

Original Article/Araştırma Makalesi

**ORGANIZATIONAL COMMITMENT AND JOB SATISFACTION IN RELATION
TO ORGANIZATIONAL SILENCE AND PERCEIVED LEADERSHIP BEHAVIOR
AMONG RADIOLOGY TECHNICIANS**

**Radyoloji Teknisyenlerinde Örgütsel Sessizlik ve Liderlik Tarzı Algısı Bağlamında
Örgütsel Bağlılık ve İş Doyumu**

Nuran AKYURT¹ 

¹Marmara University, Vocational School of Health Services, İstanbul

Geliş Tarihi / Received: 26.04.2023 Kabul Tarihi / Accepted: 11.08.2023

ABSTRACT

This study was designed to evaluate the organizational commitment and job satisfaction in relation to organizational silence and perceived leadership behavior among radiology technicians. A total of 269 radiology technicians were included in this study. Participants completed the questionnaire form on study instruments including Minnesota Satisfaction Questionnaire (MSQ), Organizational Commitment Questionnaire (OCQ), Instrumental Leadership Scale (ILS), and Organizational Silence Scale (OSS) to assess job satisfaction, organizational commitment, instrumental leadership and organizational silence, respectively. Organizational commitment scores were significantly higher in private vs. public sector employees (3.61(0.63) vs. 3.47(0.65), $p<0.05$). High job satisfaction was significantly predicted by the lower education (B:-1.67), higher instrumental leadership behavior (B:13.58), and lower organizational silence (B:-0.91), while high organizational commitment was significantly predicted by the high instrumental leadership behavior (B:0.20) and high job satisfaction (B:0.03). Our findings revealed job satisfaction and organizational commitment of radiology technicians to be at moderate levels and to be positively correlated with each other. The job satisfaction and instrumental leadership were the significant predictors of organizational commitment, emphasizing the role of job satisfaction as an antecedent rather than a consequence of organizational commitment. Instrumental leadership was the common predictor of both organizational commitment and job satisfaction, while organizational silence predicted poor job satisfaction among radiology technicians.

Keywords: Instrumental leadership, Job satisfaction, Organizational commitment, Organizational silence, Radiology technicians.

ÖZ

Bu çalışma radyoloji teknisyenlerinde örgütsel bağlılık ve iş doyumunun, örgütsel sessizlik ve liderlik tarzı algısı bağlamında incelenmesi amacı ile tasarlanmıştır. Toplam 269 radyoloji teknisyeni araştırmaya katılmıştır. Katılımcılar, sırasıyla; iş doyumunu, örgütsel bağlılık, araçsal liderlik ve örgütsel sessizliğin değerlendirilmesine yönelik çalışma araçları olarak Minnesota İş Doyum Ölçeği (MİDÖ), Örgütsel Bağlılık Ölçeği (ÖBÖ), Araçsal Liderlik Ölçeği (ALÖ) ve Örgütsel Sessizlik Ölçeği (ÖSÖ)'ni içeren anket formunu doldurmuştur. Özel sektörde çalışan teknisyenlerde (3.61[0.63]) kamu sektöründe çalışanlara göre (3.47[0.65]) örgütsel bağlılık skorları anlamlı şekilde daha yüksek bulunmuştur ($p<0.05$). Yüksek iş doyumunun belirleyici faktörleri düşük eğitim düzeyi (B: -1.67), yüksek araçsal liderlik algısı (B:13.58) ve düşük örgütsel sessizlik (B: -0.91) iken, örgütsel bağlılığın anlamlı belirleyicileri yüksek araçsal liderlik algısı (B:0.20) ve yüksek iş doyumunu (B:0.03) olarak bulunmuştur. Bulgularımız, radyoloji teknisyenlerinde iş doyumunu ve örgütsel bağlılığın orta düzeyde olup, birbirleri ile pozitif korelasyon gösterdiğini ortaya koymuştur. İş doyumunu ve araçsal liderlik örgütsel bağlılığın anlamlı belirleyicileri olup, bu durum iş doyumunun örgütsel bağlılığın sonucundan ziyade sebebi olarak rol oynadığına işaret etmektedir. Araçsal liderlik algısı hem örgütsel bağlılık hem de iş doyumunu için ortak bir belirleyici iken, örgütsel sessizlik radyoloji teknisyenlerinde düşük iş doyumunu belirleyen bir faktör olarak saptanmıştır.

Anahtar kelimeler: Araçsal liderlik, İş doyumunu, Örgütsel bağlılık, Örgütsel sessizlik, Radyoloji teknisyenleri.

Nuran AKYURT , nakyurt@hotmail.com
Marmara University, Vocational School of Health Services, İstanbul

Bu makaleye atıf yapmak için (How to cite this article): Akyurt, N. (2023). Organizational commitment and job satisfaction in relation to organizational silence and perceived leadership behavior among radiology technicians. İnönü Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Dergisi, 11(3), 1729-1743. doi: 10.33715/inonusaglik.1288311

INTRODUCTION

The organizational commitment and job satisfaction are considered amongst the strong contributors in organizations (Akanbi & Itiola, 2013; Azeem & Akhtar, 2014; Gorgulu & Akilli, 2017; Mathu & Salunke, 2013). A reorientation in the components of the organizational behavior has been emphasized in recent studies with an increasing importance being attributed to the organizational commitment rather than motivation and job satisfaction in the organizational behavior research (Leite, Rodrigues & Albuquerque, 2014). In addition, there is no consensus on the relationship between job satisfaction and commitment and it remains unclear whether the satisfaction is a consequence of or an antecedent of organizational commitment (Falkenburg & Schyns, 2007; Leite et al. 2014). The current challenges in the healthcare systems necessitate managers and leaders to develop leadership styles to create a work environment that encourages healthcare staff commitment to patients and their organization (Asiri, Rohrer, Al-Surimi, Da'ar & Ahmed, 2016). Instrumental leadership, comprising strategic leadership and job facilitation leadership behaviors, is considered important in this regard, since it refers to the ability of a leader to achieve the goals set by the company through analyzing the internal and external environment of the company, outlining strategic objectives and providing performance feedback (Antonakis & House, 2004; Chammas & Hernandez, 2019).

Organizational silence, the collective-level phenomenon of doing or saying very little in response to major problems facing an organization or industry, is considered amongst the key issues of organizational behavior management (Morrison & Milliken, 2000; Yıldız, 2013). Organizational silence is very important in terms of healthcare safety particularly confronting poor clinical judgment (Morrison & Milliken, 2000; Perlow & Williams, 2003).

The challenging and demanding nature of healthcare practice in addition to workforce changes due to technological advancement and high rate of competition in the sector are important in terms of employees' as well as organizational performance (Azeem & Akhtar, 2014). Hence, the work-life balance and organizational commitment of the hospital employees are considered to be of critical importance in the performance and productivity of the hospital (Azeem & Akhtar, 2014; Sakthivel & Kamalanabhan, 2011; Sakthivel & Jayakrishnan, 2012). Radiology technicians are amongst the healthcare staff at risk of occupational hazards related to exposure to radiation and therefore they have special work responsibilities to ensure radiation protection and safety for patients as well as for themselves (Adliene, Gričienė, Skovorodko, Laurikaitienė & Puiso, 2020; Yoshinaga, Mabuchi, Sigurdson, Doody & Ron, 2004). This

seems notable given that radiation itself is considered to be a negative external factor that contributes to difficult working conditions and thus lower job satisfaction (Alavi, Dabbagh, Abbasi & Mehrdad, 2017; Bakotić & Babić, 2013). However, despite their potential to be affected by or to modify the occupational risks, the interaction between job satisfaction, organizational commitment, organizational silence and leadership styles have not been previously addressed among radiology technicians.

This cross-sectional questionnaire-based survey was therefore designed to evaluate the organizational commitment and job satisfaction in relation to organizational silence and perceived instrumental leadership behavior among radiology technicians, which seems likely to represent a valuable contribution to the literature.

MATERIAL AND METHOD

Study Population

A total of 269 radiology technicians were included on a voluntary basis in this cross-sectional questionnaire-based study conducted between June 2019 and August 2019 at three different types of hospitals (university, state and private hospitals) located in Istanbul province. The hospitals were selected according to Social Security Institution (SSI) hospital scoring and radiology technicians who were employed in group A (score: 800-1000) hospitals comprised the study population. All radiology technicians who were in the 19-49 years age group were included in the study based on their voluntary participation, while those in the radiation leave, or working at night, emergency and weekend shifts were excluded from the study.

Written informed consent was obtained from each subject following a detailed explanation of the objectives and protocol of the study which was conducted in accordance with the ethical principles stated in the "Declaration of Helsinki" and approved by the institutional ethics committee (Date of Approval: 05.05.2017. Protocol No: 09.2017.347).

The Questionnaire

The questionnaire form was applied via face-to-face interview method, and included items on participant characteristics (age, gender, educational level, facility, type of employment, years in practice, daily working hours) and study instruments including Minnesota Satisfaction Questionnaire (MSQ), Organizational Commitment Questionnaire (OCQ), Instrumental Leadership Scale (ILS), and Organizational Silence Scale (OSS) to assess job satisfaction, organizational commitment, instrumental leadership and organizational silence, respectively.

Study Parameters

MSQ scores (total, internal satisfaction, external satisfaction), OCQ scores (total, affective commitment, continuance commitment, normative commitment), ILS and OSS scores were evaluated according to participant characteristics, while the correlation between scale scores was also analyzed. The multiple regression analysis with bootstrap method was performed to determine factors predicting job satisfaction and organizational commitment. Inter-scale correlations, internal consistency and descriptive statistics for the scales in the study population were also defined.

Minnesota Satisfaction Questionnaire

The short MSQ consists of 20 items measuring satisfaction associated with the task and non-task characteristics of the job and the overall job satisfaction level. The items 5, 6, 12, 13, 14, and 19 assess indicators of external satisfaction, and items 1-4, 7-11, 15, 16, and 20 assess indicators of internal satisfaction. The respondents are required to rate each item based on the extent to which the respondent is satisfied with that aspect of the job on a five-point Likert scale (1=strongly disagree, and 5=strongly agree). The total score was calculated out of 100 including the subscale scores of internal satisfaction and external satisfaction with higher scores indicating better job satisfaction. The total score was categorized as low (score < 26), moderate (score 26 to 74), and high (score > 74) job satisfaction (Weiss, Dawis & England, 1967). The reliability and validity analysis of Turkish version of MSQ was performed by Bilgiç (1998) and alpha coefficients were reported above 0.80.

Organizational Commitment Questionnaire (OCQ)

Subordinate organizational commitment level was measured in three dimensions: affective, continuance, and normative commitment. The questionnaire used in this study was developed by Meyer, Allen & Smith, (1993) and translated into Turkish by Wasti (2000) and Dagli, Elcicek & Han, (2018). A total of 33 items are included in this measure (9 for affective commitment; 10 for continuance commitment, and 14 for normative commitment). Respondents are required to rate each item based on their degree of agreement on a five-point Likert-type scale (“1” for “strongly disagree”, “2” for “disagree”, “3” for “neither agree nor disagree”, “4” for “agree”, and “5” for “strongly agree”). Mean scores of the three dimensions of organizational commitment were used in the analyses. The internal reliability coefficients of the continuance, and normative commitment scales were reported to be 0.84, 0.82, and 0.70, respectively (Wasti, 2000).

Instrumental Leadership Scale (ILS)

The instrumental leadership behavior was measured using ILS developed by Antonakis & House, (2004), which is a 16-item scale rated on a five-point Likert scale (1=never, and 5=always). The mean item score was computed as the scale score with higher scores indicated better instrumental leadership behavior.

Organizational Silence Scale (OSS)

Organizational silence was assessed via OSS developed by Van Dyne, Ang & Botero, (2003) and adapted to Turkish by Eroğlu, Adıgüzel & Öztürk, (2011). The scale includes 16 items on organizational silence in medical facilities, and 3 items (10, 13 and 16) were reverse phrased. Participants are required to rate each item on five-point Likert scale (1=strongly disagree and 5=strongly agree). The mean item score was computed for the scale score.

Statistical Analysis

Statistical analysis was made using IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY). The normal distribution assumption was examined with Kolmogorov-Smirnov test. The participant characteristics related to the scale scores were analyzed with Mann-Whitney U test and Kruskal-Wallis test. The association between the scale scores was analyzed with Spearman's Rank correlation as a nonparametric measure. Bootstrap multivariate regression was performed for predicting the job satisfaction and organizational commitment. Data were expressed as mean (standard deviation, SD) and percent (%) where appropriate. $p < 0.05$ was considered statistically significant.

RESULTS

Participant Characteristics

The female radiology technicians represented 58.7% of the study group. The mean age of the participants was 37.8 (7) years. More than 80% of the participants had associate's degree, and 44.6% were employed in public or private hospitals. The radiology technicians were in practice for a mean 3.9 (SD 2.4) years and working 5.9 (SD 2.3) hours per day (Table 1).

Table 1. Participant Characteristics

Characteristics	
Age (year), mean(SD)	37.8(7.)
Gender, n(%)	
Male	111(41.3)
Female	158(58.7)
Educational status, n(%)	
Associate degree	218(81.)
Bachelor's degree	34(12.6)
Masters' degree	17(6.3)
Facility, n(%)	
Public hospital	120(44.6)
University hospital	17(6.3)
Private hospital	120(44.6)
Private medical center	12(4.5)
Type of employment, n(%)	
Public sector	124(46.1)
Private sector	145(53.9)
Years in practice, mean(SD)	3.9 (2.4)
Daily working hours, mean(SD)	5.9 (2.3)

Confirmatory and Exploratory Factor Analyses of the Scales

The exploratory factor analysis (EFA) and the confirmatory factor analysis (CFA) results were presented in Table 2.

Table 2. Confirmatory and Exploratory Factor Analysis of the Scales

Scale	Chi-square test	p-value	Relative Chi Square Index	RMSEA	RMR	CFI	GFI	Cronbach's alpha
MSQ	376.34	<0.0001	2.23	0.068	0.055	0.82	0.88	0.86
IS								0.8
ES								0.72
OCQ	255.43	<0.0001	1.94	0.059	0.052	0.89	0.91	0.86
AC								0.7
CC								0.76
NC								0.73
ILS	224.82	<0.0001	2.16	0.066	0.048	0.84	0.91	0.83
Scale	N of Items	Cronbach's alpha	KMO	Bartlett's Test	Eigenvalues	% of Variance		
OSS*	13	0.83	0.6	2532.36				76.5
F1	5	0.89			4.47			34.42
F2	3	0.75			2.97			22.88
F3	3	0.77			1.46			11.25
F4	2	0.41			1.03			7.96

MSQ: Minnesota Job Satisfaction Questionnaire; IS: Internal Satisfaction; ES: External Satisfaction; OCQ: Organizational Commitment Questionnaire, AC: Affective Commitment, CC: Continuance Commitment, NC: Normative Commitment, ILS: Instrumental Leadership Scale; OSS: Organizational Silence Scale

*3-item of OS scale were removed from the model due to poor relationship with the scale score

Correlation Analysis of the Scales

The mean scores of the scales and the Spearman correlation analysis were presented in Table 3. Job satisfaction scale had a mean score of 72.4 (9.9) showing a relatively high job satisfaction of the radiology technicians. Similarly, the subscale scores of IMS and EMS were 3.64 (0.53) and 3.59 (0.55), respectively), showing a relatively high internal and external job satisfaction. The job satisfaction was found to be positively related with the OC ($r=0.63$), instrumental leadership (0.63) and negatively with factor 1 of OS (-0.13) ($p<0.05$). The mean score of OC scale was 3.47 (0.53), the score show that the radiology technicians had relatively high organizational commitment. Similarly, the mean scores of AC, CC, and NC were 3.47 (0.61), 3.55 (0.63), and 3.39 (0.64), respectively. The subscale scores of the organization commitment showed that the radiology technicians had relatively high affective, continuance and normative commitment. The organizational commitment was positively related with the instrumental leadership behavior ($r=0.52$, $p<0.05$). The mean IL score was 3.64 (0.48), the score show that the radiology technicians had a relatively high instrumental leadership behavior. The mean OS score 2.5 (0.7), and mean subscales score ranging between 2.21 – 2.64 show that the radiology technicians had relatively low organizational silence attitude. The organizational silence was not statistically related to the instrumental relationship ($r= -0.01$, $p>0.05$) (Table 3).

Scale Scores According to Characteristics of Participants

Job satisfaction was significantly higher in technicians with associate's degree than those with bachelor's degree (73 (10.08) vs. 69.53 (9.91), $p<0.05$) and organizational commitment scores were significantly higher in private vs. public sector employees (3.61 (0.63) vs. 3.47 (0.65), $p<0.05$) (Table 4).

Table 3. Correlation Analysis of the Scales

Scale	Mean(SD)	1	1.1.	1.2	2	2.1	2.2	2.3	3	4	4.1	4.2	4.3
1.MSQ	72.4 (9.9)												
1.1.IS	3.64(0.53)	0.94*											
1.2.ES	3.59(0.55)	0.85*	0.64*										
2.OCQ	3.47(0.53)	0.63*	0.57*	0.57*									
2.1.AC	3.47(0.61)	0.56*	0.49*	0.54*	0.82*								
2.2.CC	3.55(0.65)	0.43*	0.41*	0.38*	0.82*	0.56*							
2.3.NC	3.39(0.64)	0.61*	0.54*	0.56*	0.85*	0.57*	0.58*						
3.ILS	3.64(0.48)	0.63*	.62*	0.50*	0.52*	0.42*	0.40*	0.48*					
4.OSS	2.50(0.7)	-0.08	-0.11	-0.04	0.004	-0.01	0.01	-0.004	-0.01				
4.1.F1	2.60(1.07)	-0.13*	-0.14*	-0.09	-0.001	-0.02	0.03	-0.02	-0.02	0.81*			
4.2.F2	2.21(0.9)	-0.02	-0.04	-0.02	-0.02	-0.05	-0.01	0.01	-0.03	0.46*	0.13*		
4.3.F3	2.52(1.05)	-0.03	-0.05	-0.01	0.02	0.03	-0.01	0.02	0.04	0.77*	0.40*	0.44*	
4.4.F4	2.64(0.97)	-0.01	-0.02	-0.001	0.08	0.05	0.07	0.06	0.000	0.62*	0.46*	0.21*	0.4*

*Spearman's Rank correlation coefficient statistically significant at 0.05 level

Table 4. Scale Scores According to Characteristics of Participants (n=269)

	Total Mean(SD)	MSQ/ IS Mean(SD)	ES Mean(SD)	ILS Mean(SD)	OSS Mean(SD)	Total Mean(SD)	OCQ AC Mean(SD)	CC Mean(SD)	NC Mean(SD)
Gender									
Male	73.24 (8.94)	3.67 (0.50)	3.65 (0.47)	3.66 (0.43)	2.45 (0.70)	3.50 (0.53)	3.49 (0.57)	3.59 (0.65)	3.41 (0.67)
Female	71.81 (10.51)	3.62 (0.55)	3.55 (0.60)	3.63 (0.50)	2.53 (0.70)	3.45 (0.53)	3.46 (0.64)	3.52 (0.65)	3.38 (0.63)
Educational status									
Associate's degree	73.00 (10.08)^a	3.67 (0.54)	3.62 (0.54)	3.65 (0.48)	2.49 (0.71)	3.49 (0.53)	3.50 (0.60)	3.56 (0.65)	3.42 (0.63)
Bachelor's degree	69.53 (9.91)^a	3.49 (0.53)	3.46 (0.63)	3.55 (0.47)	2.55 (0.63)	3.44 (0.53)	3.37 (0.70)	3.62 (0.57)	3.33 (0.80)
Master's degree	70.53 (6.01)	3.54 (0.35)	3.51 (0.38)	3.69 (0.43)	2.46 (0.75)	3.28 (0.54)	3.34 (0.57)	3.28 (0.67)	3.23 (0.45)
Facility									
Public hospital	71.60 (10.08)	3.58 (0.55)	3.58 (0.54)	3.62 (0.49)	2.50 (0.69)	3.44 (0.57)	3.43 (0.61)	3.50 (0.66)	3.38 (0.68)
University hospital	73.82 (10.99)	3.78 (0.51)	3.55 (0.70)	3.67 (0.40)	2.64 (0.82)	3.49 (0.27)	3.70 (3.41)	3.42 (0.48)	3.36 (0.48)
Private hospital	72.88 (9.52)	3.67 (0.50)	3.60 (0.52)	3.65 (0.48)	2.48 (0.70)	3.48 (0.53)	3.46 (0.64)	3.58 (0.67)	3.39 (0.64)
Private medical center	73.58 (11.01)	3.70 (0.54)	3.65 (0.70)	3.78 (0.49)	2.39 (0.64)	3.69 (0.37)	3.63 (0.51)	3.81 (0.43)	3.63 (0.56)
Sector									
Public	71.28 (10.40)	3.58 (0.56)	3.54 (0.57)	3.61 (0.47)	2.55 (0.70)	3.41 (0.54)	3.44 (0.60)	3.47 (0.65)	3.33 (0.65)
Private	73.36 (9.39)	3.69 (0.49)	3.64 (0.53)	3.67 (0.48)	2.45 (0.70)	3.52 (0.52)	3.50 (0.62)	3.61 (0.63)^b	3.45 (0.63)

p<0.05 for ^a Kruskal-Wallis test, ^bMann-Whitney U test

Multivariate Regression Analysis

The bootstrap multivariate regression models were presented in Table 5. The first model predicting the MQS score included the exploratory variables of gender, age, education, instrumental leadership score, and organizational silence factor 1 score. The radiology technicians' high job satisfaction was significantly predicted by the lower education (B:-1.67, BCa 95% CI:-3.30 – -0.16), higher instrumental leadership behavior (B:13.58, BCa 95% CI: 10.52 – 16.26), and lower organizational silence (B:-0.91, BCa 95% CI: -1.65 – -0.19). The second model predicting the OC score included the independent variables of gender, age, instrumental leadership, and job satisfaction. The radiology technicians' high organizational commitment was significantly predicted by the higher instrumental leadership behavior (B:0.20, BCa 95% CI: 0.05 – 0.36) and higher job satisfaction (B:0.03, BCa 95% CI: 0.02 – 0.04) (Table 5).

Table 5. Multivariate Regression Models (n=269)

Variables	Unstandardized Coefficient B	Bootstrap Model				
		Std. Error	Sig. (2-tailed)	BCa 95% CI		
Dependent	Independent			LB	UB	
Job Satisfaction	(Constant)	22.036	6.352	0.002	11.570	33.378
	Gender	0.395	0.920	0.665	-1.542	2.288
	Age	0.180	0.061	0.006	0.059	0.307
	Education	-1.672	0.759	0.028	-3.297	-0.164
	Instrumental leadership	13.583	1.398	0.001	10.522	16.264
	Organizational silence F1	-0.905	0.412	0.024	-1.650	-0.190
Organizational Commitment	(Constant)	0.744	0.283	0.008	0.223	1.239
	Gender	0.010	0.061	0.878	-0.111	0.135
	Age	0.001	0.004	0.801	-0.007	0.009
	Instrumental leadership	0.196	0.077	0.011	0.053	0.360
	Job Satisfaction	0.027	0.004	0.001	0.020	0.036

Bootstrap results are based on 1000 bootstrap samples

BCa 95% CI: Bias-corrected and accelerated 95% Confidence Interval; LB: Lower bound; UB: Upper bound

DISCUSSION

Our findings revealed that apart from higher job satisfaction in technicians with associate's degree vs. those with bachelor's degree and higher organizational commitment in private sector vs. public sector employees, no significant impact of age, gender or occupational characteristics was noted on MSQ, OCQ, ILS and OSS scores. Organizational commitment and instrumental leadership scores were correlated positively both with each other and with the job satisfaction scores. Multivariate analysis revealed better instrumental leadership behavior and

lower organizational silence as the significant determinants of higher job satisfaction, while better instrumental leadership behavior and higher job satisfaction were significant determinants of higher organizational commitment.

Our findings support the previously reported positive relationship between job satisfaction and organizational commitment in different settings (Akyurt, Alparslan & Oktar, 2015; Mathieu & Zajac, 1990; Mathu & Salunke, 2013; Meyer, Stanley, Herscovitch & Topolnytsky, 2002; Srivastava, 2013) as well as the meta-analysis findings on the association of organizational commitment with job satisfaction overall or specifically with pay, colleagues, work or supervision (Leite et al., 2014).

Notably, our findings also indicated the higher job satisfaction to be a significant predictor of the better organizational commitment, which seems notable given that there is ongoing debate on whether job satisfaction is the predictor or a consequence of organizational commitment (Falkenburg & Schyns, 2007; Srivastava, 2013). In this regard, our findings are in line with previous studies that reported job satisfaction as a predictor of organizational commitment (Leite et al., 2014; Srivastava, 2013).

Past studies also revealed that employees' job satisfaction was positively influenced by overall appreciation of their managers (Stringer, 2006), while specific leadership behaviors (i.e., task-oriented structuring or relation-oriented supporting leadership behaviors) had significant impact on employee job satisfaction depending on the work situation and experience level of the employee (Gilbreath & Benson, 2004). In a past study among 1785 healthcare professional, authors reported a statistically significant effect of instrumental and transactional leadership on job satisfaction and organizational commitment, respectively, while transformational leadership had no significant impact on the positive attitude toward job and organization (Akyurt et al., 2015). In addition, in a past study among nurses, based on the regression analysis authors reported that the nurses' perception of leadership styles had positive and significant effects on commitment with increase in nurses' commitment through perceived autonomy and leadership styles (Asiri et al., 2016).

In general, both task-oriented and relation-oriented leadership behaviors were reported to increase job satisfaction among residents in the medical setting by reducing the stress experienced upon encountering new tasks and responsibilities (Hillhouse, Adler & Walters, 2000; van der Wal et al., 2016). However, in a meta-analysis of studies among nurses, authors reported that leadership styles focused on people and relationships (transformational, resonant, supportive, and consideration) were associated with higher nurse job satisfaction in 24 studies,

whereas 10 studies indicated that leadership styles focused on tasks (dissonant, instrumental and management by exception) were associated with lower nurse job satisfaction (Cummings et al., 2010).

Accordingly, the identification of better job satisfaction and higher organizational commitment in radiology technicians who reported higher instrumental leadership scores for their managers in the current study seems notable given that instrumental leadership covers both strategic (developing policies, goals and objectives to support the strategic vision and mission) and job facilitation (goal achievement and performance monitoring with constructive feedback and improved self-efficacy) leadership behaviors (Chammas & Hernandez, 2019). Likewise, in a past study conducted with all employees at a radiology institute, the factors that would improve motivation and job satisfaction was reported by the staff to be teamwork and communication, more participation in planning processes, more appreciation and continuing education (Unterweger, Imhof, Mohr, Römpler & Kubik-Huch, 2007).

In a past study among nurses, the nurses reported a lower level of affective commitment relative to normative and continuance commitment, suggesting lack of a strong sense of belonging or attachment to their organization, while leadership styles including Transformational, Transactional and Laissez-faire styles significantly affected their commitment levels (Asiri et al., 2016). The authors suggested that nursing leaders in hospital acute settings can enhance the nursing work environment by practicing appropriate supportive and responsive leadership styles that encourage the autonomy and participation in decision-making and thereby improving nursing staff retention, job satisfaction, and organizational commitment (Asiri et al., 2016).

Although, affective organizational commitment has been considered to be important for higher level of motivation in health professionals in terms of voluntarily participation in organizational activity (Altindis, 2011), our findings revealed higher mean scores for continuance (3.55) than affective (3.47) and normative (3.39) components of organizational commitment, suggesting the higher impact of continuance commitment on radiology technicians. This seems to indicate the higher likelihood of them to stay with the organization because of the costs associated with leaving the organization rather than a sense of obligation and moral responsibility or a sense of belonging or attachment. Notably, continuance commitment scores were also significantly higher in our radiology technicians who were employed in the private sector than those employed in public sector, despite their similar job satisfaction scores.

This seems to emphasize that while job satisfaction (total, internal, external) and organizational commitment (total, affective, continuance and normative) scores were positively correlated with each other in the current study, distinguishing the commitment from job satisfaction is important given that former is related to the organization, while the latter refers more specifically to the job or position (Kooij, Jansen, Dikkers & De Lange, 2009). Hence, a person's organizational commitment is considered in part to be determined by the extent to which he/she shares in and identifies with the goals and values of the organization (Mathieu & Zajac, 1990; Seruya & Hinojosa, 2010). Besides, the likelihood of being a professional from a particular field in minority or working in isolation from others in the same profession is considered likely to prohibit the development of commitment to the profession (Johnson, Morgeson, Ilgen, Meyer & Lloyd, 2006). Notably, associate's degree vs. bachelor's degree was associated with higher job satisfaction in the current study supporting the findings from a past study with 530 medical radiation workers that indicated lower job satisfaction among respondents with a degree in radiology (Yu et al., 2018). These findings seem notable, given the consideration of higher degree health care professionals to have higher expectation for their career (Yingchun & Jianqian, 2008) and lower job satisfaction if what they expect from their job and what they are actually receiving are contradictory (Yu et al., 2018).

Certain limitations to this study should be considered. First, relatively small sample size may limit the generalizability our findings. Second, the findings relied on self-reporting by participants and are thus subject to bias.

In conclusion, our findings revealed job satisfaction and organizational commitment of radiology technicians to be at moderate levels and to be positively correlated with each other. The job satisfaction and instrumental leadership were the significant predictors of organizational commitment, emphasizing the role of job satisfaction as an antecedent rather than a consequence of organizational commitment. Moreover, instrumental leadership was the common predictor of both organizational commitment and job satisfaction, while organizational silence predicted poor job satisfaction among radiology technicians. This seems to suggest that leadership styles comprising strategic and job facilitation behaviors as well as supportive and responsive leadership that encourage the autonomy and participation in decision-making could play an instrumental role in promoting better job satisfaction and organizational commitment among radiology technicians that would ensure patient safety and provide health care of the highest quality.

REFERENCES

- Adliene, D., Gričienė, B., Skovorodko, K., Laurikaitienė, J. & Puiso, J. (2020). Occupational radiation exposure of health professionals and cancer risk assessment for Lithuanian nuclear medicine workers. *Environmental Research*, 183, 109144. <https://doi.org/10.1016/j.envres.2020.109144>
- Akanbi, P. A. & Itiola, K. A. (2013). Exploring the relationship between job satisfaction and organizational commitment among health workers in ekiti state, Nigeria. *Journal of Business and Management Sciences*, 1(2), 18-22. doi:10.12691/jbms-1-2-2
- Akyurt, N., Alparslan, A. M. & Oktar, O. F. (2015). Sağlık çalışanlarında liderlik tarzları-iş tatmini-örgütsel bağlılık modeli [Leadership style-job satisfaction-organizational commitment model in healthcare staff]. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, 6(13), 50–61.
- Alavi, S. S., Dabbagh, S. T., Abbasi, M. & Mehrdad, R. (2017). Job satisfaction and its relationship to Radiation Protection Knowledge, Attitude and Practice (RPKAP) of Iranian radiation workers. *Eastern Mediterranean Health Journal*, 22(10), 727–734. <https://doi.org/10.26719/2016.22.10.727>
- Altindis, S. (2011). Job motivation and organizational commitment among the health professionals: A questionnaire survey. *African Journal of Business Management*, 5(21), 8601–8609. <https://doi.org/10.5897/AJBM11.1086>
- Antonakis, J. & House, R. J. (2004). *On instrumental leadership: Beyond transactions and transformations*. Gallup Leadership Institute Conference, University of Nebraska.
- Asiri, S. A., Rohrer, W. W., Al-Surimi, K., Da'ar, O. O. & Ahmed, A. (2016). The association of leadership styles and empowerment with nurses' organizational commitment in an acute health care setting: a cross-sectional study. *BMC Nursing*, 15, 38. <https://doi.org/10.1186/s12912-016-0161-7>
- Azeem, S. M. & Akhtar, N. (2014). The influence of work life balance and job satisfaction on organizational commitment of healthcare employees. *International Journal of Human Resource Studies*, 4(2), 18-24. <http://dx.doi.org/10.5296/ijhrs.v4i2.5667>
- Bakotić, D. & Babić, T. (2013) Relationship between working conditions and job satisfaction: the case of Croatian Shipbuilding Company. *International Journal of Business and Social Science*, 4(2), 206–213.
- Bilgiç, R. (1998). The Relationship between Job Satisfaction and personal characteristics of turkish workers. *The Journal of Psychology: Interdisciplinary and Applied*, 132, 549–558. <https://doi.org/10.1080/00223989809599287>
- Chammas, B. C. & Hernandez, J. M. (2019). Comparing transformational and instrumental leadership: The influence of different leadership styles on individual employee and financial performance in Brazilian startups. *Innovation & Management Review*, 16(2), 143–160. <https://doi.org/10.1108/INMR-08-2018-0064>
- Cummings, G. G., MacGregor, T., Davey, M., Lee, H., Wong, C. A., Lo, E. , ...Stafford, E. (2010). Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review. *International Journal of Nursing Studies*, 47(3), 363–385. <https://doi.org/10.1016/j.ijnurstu.2018.04.016>
- Dagli, A., Elcicek, Z. & Han, B. (2018). Örgütsel bağlılık ölçeği'nin Türkçeye uyarlanması: Geçerlik ve güvenirlik çalışması [Adaptation of the “Organizational Commitment Scale” into Turkish: Validity and reliability study]. *Elektronik Sosyal Bilimler Dergisi*, 17(68), 1788–1800.
- Eroğlu, A. H., Adıgüzel, O. & Öztürk, U. C. (2011). Sessizlik girdabı ve bağlılık ikilemi: işgören sessizliği ile örgütsel bağlılık ilişkisi ve bir araştırma [Dilemma of silence vortex and Commitment: relationship between employee silence and organizational Commitment]. *The Journal of Faculty of Economics and Administrative Sciences, Süleyman Demirel University*, 16(2), 97–124.
- Falkenburg, K. & Schyns, B. (2007). Work satisfaction, organizational commitment and withdrawal behaviors. *Management Research News*, 30(10), 708–723. <https://doi.org/10.1108/01409170710823430>

-
- Gilbreath, B. & Benson, P. (2004). The contribution of supervisor behaviour to employee psychological well-being. *Work & Stress*, 18(3), 255–266. <https://doi.org/10.1080/02678370412331317499>
- Gorgulu, O. & Akilli, A. (2017). The determination of the levels of burnout syndrome, organizational commitment, and job satisfaction of the health workers. *Nigerian Journal of Clinical Practice*, 20(1),48-56. doi: 10.4103/1119-3077.180051
- Hillhouse, J. J., Adler, C. M. & Walters, D. N. (2000). A simple model of stress, burnout and symptomatology in medical residents: a longitudinal study. *Psychology Health & Medicine*, 5(1), 63–73. <https://doi.org/10.1080/135485000106016>
- Johnson, M. D., Morgeson, F. P., Ilgen, D. R., Meyer, C. J. & Lloyd, J. W. (2006). Multiple professional identities: examining differences in identification across work-related targets. *The Journal of Applied Psychology*, 91(2), 498–506. <https://doi.org/10.1037/0021-9010.91.2.498>
- Kooij, D. T., Jansen, P. G., Dikkers, J. S. & De Lange, A. (2009). The influence of age on the associations between HR practices and both affective commitment and job satisfaction: A meta-analysis. *Journal of Organizational Behavior*, 31(8), 1111–1136. <https://doi.org/10.1002/job.666>
- Leite, N. R., Rodrigues, A. C. & Albuquerque, L. G. (2014). Organizational commitment and job satisfaction: What are the potential relationships? *BAR - Brazilian Administration Review*, 11(4), 476–495. <https://doi.org/10.1590/1807-7692bar2014276>
- Mathieu, J. E. & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates and consequences of organizational commitment. *Psychological Bulletin*, 108(2), 171–194. <https://doi.org/10.1037//0033-2909.108.2.171>
- Mathu, G. & Salunke, M. (2013). Organizational commitment and Job Satisfaction: A study of Manufacturing Sector. *APOTHEOSIS: Tirpude's National Journal of Business Research (TNBJR)*, 4(4), 129–143.
- Meyer, J. P., Allen, N. J. & Smith, C. A. (1993). Commitment to Organizations and Occupations: Extension and Test of a Three-Component Conceptualization. *Journal of Applied Psychology*, 78, 538–551. <https://doi.org/10.1037/0021-9010.78.4.538>
- Meyer, J., Stanley, D., Herscovitch, L. & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: a meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, 61(1), 20–52. <https://doi.org/10.1006/jvbe.2001.1842>
- Morrison, E. & Milliken, F. (2000). Organizational silence: A barrier to change and development in a pluralistic world. *Academy of Management Review*, 25(4), 706–725. <https://doi.org/10.2307/259200>
- Perlow, L. & Williams, S. (2003). Is silence killing your company? *Harvard Business Review*, 81(5), 52–58.
- Sakthivel, D., Jayakrishnan, J. (2012). Work Life Balance and Organizational Commitment for Nurses. *Asian Journal of Business and Management Sciences*, 2 (5), 01-06.
- Sakthivel, R. & Kamalanabhan (2011). Work life balance reflections on employee satisfaction. *Serbian Journal of Management*, 6(1), 85-96.
- Seruya, F. M. & Hinojosa, J. (2010). Professional and organizational commitment in paediatric occupational therapists: the influence of practice setting. *Occupational Therapy International*, 17(3), 125–134. <https://doi.org/10.1002/oti.293>
- Srivastava, S. (2013). Job Satisfaction and Organisational Commitment Relationship: Effect of Personality Variables. *Vision-Journal of Business Perspective-MDI*, 17(2), 21–30. <https://doi.org/10.1177/0972262912483529>

-
- Stringer, L. (2006). The link between the quality of the supervisor-employee relationship and the level of the employee's job satisfaction. *Public Organization Review*, 6, 125–142. <https://doi.org/10.1007/s11115-006-0005-0>
- Unterweger, M., Imhof, S., Mohr, H., Römpler, M. & Kubik-Huch, R. A. (2007). Welche Faktoren beeinflussen die Arbeitszufriedenheit und -motivation an einem Institut für Radiologie? [Which factors influence job satisfaction and motivation in an institute of radiology?]. *Praxis*, 96(35), 1299–1306. <https://doi.org/10.1024/1661-8157.96.35.1299>
- van der Wal, M. A., Schönrock-Adema, J., Scheele, F., Schripsema, N. R., Jaarsma, A. D. & Cohen-Schotanus, J. (2016). Supervisor leadership in relation to resident job satisfaction. *BMC Medical Education*, 16, 194. <https://doi.org/10.1186/s12909-016-0688-z>
- Van Dyne, L., Ang, S. & Botero, I. C. (2003). Conceptualizing employee silence and employee voice as multidimensional constructs. *Journal of Management Studies*, 40(6), 1359–1392. <https://doi.org/10.1111/1467-6486.00384>
- Wasti, S. A. (2000). *Meyer ve Allen'in üç boyutlu örgütsel bağlılık ölçeğinin geçerlik ve güvenirlik analizi* [Validity and reliability analysis of Meyer and Allen's three dimensional organizational commitment scale]. 8th National Management and Organization Congress, Erciyes University, Kayseri, Turkey, Abstract, 401–410. Turkish.
- Weiss, D. J., Dawis, R. V. & England, G. W. (1967). Manual for the minnesota satisfaction questionnaire. *Minnesota Studies in Vocational Rehabilitation*.
- Yıldız E. (2013). Enigma of silence in organizations: What happens to whom and why? Beykent University *Journal of Social Sciences – BUJSS*, 6(2), 30-44.
- Yingchun, Y. & Jianqian, C. (2008). [A survey on job satisfaction of doctors in Nanjing]. *Chinese Hospital Management*, 28(3), 31–33.
- Yoshinaga, S., Mabuchi, K., Sigurdson, A. J., Doody, M. M. & Ron, E. (2004). Cancer risks among radiologists and radiologic technologists: review of epidemiologic studies. *Radiology*, 233(2), 313–321. <https://doi.org/10.1148/radiol.2332031119>
- Yu, X., Zheng, M., Cheng, X., Xu, B., Tao, Z., Ding, J., ...Xie, B. (2018). Job Satisfaction Among Doctors from Jiangsu Province in China. *Medical Science Monitor*, 24, 7162–7169. <https://doi.org/10.12659/MSM.912712>