

## **The Influence of Nuclear Medicine Managers' Style on Employees' Satisfaction**

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The style a manager utilizes may have considerable impact on the employee and, ultimately, on organizational effectiveness. The purpose of our study was to determine nuclear medicine technologists' perception of their managers' leadership style; examine the effect of two components of managers' leadership behavior (task and consideration) upon employees' satisfaction with supervision, and determine the leadership style (or styles) associated with higher levels of satisfaction. Results indicated that the most predominant style for managers was low task/low consideration. Both task and consideration had a significant effect upon satisfaction, with consideration having a much larger influence. The leadership styles of nuclear medicine managers associated with higher levels of staff satisfaction were high task/high consideration and low task/high consideration.

Bass, in his review of leadership literature, contended that managers' behavior can make a difference in subordinates' satisfaction (1). Kaluzny, discussing the importance of revitalizing the decision-making process at the middle management level in hospitals, suggests that department heads and clinical managers are the people who are largely responsible for organizational effectiveness (2). He contends that more attention should be paid to middle managers' roles and functions, especially given the consequences of their actions upon employees and the day-to-day operation of health-care organizations.

A recent study of hospital radiographers found that supervision on the job was one of several factors significantly related to the staff's overall job satisfaction (3). In respiratory therapy, a recent study found that employees' perception of the supervision they received on the job was related to their job satisfaction (4). Examining the impact of middle managers on retention of 71 hospital professionals, Taunton et al. found a significant relationship between managers' leadership style and the staff's job satisfaction (5). It is logical to assume that

a department head's management style can have a significant impact upon employees' perceptions of their jobs. Low levels of work satisfaction may have implications for employees' job performance and personal well-being.

Management has been defined as a process of getting things done through people (6). Regardless of the organizational environment, the above premise is universal for managers. The ability to work with people has implications upon the effectiveness of the organization in meeting its objectives. Miller and Monge found that when managers created a participative environment, this generally had a positive effect upon job satisfaction and productivity (7). In reviewing a number of studies, Scott and Taylor concluded that low levels of job satisfaction were significantly related to employee absenteeism (8). Within nursing, there has been evidence that employee burnout, turnover, and stress are associated with low levels of job satisfaction (9-11). Decreased satisfaction levels have implications for employees, patient care, and organizational effectiveness.

There has been limited investigation of nuclear medicine technologists' job satisfaction, and there have been no studies examining the relationship between managers' leadership style and the staff's job satisfaction. The purpose of this study was to determine nuclear medicine technologists' perceptions of their managers' leadership style, examine the effect of two components of managers' leadership behavior (task and consideration) upon staff satisfaction with supervision, and determine the leadership style (or styles) associated with higher levels of satisfaction.

### **METHODS**

This study employed a correlational design. Descriptive statistics were used to report managers' leadership styles. Multiple regression analysis was utilized to examine the effect of managers' task and consideration behaviors upon the staff's satisfaction with supervision. Analysis of variance with post-hoc comparisons were used to determine leadership styles associated with higher levels of satisfaction.

The population for this study consisted of all the nuclear

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medicine technologists in the United States who are certified by the Nuclear Medicine Technology Certification Board (NMTCB). A 10% random sample of the population was selected (n = 682). Questionnaires, consisting of a cover letter explaining the nature of the study and a postage-paid response envelope, were mailed to each subject in the sample. Three more mailings were conducted for nonrespondents.

The first page of the three-page questionnaire developed for the study included demographic questions. The second page contained the job descriptive index (JDI), a scale developed by Smith, Kendall, and Hulin to measure facets of job satisfaction (12). The original scale contained five facets of satisfaction. For this study, only the facet of satisfaction with supervision was used. It consisted of a group of adjectives or descriptive phrases to which the respondents answered "Y" if the phrase described their situation, "N" if it did not, or a "?" if they were unsure. Each response was converted to a numeric value, resulting in a score for satisfaction with supervision. The minimum possible score was 0 and the maximum was 39. The psychometric properties of the JDI have been addressed by Smith, Kendall, and Hulin (12) who reported an average corrected reliability estimate of 0.79 and corrected split-half internal consistencies of over 0.80 for each of the facets. In a review of studies utilizing the JDI, Cook et al. (13) found the psychometric properties to be acceptable for social science research.

The third page of the questionnaire contained the leader behavior descriptive questionnaire (LBDQ) developed by Halpin and Winer to measure leadership style (14). The LBDQ addressed four factorially defined aspects of leaders' behavior: consideration, task (initiating structure), production emphasis, and sensitivity. For this study, only the constructs of consideration and task were used. In numerous studies completed since 1957, using the LBDQ, questions pertaining to consideration and task accounted for a greater percentage of the variance in leader behavior. The two subscales consisted of 15 questions to measure each leadership dimension.

Consideration is the extent to which a manager exhibits concern for the welfare of other members of the work group. Task is the extent to which a manager structures work and decides what, how, and when work is to be done. Managers demonstrate a combination of each behavior; this may be defined as their management style. Managers may demonstrate high or low consideration and high or low task behavior. There are four possible style combinations using the above two constructs. For example, if a manager has a high task/low consideration style, he or she would be oriented to behaviors related to task and structure and demonstrate few behaviors related to consideration of the staff.

The response from mailed questionnaires was 348, which was a 51% return rate. Forty-five of the respondents were not working in clinical nuclear medicine, 40 worked part time, 27 did not work in hospitals, and 102 held management or supervisory positions. Since this study was focused upon nuclear medicine technologists working full time in hospitals, a subsample of 134 was utilized for analysis. Since the sample was selected randomly from a national sample, the results can

be generalized to the population of nuclear medicine technologists who work full time in a hospital setting.

## RESULTS

To better understand the subsample used for analysis, selected demographic information will be reported. There were 91 females (68%) and 43 males (32%). The mean age was 34 and the average number of years of experience in nuclear medicine was nine.

The mean hospital size, measured by the number of beds, was 405. This number is significantly higher than 172—the average bed size of all hospitals in the United States reported by the American Hospital Association (15). It may be that larger hospitals employ a greater percentage of all nuclear medicine technologists.

Ninety one technologists (68%) were certified solely in nuclear medicine and 36 (27%) were certified in both nuclear medicine and radiography. Seven were certified in both nuclear medicine and another specialty other than radiography.

To determine the leadership style of managers, scores for task and consideration were split at the mean, and a grid was developed to represent four leader behaviors. Figure 1 depicts nuclear medicine managers' leadership styles as perceived by staff. Also listed within Figure 1 is the mean score for satisfaction with supervision (X1–X4) associated with each style. The predominant leadership style was low task/low consideration, followed closely by high task/high consideration. The two styles accounted for 71% of the total.

To examine the effect of managers' task and consideration behavior upon the staff's satisfaction with supervision, forced-entry multiple regression analysis was used: satisfaction was the dependent variable, while task and consideration were the predictor or independent variables.

The predictors (task and consideration) accounted for a significantly large percentage (74%) of the variance in the staff's satisfaction with supervision. The contribution of each predictor can be assessed by the magnitude of its standardized regression coefficient (B) (Table 1). Values close to 1 indicate a very large contribution, while those close to 0 indicate little

C O N S I D E R A T I O N	High	Low Task / High Consideration n = 19 X3 = 25.8	High Task / High Consideration n = 45 X2 = 33.4
	Low	Low Task / Low Consideration n = 50 X4 = 16.4	High Task / Low Consideration n = 20 X1 = 17.8
		Low	High
		TASK	

FIG. 1. Leadership style grid for sample, with the number of managers and mean satisfaction score (X1–X4) associated with each style.

**TABLE 1. Standardized Regression Coefficients for Effect of Task and Consideration on Satisfaction**

Predictors	Standardized Coefficient B*
Consideration	0.80
Task	0.14
R <sup>2</sup> (for model) = 0.75	
F (for model) = 190	
P (for model) = 0.0001	

\* p ≤ .05.

or no contribution (16). Consideration behavior (B = 0.80) contributed more to the staff's satisfaction than did task (B = 0.14), although both were significant correlates.

To determine the leadership styles associated with higher levels of satisfaction, an analysis of variance using a general linear model procedure for unbalanced data was used. The results (Table 2) indicate that there was a significant difference in the mean satisfaction scores by leadership style.

Tukey's studentized range test indicated that a style of high task/high consideration and low task/high consideration were associated with significantly higher levels of satisfaction with supervision than were the other two styles (d.f. = 129, p < 0.05).

### DISCUSSION

The reliability of the LBDQ has been demonstrated by numerous investigators. Halpin and Winer (14) indicated that the split-half reliability was 0.86 for task and 0.93 for consideration. Seeman (17) found reliabilities of 0.89 for consideration and 0.87 for task. Bass (1) reported high internal consistency for the LBDQ and reliabilities of 0.90 for consideration and 0.78 for task.

In reviewing Figure 1, it is interesting to note that the greatest number of nuclear medicine technologists (n = 50; 37%) perceived their managers as utilizing a style (low task/low consideration) associated with the lowest satisfaction score (X<sub>4</sub> = 16.4). Various theories of leadership provide a variety of views regarding the effectiveness of specific leadership styles. Blake and Mouton contend that a low task/low consideration style is characteristic of managers who are "going through the motions," but are not really involved in the organization's affairs and contribute little to it (18).

Hersey and Blanchard saw the use of a low task/low consideration style as most effective with employees who needed little direction and few "strokes" (19). This style has also been classified as laissez-faire behavior or the absence of leadership (20).

Many nuclear medicine supervisors may hold administrative as well as staff technologist responsibilities. Perhaps, their use of the low task/low consideration style is a reflection of their own burnout or stress. Another possibility is that these managers have had little or no formal management training and may not realize the contribution of consideration to overall organizational effectiveness, or they may not view this

**TABLE 2. Analysis of Variance (GLM) of Satisfaction by Leadership Style**

Source	Degrees of Freedom	Sum of Squares	Mean Square	F	P
Model	3	7562	2521	46.5	0.0001
Error	129	6999	54		
Total	132	14560			

as part of their managerial responsibilities. The volume and nature of the work itself tend to make nuclear medicine technologists task-oriented, so less supervisory intervention to complete the clinical work may be required.

The second most predominant style (n = 45; 34%) was high task/high consideration. Blake and Mouton considered such a style to be most effective in all situations (18). They considered this style to be a participative team approach that would likely yield optimum results. After numerous studies, carried out over a span of 30 years and involving more than 220,000 managers and employees, Likert also concluded that participative patterns of leadership (high task/high consideration) could achieve better organizational performance (21). Individuals using the high task/high consideration style may have received formal preparation in management techniques. Given the shortage of nuclear medicine technologists, on-the-job training in this leadership style may have been implemented to increase job satisfaction and to improve the retention rate of staff technologists.

In examining the influence of managers' task and consideration behavior upon nuclear medicine technologists' satisfaction with supervision, it is not surprising that both variables made significant contributions. In this sample, consideration had the largest effect upon satisfaction (B = 0.80). Other studies have demonstrated that consideration is correlated with less burnout, less stress, and higher levels of job satisfaction (22-24). Intuitively, these results seem logical, but it is interesting to note the magnitude of influence that consideration behavior had.

Task behavior also correlated with satisfaction. It is appropriate that nuclear medicine technologists see the usefulness of a modicum of task behavior. It is not unusual for staff to expect a manager to exercise influence on matters related to clinical task performance and the work environment. While too much task behavior can increase the likelihood of grievances, absenteeism, turnover, and burnout (23, 24) a certain amount of guidance is characteristic of an effective manager. However, the key to leadership seems to be balancing the proportion of task and consideration.

The final purpose of this study was to examine leadership styles associated with the highest satisfaction levels. The results indicate that the two styles highest in consideration behavior (high task/high consideration and low task/high consideration) were associated with significantly higher levels of satisfaction. This seems to indicate the importance of utilizing consideration behavior despite other variables that may be present, regarding the employee or the organization. It also

suggests that if task behavior is required, it may be more effective, when used in conjunction with a reasonably high level of consideration. While there may not be a best leadership style, for all people in a variety of situations, consideration has a significant and rather large influence upon employees' perception of their managers' behavior.

The most predominant leadership style used by nuclear medicine managers in this study, low task/low consideration, is associated with the lowest satisfaction score. This style is characteristic of managers who seem to be uninvolved in their organizations. Managers exhibiting the low task/low consideration style may be unaware of their place in the organization's structure or their ability to shape its overall effectiveness. Furthermore, these may be individuals who have been promoted into positions where the emphasis has changed from technical to managerial competence, but who have not received any formal preparation for their new roles. On-the-job management training to familiarize these managers with their new roles and to instill the necessary people management skills would be one means of developing positive leadership styles, which would be more satisfying for both managers and staff.

The other predominant leadership style identified in the study is high task/high consideration. Both this style and the low task/high consideration style are associated with higher levels of staff satisfaction with supervision. Since managers' consideration behavior contributes significantly to staff satisfaction, such behavior might also be an appropriate topic for on-the-job education of middle level managers. Alternatively, hiring individuals with formal management education into middle level positions may have a positive impact on staff satisfaction. While it has been customary to reward staff technologists demonstrating exemplary clinical skills with administrative positions, perhaps it is time to recognize that technical and managerial competence rely on different sets of skills, and that this practice should be abandoned. Instead, promotion from within the technical ranks should be based in large part on interpersonal skills, followed by the appropriate staff development activities.

## CONCLUSION

The actions of middle managers have the greatest and most direct effect on hospital staff and, therefore, on the day-to-day operation of the organization. It would appear then that middle level managerial performance correlates directly with organizational effectiveness. This suggests that assessment of these middle level administrators' managerial performance should include dimensions other than productivity. For example, employee retention, turnover, and absenteeism may give some indication of the effect of management style on staff job satisfaction. Such an assessment may provide direction to professional development activities for both managers and staff.

The findings of this study seem to indicate that more care in the selection of nuclear medicine managers may be warranted, if staff satisfaction is a consideration. Preparation for the managerial role through on-the-job training may be indi-

cated for those individuals with no prior formal education in this area. Finally, assessment of managerial performance in a variety of areas may provide a more complete picture of managerial competence, as well as highlight areas that need further development.

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