced practice providers while controlling for advanced practice provider age, gender, ethnicity, years of experience, salary level, clinical practice setting, level of physician supervision/collaboration and advanced practice provider type.

Findings – The results demonstrated that physician transformational leadership accounted for between 4.4 and 49.1 per cent of the variance in job satisfaction depending on the aspect of job satisfaction. Satisfaction with job supervision and satisfaction with job in general were those in which transformational leadership was found to have the most impact, explaining 49.1 and 15.5%, respectively. Demographic variables such as advanced practice provider type, age, years of experience and number of hours per week of physician collaboration/supervision had small but statistically significant associations with job satisfaction.

Practical implications – Recommendations for physician leadership development focusing on transformational leadership as a way to increase the satisfaction among other providers on health-care teams are discussed.

Originality/value – This paper examines the impact of supervising/delegating physician leadership style on other nonphysician members of the health-care team, specifically advanced practice health-care providers.

Keywords Job satisfaction, Transformational leadership

Paper type Research paper

Physicians are trained in medicine not leadership, yet they may need to learn to lead and fast. Why? Our health-care industry's movement toward patient-centered, team-based care (Agency for Healthcare Research and Quality, 2016; American Medical Association, 2016) and its growing reliance on advanced nurse practitioners and physician assistants to meet the health-care needs of a growing and aging patient population (US Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA) National Center for Health Workforce Analysis (NCHWA), 2016) has created a need for physician leaders to inspire, motivate, support and mentor these essential members of the health-care team (Morris, 2016; Stuemky, 2013; O'Brien *et al.*, 2008). This places physicians whose training, expertise and level of responsibility exceed those of other health-care professionals squarely in a position that they may be reluctant and ill-equipped to take – that of leader. Commonly referred to today as advanced practice providers, physician assistants and nurse

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practitioners examine patients, diagnose medical conditions, prescribe medications and treatments and serve as patients' primary care providers (Bureau of Labor Statistics, 2018a, 2018b). Advanced practice providers practice "under the supervision" of a supervising physician as in the case of physician assistants or may provide care either independently or in collaboration with a "delegating physician" (nurse practitioners) (Curren, 2007; Hooker, 2006). Although physicians may possess the clinical expertise and competence required to execute their duties related to their medical specialty, they may have difficulty transitioning to integrated team leader because most medical schools and residency programs do not prepare physicians to be future leaders in the practice groups or hospitals where they will work (Hartzell *et al.*, 2017). Instead, physicians are generally trained to become efficient self-reliant fixers: They typically are taught to methodically look at a constellation of signs and symptoms, diagnose the problem and decisively treat it independently instead of collaboratively as part of a team (American Hospital Association, 2014; Lee, 2010).

Once in clinical practice, however, physicians who work with advanced practice providers do so collaboratively and function as a team leader but this may require work on their part to acquire those skills. Because they are trained with an emphasis on disease management and acquiring clinical skills to diagnose and treat a wide variety of medical conditions, physicians may not possess the leadership competencies necessary to be effective leaders (Angood and Birk, 2014). Farver *et al.* (2016) provided a leadership course for chief residents and demonstrated that there was little knowledge of leadership concepts among the participants and that after the course, there was a desire to further develop these skills. It is apparent that there is a lack of leadership knowledge and skill development for physicians in training.

Although there have been numerous leadership styles that have garnered attention including six styles presented by Goleman (2000), empirical research studies over the past two decades have consistently shown transformational leadership to be a highly effective form of leadership. Meta-analytic findings indicate positive relationships between transformational leadership and organizational outcomes (e.g. job performance, organizational citizenship behavior, organizational commitment, leader effectiveness, job satisfaction and others) stemming from well over a 100 empirical studies and over 20,000 participants (Judge and Piccolo, 2004; Hoch *et al.*, 2018). These include studies among chief executive officers and high-ranking leaders in prominent organizations (Northouse, 2013). Furthermore, transformational leadership has been applied and studied across multiple organizations including governmental, industrial, public and private companies (Bass and Avolio, 1990; Rowold and Heinitz, 2007; Nemanich and Keller, 2007; Tims, Bakker and Xanthopoulou, 2011; Northouse, 2013) as well as across multiple professions (health care, education, service and financial). This strong empirical support for transformational leadership suggests that it may influence advanced practice providers' job satisfaction.

Transformational leadership refers to building follower commitment toward an organization's mission and goals through motivation, inspiration, empowerment, stimulation, consideration and other equally charismatic and affective leader attributes (Bass, 1985). Transformational leadership produces the best leader-follower results by appealing to the higher order intellectual and psychological needs of followers and leaders especially during times of adversity and challenge (Bass, 1985). Transformational leadership has been the subject of many writings and papers. Research studies have consistently shown transformational leadership to be a highly effective form of leadership. These include studies among chief executive officers and high-ranking leaders in prominent organizations (Northouse, 2013).

Numerous studies have examined the effect of transformational leadership within the health care including how it impacts social workers, nurses and health care technicians

(Medley and Larochelle, 1995: Krogsgaard *et al.*, 2014; Krepia *et al.*, 2018). In a study investigating the extent to which empowerment mediates the relationship between transformational leadership and job satisfaction among nurses, Sang Long *et al.* (2016) reported that a significant positive relationship exists between these constructs. Nielsen *et al.* (2009) reported a positive association between transformational leadership and job satisfaction among health-care workers in various job positions. Transformational leadership has also been shown to be positively associated with well-being, staff satisfaction and negatively associated with burnout among nurses in hospitals and elder care facilities (Weberg, 2010). An investigation of job satisfaction among nurses working in elder care also demonstrated that transformational leadership predicted both job satisfaction and well-being (Munir *et al.*, 2012). In another study of radiological technologists, Watson (2009) reported that perceived transformational and transactional leadership behaviors of supervisors were strongly associated with radiological technologists' job satisfaction. In sum, transformational leadership behaviors have been consistently linked to increased job satisfaction in health-care settings.

Despite its prominence in leadership and management, criticisms of transformational leadership remain. Lee (2010) summarized several shortcomings of this leadership style such as heroic emphasis on the transformational leader and the dangers of such influential people leading their followers to focus on the common goal in an antidemocratic and autocratic fashion. One particular criticism focuses on the fact that there remains construct redundancy in the dimensions of transformational leadership when measured with the Multifactor Leadership Questionnaire (MLQ). Although this study did not attempt to address each weakness presented, it did, however, address and alleviate the problem with construct overlap. Instead of focusing on the individual facets of transformational leadership such as those that have been criticized as redundant transformational leadership was conceptualized and measured as a composite of those facets. In light of these criticisms, transformational leadership served as an adequate leadership style for this study because the focus was on the leadership behaviors that fall along a continuum as opposed to categorizing specific leaders as transformational or not.

Like transformational leadership, transactional leadership is also an effective way of leading, but unlike transformational leadership, transactional leadership involves the exchange of one valuable thing (usually a tangible but sometimes an intangible) for another (Burns, 1978). Transactional leadership does not address followers' higher order needs for personal growth and moral development (Bass, 1985). Although quite effective, transactional leadership involves a necessary quid pro quo or reward that is contingent upon performance. In addition to incorporating contingent reward within its subset of behaviors, transactional leadership may also include a management style that though less effective is considered necessary in certain situations. This aspect of transactional leadership is known as management-by-exception-active (MBE-A) in which leaders "actively monitor" for suboptimal performance, deviations from the norm or violations of rules and policies and provide immediate feedback to followers. Both contingent reward and management by exception-active are routinely used today and considered significant components of the transactional leadership dimension of the Full Range Model of Leadership (Bass and Avolio, 1994).

In their meta-analytical review of studies between 1995 and 2002, Dumdum *et al.* (2002) reported that transformational leadership was correlated both with satisfaction with leader and satisfaction with job. Transactional leadership was also positively associated with satisfaction with leader and satisfaction with job. However, among a sample of nurses, AL-Hussami (2008) reported that transactional leadership was not significantly correlated

with job satisfaction, whereas transformational leadership was significantly correlated with job satisfaction.

Contrasting greatly from transformational and transactional forms of leadership, passive-avoidant leadership remains the least-desired form of leadership (Bass and Avolio, 1994). This leadership style includes management-by-exception-passive in which leaders passively wait until serious problems arise before providing feedback or taking corrective action and *laissez-faire* leadership in which leaders are completely absent and abdicate all responsibility for the organization and their followers (Bass and Avolio, 1994). Although considered the least effective form of leadership, *laissez-faire* leadership is also an important component of the full range model of leadership because it describes the absence of leadership and helps draw a distinction between transactional leadership and nontransactional leadership (*laissez-faire*). Bass and Avolio (1994) proposed that leaders use every leadership style within the full range model of leadership in varying degrees and at some time or another regardless of how successful the organization is.

Although there is a fair amount of existing research on the impact of leadership on nurses' and other health-care workers' job satisfaction, the amount available pertaining to physicians and nonphysician advanced practice providers, such as physician assistants and nurse practitioners, remains scant. Although studies on physician leadership competency (McKenna, Gartland, and Pugno, 2004) and leadership training (Hartzell *et al.*, 2017) have been conducted, there are no studies examining the relationship between physician leadership and follower job satisfaction when followers were advanced practice providers. The purpose of this study was to assess the extent to which physician leader behaviors predict job satisfaction among the advanced practice providers they supervise:

H1. Supervising/delegating physician leadership style (transformational, transactional or passive avoidant) will predict advanced practice providers' (physician assistants and nurse practitioners) job satisfaction (general, promotion, supervision and pay) when controlling for advanced practice provider age, gender, ethnicity, years of experience, salary level, clinical practice setting, supervision/collaboration hours and type of advanced practice provider.

Method

Sampling procedure

An email invitation with a link to the online survey website Survey Monkey® was sent to 3,900 members of the Texas Nurse Practitioners and 1,551 members of the Texas Academy of Physician Assistants. Members who were not currently licensed in Texas and who were not actively practicing as a physician assistant or nurse practitioner were asked to opt out of the study. Initially, 433 surveys were completed resulting in a response rate of about 8 per cent of the total number of participants who were sent the link. Upon further analysis of the collected surveys, 321 comprised the final sample and were deemed useable because they answered most or all of the questions. Participants completed an informed consent form prior to beginning the survey. There were no incentives or inducements offered for participation. This study was approved by Our Lady of the Lake University's Institutional Review Board.

Participants

The final sample for this study included 321 licensed and practicing physician assistants (n = 100) and nurse practitioners (n = 221) in the state of Texas. The participants reported their clinical practice area as working in an outpatient primary

care practice (41.3 per cent), in an outpatient specialty care practice (29.5 per cent), in a hospital-based nonsurgical medical practice (8.7 per cent), in a surgical practice (either in-patient or day surgery) (5.5 per cent) or working in "Other" including emergency room/acute care, academics or research (15 per cent). Among the participants, 18.4 per cent were male and 81.6 per cent were female ranging from 27 to 72 years of age (M = 48.16, SD = 11.70). The majority of the participants identified as Caucasian (76.95 per cent) with the remaining participants identifying as Hispanic (17.0 per cent), African American (4.4 per cent) or other (5.6 per cent). The participants' experience ranged from less than 1 year to 41 years (M = 12.06, SD = 9.48) and their level of supervision/collaboration with a supervising or delegating physicians ranged between 0 and 60 supervision hours per week (M = 7.44, SD = 11.724). Just over 8 per cent reported making less than $75,000 per year with 32.4 per cent making between $75,000 and $100,000 per year and 52 per cent making between $100,001 to $150,000 per year. Additionally, 7.5 per cent reported making greater than $150,000 per year.

Instruments

Participants were asked to provide demographic information, reporting whether they were a physician assistant or nurse practitioner, their age, gender, ethnicity, income level, years of experience as a physician assistant or nurse practitioner, number of supervision/collaboration hours per week and their primary care practice area. They were asked to evaluate their supervising/delegating physician using the Multifactor Leadership Questionnaire 5X (MLQ 5X) (Avolio and Bass, 2004). MLQ 5X Short Form was used to measure physician leadership style (transformational, transactional and passive avoidant leadership) from the perspective of the advanced practice provider. The participants were presented with 36 descriptive statements in which they rated their supervising/delegating physician on a five-point Likert scale ranging from 1 = "Not at All" to 5 = "Frequently If Not Always." The MLQ 5X maintains favorable reliability for the individually tested facets (α = 0.74–0.94). The reliability coefficients for this sample were α = 0.94 (transformational), α = 0.63 (transactional) and α = 0.85 (passive avoidant).

The Abridged Job Descriptive Index or AJDI (Smith *et al.*, 1969) is a multidimensional job satisfaction instrument. The AJDI is a self-report measure that assesses five job satisfaction facets including satisfaction with supervision, satisfaction with pay, satisfaction with coworkers, satisfaction with the work and satisfaction with promotion as well as total job satisfaction. The instrument has thirty-eight items and asks respondents to answer either "yes," "no" or "?" (uncertain) as to whether they agree with a word or phrase describing their job. For this study and with permission from its developers, the instrument was re-scaled on a five-point Likert scale, assessing level of agreement with a word or phrase describing their job (0 = strongly disagree; 1 = disagree; 2 = neither agree nor disagree; 3 = agree and 4 = strongly agree). For the purposes of this study, only questions pertaining to the following facets were asked: satisfaction with job in general, satisfaction with supervision, satisfaction with pay and satisfaction with promotional opportunities. This reduced the number of questions related to job satisfaction from 38 to 26. The Cronbach alpha for each job satisfaction facet exceeds >0.88, indicating a high level of internal consistency reliability. For this sample, internal consistency reliability was found to be favorable for all aspects of job satisfaction, satisfaction with job in general (α = 0.95); satisfaction with pay (α = 0.89), satisfaction with promotional opportunities (α = 0.90) and satisfaction with supervision (α = 0.88).

Results

For all analyses, Statistical Package for Social Science (SPSS) software was used to conduct the following analyses. The alpha-level was set at 0.05 ($p < 0.05$).

Correlations

Pearson's product-moment correlations (see Table I) were performed to examine the relationship between age, experience, supervision (hours spent collaborating with physician), the leadership style variables and all dimensions of job satisfaction. We relied on Cohen's (1988) conventions in determining the strength of the correlation (weak = 0.10–0.29; moderate = 0.30–0.49 and strong = 0.50 and above). The results showed age to be strongly related to experience ($r = 0.67$, $p < 0.01$), weakly and negatively related to supervision ($r = -0.15$, $p < 0.01$) and weakly related to satisfaction with job in general ($r = 0.12$, $p < 0.05$). There were no statistically significant relationships between age and leadership style or the other aspects of job satisfaction ($p > 0.05$). Experience also emerged as a significant correlate of supervision ($r = -0.14$, $p < 0.05$) and satisfaction with job in general ($r = 0.11$, $p < 0.05$) and was not related to any other job satisfaction or any leadership variables ($p > 0.05$).

The number of supervision/collaboration hours was significantly and positively related to advanced practice providers' perceptions of their supervising/delegating physicians' transformational leadership ($r = 0.21$, $p < 0.01$) and transactional leadership ($r = 0.28$, $p < 0.01$) but negatively correlated with passive-avoidant leadership ($r = -0.16$, $p < 0.01$). In addition, supervision/collaboration had a positive though weak relationship with satisfaction with opportunities for promotion ($r = 0.15$, $p < 0.01$). The results also indicated that transformational leadership had a strong, positive relationship with satisfaction with job supervision ($r = 0.74$, $p < 0.01$), a moderate, positive relationship with satisfaction with job in general ($r = 0.46$, $p < 0.01$), a moderate, positive relationship with satisfaction with job pay ($r = 0.30$, $p < 0.01$) and a moderate, positive relationship with satisfaction with promotional opportunities ($r = 0.40$, $p < 0.01$).

Transactional leadership also emerged as demonstrating positive associations with satisfaction with supervision ($r = 0.31$, $p < 0.01$); satisfaction with job in general ($r = 0.15$, $p < 0.01$), satisfaction with job pay ($r = 0.14$, $p < 0.01$) and satisfaction with promotional opportunities ($r = 0.30$, $p < 0.01$). As expected, passive-avoidant leadership had moderate negative associations with all job satisfaction facets including satisfaction with supervision ($r = -0.50$, $p < 0.01$), satisfaction with job in general ($r = -0.34$, $p < 0.01$); satisfaction with job pay ($r = -0.28$, $p < 0.01$) and satisfaction with promotional opportunities ($r = -0.29$, $p < 0.01$).

Measure	1	2	3	4	5	6	7	8	9	10
Age	–									
Experience	0.67**	–								
Supervision	−0.15**	0.14*	–							
Transformational	−0.05	−0.02	0.21**	–						
Transactional	−0.09	−0.10	0.28**	0.61**	–					
Passive-avoidant	0.05	0.00	−0.16**	−0.61**	−0.39**	–				
JS supervision	0.09	0.09	0.07	0.74**	0.31**	−0.50**	–			
JS job in general	0.12*	0.11*	0.05	0.46**	0.15**	−0.34**	0.57**	–		
JS pay	−0.03	0.09	0.08	0.30**	0.14*	−0.28**	0.34**	0.35**	–	
JS promotions	−0.07	0.03	0.15**	0.40**	0.27**	−0.29**	0.42**	0.49**	0.33**	–

Notes: **Correlation is significant at the 0.01 level (two-tailed); *correlation is significant at the 0.05 level (two-tailed)

Table I. Correlations between age, experience, supervision, and leadership style and job satisfaction

Regression analyses

To test the hypothesis that supervising/delegating physician leadership style (transformational, transactional or passive avoidant) predicts advanced practice providers' (physician assistants and nurse practitioners) job satisfaction (general, promotion, supervision and pay) when controlling for advanced practice provider age, gender, ethnicity, years of experience, salary level, clinical practice setting, supervision/collaboration hours and type of advanced practice provider, four multiple linear regressions were conducted in SPSS. In each model, the continuous variables of age, years of experience and supervision/collaboration hours per week and dichotomous variables of advanced practice provider type and gender were entered into Block 1 using the stepwise method. For Block 2, ethnicity was represented by three dummy coded variables and was analyzed using the enter method. Block 3 contained three dummy-coded variables representing salary range and was analyzed using the enter method. In addition, clinical practice environment was entered into Block 4 as four dummy-coded variables using the enter method. Finally, Block 5 contained the criterion variables of transformational, transactional and passive-avoidant leadership which were entered using the stepwise method.

Satisfaction with job in general

A multiple regression analysis (see Table II) indicated that experience, salary, transactional leadership and transformational leadership were all significant predictors of satisfaction with job in general. Experience, salary level and transactional leadership only explained 1.2, 4 and 1.8 per cent of the variance in job satisfaction respectively (R^2 = 0.012 F(1, 319) =

Job in general	B	*SE(B)*	β	*t*	Sig. (*p*)
Block 1 (stepwise)					
Age				0.47	0.64
Gender (1, female; 2, male)				0.37	0.71
Provider (1, NP; 2 PA)				0.07	0.94
Supervision/collaboration h				0.98	0.33
Experience	0.011	0.005	0.125	2.18	0.03
Block 2					
Ethnicity (dummy variable 1)				0.68	0.50
Ethnicity (dummy variable 2)				0.83	0.41
Ethnicity (dummy variable 3)				−0.67	0.50
Block 3					
Salary (dummy variable 1)				−0.806	0.42
Salary (dummy variable 2)	−0.40	0.19	−0.22	−2.07	0.04
Salary (dummy variable 3)				−0.46	0.65
Block 4					
Practice (dummy variable 1)				−0.73	0.47
Practice (dummy variable 2)				−1.32	0.19
Practice (dummy variable 3)				0.34	0.74
Practice (dummy variable 4)				0.49	0.63
Block 5 (stepwise)					
Transformational leadership	0.48	0.06	0.51	7.52	0.00
Transactional leadership	−0.20	0.08	−0.17	−2.45	0.02
Passive avoidant leadership				−1.28	0.20
R^2 = 0.239					

Table II.
Summary of regression analysis for satisfaction with job in general (N = 304)

3.871, $p = 0.05$; $\Delta R^2 = 0.040$, $F(3, 316) = 4.470$, $p < 0.01$; $\Delta R^2 = 0.189$, $F(1, 315) = 78.698$, $p < 0.001$ Transformational leadership emerged as the strongest predictor and explained an additional 18.9 per cent of the variance in job satisfaction. Age, gender, ethnicity, clinical practice setting, supervision/collaboration hours and type of advanced practice provider did not emerge as significant predictors of general job satisfaction in this model.

Because salary level emerged as a significant predictor of satisfaction with job in general, a one-way analysis of variance (ANOVA) and Fisher's LSD post hoc was conducted to identify the differences in job satisfaction by salary level. The results revealed a significant difference by salary level, $F(3,317) = 5.243$, $p < 0.05$ and revealed that advanced practice providers making between $75,000 to $100,000 per year were significantly less satisfied with their job in general ($M = 3.85$, $SD = 0.978$) than the next higher-salaried groups including those making between $100,001 and $150,000 per year ($M = 4.22$, $SD = 0.749$) and those making greater than $150,000 per year ($M = 4.40$, $SD = 0.777$). There were no differences in general job satisfaction between advanced practice providers making less than $75,000 and those making between $75,000 and $100,000 per year.

Satisfaction with promotional opportunities

A multiple regression analysis (see Table III) indicated that advanced practice provider type, level of supervision, ethnicity, salary and transformational leadership were significant predictors of satisfaction with job promotional opportunities. Although statistically significant, the amount of variance predicted in satisfaction with promotional opportunities remained minimal. Provider type (physician assistant or nurse practitioner) explained 3.7

Promotion	B	*SE(B)*	*B*	*t*	Sig. (*p*)
Block 1 (stepwise)					
Age				−0.90	0.37
Gender (1, female; 2, male)				1.07	0.29
Provider (1, NP; 2 PA)	0.426	0.125	0.192	3.40	0.00
Supervision/collaboration h	0.011	0.005	0.128	2.27	0.02
Experience				−0.04	0.97
Block 2					
Ethnicity (dummy variable 1)				−0.62	0.53
Ethnicity (dummy variable 2)				1.15	0.25
Ethnicity (dummy variable 3)				1.06	0.29
Block 3					
Salary (dummy variable 1)	−0.99	0.28	−0.26	−3.55	0.00
Salary (dummy variable 2)	−0.81	0.22	−0.37	−3.68	0.00
Salary (dummy variable 3)	−0.55	0.21	−0.27	−2.61	0.01
Block 4					
Practice (dummy variable 1)				−1.29	0.20
Practice (dummy variable 2)				−1.19	0.23
Practice (dummy variable 3)				−0.80	0.42
Practice (dummy variable 4)				−0.84	0.40
Block 5 (stepwise)					
Transformational leadership	0.42	0.06	0.38	7.01	0.00
Transactional leadership				−0.01	0.99
Passive avoidant leadership				−1.10	0.27
$R^2 = 0.270$					

Table III. Summary of regression analysis for satisfaction with opportunities for promotion ($N = 304$)

per cent of the variance (R^2 = 0.037, F(1, 302) = 11.554, $p < 0.01$); level of supervision explained an additional 1.6 per cent of the variance (ΔR^2 = 0.016, F(1, 301, $p < 0.05$); ethnicity explained an additional 3.4 per cent of the variance (ΔR^2 = 0.034, F(3, 298) = 3.753, $p < 0.05$); salary level explained an additional 5.2 per cent of the variance (ΔR^2 = 0.052, F(3, 295) = 5.827, $p < 0.01$) and transformational leadership explained an additional 12.4 per cent of the variance (ΔR^2 = 0.124, F(1, 290) = 49.192 $p < 0.01$) in advanced practice provider job satisfaction with promotional opportunities. Age, gender, years of experience, clinical practice setting, transactional leadership and passive avoidant leadership did not emerge as significant predictors in this model.

Because advanced practice provider type emerged as a significant predictor of satisfaction with promotional opportunities, a t-test was conducted to determine which provider type accounted for this difference. Results showed that physician assistants (M = 2.59, SD = 1.12) were significantly more satisfied with promotional opportunities than nurse practitioners (M = 2.17, SD = 0.96, t(167) = −3.204, $p < 0.05$. Additionally, a one-way ANOVA was conducted to test the differences in satisfaction with promotional opportunities by ethnicity, F(3, 317) = 3.803, $p < 0.05$. The Fisher's LSD post hoc revealed that Caucasians were significantly less satisfied with promotional opportunities (M = 2.21, SD = 0.99) than Hispanics (M = 2.69, SD = 0.16) and African-Americans (M = 2.75, SD = 1.11) but they were not significantly less satisfied with promotional opportunities than those who self-identified as "Other" (M = 2.32, SD = 1.07). Additionally, a one-way ANOVA was conducted to identify differences in this area of satisfaction by salary. Results revealed that all groups were less satisfied than those groups earning more but more satisfied than those earning less with the exception of one group, F(3, 317) = 7.769, $p < 0.001$. There was no statistical difference in satisfaction with promotional opportunities between those making < $75,000 per year ($M$ = 1.84, SD = 0.69) and those making between $75,000 and $100,000 per year ($M$ = 2.11, 0.95).

Satisfaction with supervision

A multiple regression analysis (see Table IV) indicated that advanced practice provider type (nurse practitioner or physician assistant), ethnicity, transformational leadership and transactional leadership were all significant predictors of advanced practice provider satisfaction with supervision. Provider type (nurse practitioner or physician assistant) explained only 1.3 per cent of the variance (R^2 = 0.013, F(1, 302) = 3.896, $p < 0.05$), ethnicity explained an additional 4 per cent of the variance (ΔR^2 = 0.040, F(3, 299) = 4.219, $p < 0.01$), transformational leadership emerged as the best predictor and explained an additional 49.1 per cent of the variance (ΔR^2 = 0.491, F(1, 291) = 331.246, $p < 0.001$) and transactional leadership explained an additional 7.7 per cent of the variance (ΔR^2 = 0.017, F(1, 290) = 4.219, $p < 0.01$) in advanced practice provider satisfaction with supervision. Age, gender, years of experience, salary level, clinical practice setting, supervision/collaboration hours and passive avoidant leadership did not emerge as significant predictors in this model.

Because advanced practice provider type was a significant predictor of satisfaction with supervision, a t-test was conducted to determine whether significant differences existed between physician assistants and nurse practitioners. Results showed that physician assistants were significantly more satisfied with than nurse practitioners, t(319) = −2.01, $p < 0.05$. A one-way ANOVA demonstrated ethnic differences for satisfaction with supervision, F(3,317) = 4.56, $p < 0.01$. The Fisher's LSD post hoc analysis indicated that Caucasians were significantly more satisfied with supervision (M = 3.90, SD = 0.90) than both African-Americans (M = 3.271, SD = 0.93) and those respondents who self-identified as

Supervision	B	*SE(B)*	β	*T*	Sig. (*p*)
Block 1 (stepwise)					
Age				1.72	0.09
Gender (1, female; 2, male)				−1.31	0.19
Provider (1, NP; 2 PA)	0.231	0.117	0.113	1.97	0.049
Supervision/collaboration h				0.82	0.41
Experience				1.28	0.20
Block 2					
Ethnicity (dummy variable 1)	0.547	0.233	0.244	2.35	0.02
Ethnicity (dummy variable 2)				1.18	0.24
Ethnicity (dummy variable 3)				−0.41	0.68
Block 3					
Salary (dummy variable 1)				0.139	0.89
Salary (dummy variable 2)				−1.031	0.30
Salary (dummy variable 3)				−0.036	0.97
Block 4					
Practice (dummy variable 1)				−0.96	0.34
Practice (dummy variable 2)				−1.34	0.18
Practice (dummy variable 3)				0.62	0.54
Practice (dummy variable 4)				−0.42	0.67
Block 5 (stepwise)					
Transformational leadership	0.88	0.05	0.84	16.62	0.00
Transactional leadership	−0.23	0.07	−0.17	−3.41	0.00
Passive avoidant leadership				−1.18	0.24
$R^2 = 0.585$					

Table IV.
Summary of regression analysis for satisfaction with supervision ($N = 304$)

"Other" ($M = 3.269$, $SD = 1.08$) with respect to ethnicity but nonsignificantly more satisfied than Hispanics ($M = 3.68$, $SD = 1.058$).

Satisfaction with pay

A multiple regression analysis (see Table V) indicated that advanced practice provider type (nurse practitioner or physician assistant), ethnicity, salary level and transformational leadership were significant predictors of advanced practice provider satisfaction with pay. Provider type (nurse practitioner or physician assistant) explained 3.7 per cent of the variance ($R^2 = 0.037$, $F(1, 302) = 11.583$, $p < 0.01$), ethnicity explained 3.7 per cent of the variance ($\Delta R^2 = 0.037$, $F(3, 299) = 3.8931$, $p < 0.01$), salary level explained 17.9 per cent of the variance ($\Delta R^2 = 0.179$, $F(3, 296) = 23.701$, $p < 0.001$) and transformational leadership explained 4.4 per cent of the variance ($\Delta R^2 = 0.044$, $F(1, 291) = 18.271$, $p < 0.001$) in advanced practice provider satisfaction with salary. Age, gender, years of experience, clinical practice setting, supervision/collaboration hours, transactional leadership and passive avoidant leadership did not emerge as significant predictors in this model.

Because provider type emerged as a significant predictor of satisfaction with pay, a *t*-test was run to determine the mean difference between physician assistants and nurse practitioners. Results showed that physician assistants ($M = 4.23$, $SD = 0.73$) were significantly more satisfied with pay than nurse practitioners ($M = 3.80$, $SD = 1.00$), $t(258) = -4.329$, $p < 0.001$. Because ethnicity emerged as a significant predictor of satisfaction with pay, a one-way ANOVA with Fisher's LSD post hoc was conducted to further explore the ethnic differences in satisfaction with pay and revealed that African-Americans were

Pay	B	*SE(B)*	β	*t*	Sig. (*p*)
Block 1 (stepwise)					
Age				−0.17	0.87
Gender (1, female; 2, male)				−0.49	0.63
Provider (1, NP; 2 PA)	0.396	0.116	0.192	3.40	0.00
Supervision/collaboration h				1.07	0.29
Experience				0.68	0.50
Block 2					
Ethnicity (dummy variable 1)				−0.79	0.43
Ethnicity (dummy variable 2)				−0.43	0.67
Ethnicity (dummy variable 3)	−1.052	0.306	−0.225	−3.44	0.00
Block 3					
Salary (dummy variable 1)	−1.260	0.241	−0.359	−5.23	0.00
Salary (dummy variable 2)	−0.588	0.190	−0.291	−3.09	0.00
Salary (dummy variable 3)				0.17	0.86
Block 4					
Practice (dummy variable 1)				−0.65	0.52
Practice (dummy variable 2)				−0.01	0.99
Practice (dummy variable 3)				0.36	0.72
Practice (dummy variable 4)				−0.25	0.80
Block 5 (stepwise)					
Transformational leadership	0.230	0.054	0.220	4.27	0.00
Transactional leadership				−0.48	0.63
Passive avoidant leadership				−1.76	0.08
$R^2 = 0.300$					

Table V.
Summary of regression analysis for satisfaction with pay ($N = 304$)

significantly less satisfied with pay ($M = 3.10$, $SD = 1.17$) than Hispanics ($M = 4.04$, $SD = 0.82$), Caucasians ($M = 3.95$, $SD = 0.94$) and respondents who self-identified as "Other" ($M = 3.98$, $SD = 0.94$), $F(3, 317) = 3.94$, $p < 0.01$. No other mean differences emerged between ethnic groups.

Finally, a one-way ANOVA with Fisher's LSD post hoc revealed that those earning less than $75,000 per year ($M = 3.00$, $SD = 1.09$) were significantly less satisfied with pay than all other groups and that those earning between $75,000 and $100,00 per year ($M = 3.57$, $SD = 0.95$) were less satisfied with pay than groups earning more. The two groups earning between $100,001 to $150,000 per year ($M = 4.25$, $SD = 0.75$) and greater than $150,000 per year ($M = 4.38$, $SD = 0.59$) did not differ significantly in satisfaction with pay, $F(3, 317) = 37.358$, $p < 0.001$.

Discussion

The purpose of this paper was to investigate the extent to which supervising physicians' leadership style (transformational, transactional and passive avoidant) predicts advanced practice providers' (physician assistant and nurse practitioners) job satisfaction. Overall, the findings remained consistent with prior research in areas of business, education and manufacturing (Judge and Piccolo, 2004; Dumdum *et al.*, 2002) and among other health-care disciplines (nursing, radiological technicians, emergency medical technicians and social workers) (Barlow, 2013; Gellis, 2001; Nielsen *et al.*, 2009; Watson, 2009; Weberg, 2010)) in showing positive associations between transformational leadership and follower job satisfaction. In this study in which advanced practice providers rated their supervising/

delegating physician's leadership style and reported their own job satisfaction, transformational leadership of physicians was moderately to strongly correlate with advanced practice provider job satisfaction. In addition, multiple regression analysis, which controlled for the influence of demographic variables, demonstrated that transformational leadership accounted for anywhere between 4 and 49 per cent of the variance in advanced practice provider job satisfaction depending on the aspect of job satisfaction being measured. The main finding of this study demonstrated that satisfaction with job supervision and satisfaction with job in general were the facets in which transformational leadership was found to have the most impact, explaining 49.1 and 15.5 per cent, respectively.

Mirroring most prior research on the relationship between transactional leadership and follower job satisfaction, this study also found transactional leadership by physicians to be correlated with advanced practice provider job satisfaction. Upon further analysis, transactional leadership accounted for only between 1.6 and 1.7 per cent of the variance in advanced practice provider job satisfaction but this only applied to two of four facets of job satisfaction (satisfaction with job in general and satisfaction with supervision). Interestingly, the positive relationships observed between transactional leadership and satisfaction with job in general and satisfaction with supervision reversed and became negative when other significant variables (experience, salary level and transformational leadership for satisfaction with job in general) and (provider type, ethnicity and transformational leadership for satisfaction with supervision) were controlled for in the multiple regression. After removing the variance associated with transformational leadership, transactional leadership emerged as a negative predictor of satisfaction with job in general and satisfaction with supervision. In effect, greater transactional leadership behaviors of supervising/delegating physicians predicted less satisfaction for advanced practice providers. Perhaps, this relates to one of the dimensions of transactional leadership, MBE-A in which leaders "actively monitor" for suboptimal performance, deviations from the norm or violations of rules and policies and provide immediate feedback to followers (Bass and Avolio, 1994). In this study, MBE-A was not investigated separately from contingent reward, the other dimension of transactional leadership. Further investigation is warranted.

Consistent with prior research showing an inverse relationship between passive avoidant leadership and job satisfaction, advanced practice providers viewed this leadership dimension negatively in terms of its impact on their like versus dislike of their jobs. Passive avoidant leadership was negatively associated with all aspects of job satisfaction including satisfaction with job in general, satisfaction with pay, satisfaction with supervision and satisfaction with opportunities for promotion. However, passive-avoidant leadership did not emerge as a significant predictor of any aspect of job satisfaction when entered into the multiple regression models. These results remain fairly consistent with previous findings, showing positive associations between transformational and transactional leadership and job satisfaction and negative associations between passive-avoidant leadership and job satisfaction. Where the results of the present study differed from those in the literature review concerned transactional leadership's negative prediction of satisfaction with job in general and supervision when controlling for the influence of other variables.

In this study, several demographic variables, such as advanced practice provider type, age, years of experience and number of hours per week of physician collaboration/supervision, had small but statistically significant associations with job satisfaction. Specifically, age and years of experience were positively associated with satisfaction with job in general, whereas level of supervision was positively associated with satisfaction with

opportunities for promotion. These results suggest that general job fulfillment among advanced practice providers increases as a function of time – both as advanced practice providers mature in age and as they gain more experience in the profession. Prior research regarding age and years of experience showed similar positive correlations with job satisfaction (Ng and Feldman, 2010; Saber, 2014; Ng *et al.*, 2005). It is important to note that though statistically significant, these demographic variables explained only a small percentage of variance in job satisfaction and should be interpreted cautiously. As for the association found in this study between hours of supervision/collaboration per week and job satisfaction with promotional opportunities, the relationship suggests that advanced practice providers perceive increased direct consultation and communication with their supervising/delegating physicians as improving their chances for job growth and promotion. Given the variation in advanced practice provider type and clinical setting, it is unclear as to the specific opportunities for growth and promotion among these participants. Further research investigating satisfaction with promotion among advanced practice providers is warranted.

This is the first known study to examine the impact of supervising/delegating physician leadership style on other nonphysician members of the health-care team, specifically advanced practice health-care providers (physician assistants and nurse practitioners). These nonphysician members of the health-care team are integral to today's complex health-care system in that they too perform history and physical examinations, diagnose health conditions, order laboratory/diagnostic tests, prescribe medications or treatments and manage patient care under the delegation of or under the supervision of a licensed physician. As a result of the present shortage of physicians and the projected demand for more health-care providers to care for a maturing population with an anticipated longer life expectancy, advanced practice providers have a critical role in our health-care system today. Without the help of advanced practice providers to deliver care, physicians could not expect to treat all patients in a timely manner, resulting in backlogs for new and follow-up patient care appointments and reducing the frequency and quality of care for all individuals.

Considering the important role that advanced health-care providers have in the delivery of health care, the job satisfaction of this group of practitioners would appear to be extremely important. If physicians as the leaders of the health-care team demonstrate transformational leadership behaviors and work to motivate, inspire, support, intellectually stimulate and mentor advanced practice providers, then increased job satisfaction is likely to ensue. As research has shown, satisfied employees are more likely to perform better, remain engaged and go the extra mile for the organization (Judge *et al.*, 2001). These positive organizational behaviors exhibited by advanced practice providers that appear to stem from job satisfaction would most likely benefit the whole health-care team in the organization. Thus, physician leaders and their health-care teams would likely benefit from training that focuses on developing transformational leadership skills while in medical school or residency programs. Continuing education programs focusing on leadership development might also be advantageous.

Although increased job satisfaction may enhance the overall team, it is important to point out that the transformational leadership behaviors of the supervising physicians may have contributed to job satisfaction as a result of team efficacy. Nielsen *et al.* (2009) reported that team efficacy partially mediated the relationship between transformational leadership and job satisfaction among nurses. It might also be that physician leadership behaviors impact the whole team and, in turn, influence job satisfaction of advanced practice providers. Additional research could further investigate this phenomenon.

Despite these positive findings, several limitations of this study should be considered. Besides being limited to the state of Texas and not including a larger geographic area, the study was only open to members of the Texas Nurse Practitioners and Texas Association of Physician Assistants. Because these two organizations are the respective professional associations for nurse practitioners and physician assistants in Texas, nurse practitioners and physician assistants who are not members of TNP or TAPA were not represented in this study. Additionally, although both NPs and PAs are considered advanced practice providers and generally perform similar functions, nurse practitioners statutorily have more autonomy and may practice independently from a physician in many states. Nurse practitioners in Texas are required to designate a "delegating physician," whereas physician assistants must have a "supervising physician." "Delegating physician" and "supervising physician" are technically not the same but for the purposes of this study, they were combined in the same demographic category for purposes of simplification. The differences that exist between delegation and supervision are likely to have affected the way nurse practitioners and physician assistants answered questions pertaining to the amount of supervision/collaboration by supervising or delegating physicians. In this study, level of oversight was operationally defined as number of hours spent collaborating per week on patient care. Because nurse practitioners are considered more independent and do not share the same requirements for oversight as physician assistants do, the number of hours per week that nurse practitioner respondents listed is likely to have been lower and in some cases, nonexistent (zero). This may have affected the results for those questions pertaining to supervision and collaboration.

Future studies should include larger sample sizes and should survey other geographic areas to increase the level of diversity and enhance the ability to generalize. Because of the differences in autonomy and required oversight between physician assistants and nurse practitioners in Texas, future studies might also study each cohort individually to see if their respective levels of job satisfaction and its association with physician team member leadership style differ greatly from the present study. Anderson (2015) discussed some of the difficult issues that physician managers face as they navigate the autonomy of their professional training with the interdependence that comes from being a part of an administrative system. The result of Anderson's (2015) qualitative study demonstrated that physician managers experience persistent identity struggles in which the physician manager is prone to view him or herself predominantly as a physician. With respect to the current study, physicians who supervise advanced practice providers may act in more of a provider role than that of a leader. Future research investigating physicians' transformational leadership behaviors might also focus on physician identity.

Another future area of study is to examine physician transformational and transactional leadership's relationship with both follower effectiveness and organizational effectiveness. Lowe Kroeck, and Sivasubramaniam (1996) suggest that transformational leadership drives changes in employee efforts that tend to be "highly associated with effectiveness" as compared to transactional leadership. Because this study showed higher levels of transformational leadership, one might expect to see similar levels of follower and organizational effectiveness in future studies examining these constructs.

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