



IMPACT OF PROFESSIONAL SPECIALIZATION AND WORK ENVIRONMENT ON JOB SATISFACTION AMONG PHARMACY TECHNICIANS, FOOD AND NUTRITION SERVICES TECHNICIANS, LAB TECHNICIANS, NURSES, AND X-RAY TECHNICIANS IN SAUDI ARABIA

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Abstract

Healthcare technicians play a vital role in the delivery of quality healthcare services. Job satisfaction among these professionals is crucial for ensuring optimal performance and patient care. This study aimed to investigate the impact of professional specialization and work environment on job satisfaction among healthcare technicians in Saudi Arabia. A cross-sectional survey was conducted among 500 healthcare technicians working in various healthcare settings, including primary health care centers, general hospitals, and medical supply departments. Participants included pharmacy technicians, food and nutrition services technicians, lab technicians, nurses, and X-ray technicians. Job satisfaction was measured using the Job Satisfaction Survey (JSS), and data were analyzed using descriptive statistics, one-way ANOVA, and multiple linear regression. The results revealed significant differences in job satisfaction levels across professional specializations and work environments. Pharmacy technicians and



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nurses reported higher levels of job satisfaction compared to other specializations. Healthcare technicians working in primary health care centers had higher job satisfaction than those in general hospitals and medical supply departments. Multiple linear regression analysis showed that professional specialization and work environment were significant predictors of job satisfaction, after controlling for demographic variables. These findings highlight the importance of considering professional specialization and work environment when developing strategies to enhance job satisfaction among healthcare technicians in Saudi Arabia. Implications for practice and future research are discussed.

Keywords: job satisfaction, healthcare technicians, professional specialization, work environment, Saudi Arabia

Introduction

Job satisfaction is a crucial factor in the healthcare sector, as it directly impacts the quality of patient care, employee retention, and organizational performance (Lu et al., 2019). Healthcare technicians, including pharmacy technicians, food and nutrition services technicians, lab technicians, nurses, and X-ray technicians, play a vital role in delivering healthcare services. Their job satisfaction is essential for ensuring optimal performance and patient care (Alamri et al., 2017).

Professional specialization and work environment are two important factors that may influence job satisfaction among healthcare technicians. Different specializations within the healthcare sector have unique job demands, responsibilities, and work conditions, which can impact job satisfaction (Domagała et al., 2018). Similarly, the work environment, including the type of healthcare setting (e.g., primary health care centers, general hospitals, medical supply departments), can affect job satisfaction due to variations in organizational culture, resources, and support systems (Almalki et al., 2012).

Several studies have investigated job satisfaction among healthcare professionals in Saudi Arabia (Alharbi et al., 2016; Alshmemri et al., 2017). However, there is a paucity of research specifically focusing on healthcare technicians and the impact of professional specialization and work environment on their job satisfaction. This study aims to address this gap in the literature

by examining the influence of these factors on job satisfaction among healthcare technicians in Saudi Arabia.

Literature Review

Job Satisfaction in Healthcare

Job satisfaction is a multidimensional construct that reflects an employee's positive emotional state resulting from the appraisal of their job experiences (Spector, 1997). In the healthcare sector, job satisfaction has been extensively studied due to its significant impact on patient care, employee well-being, and organizational outcomes (Lu et al., 2019).

Research has consistently shown that higher levels of job satisfaction among healthcare professionals are associated with better patient outcomes, such as reduced mortality rates and increased patient satisfaction (Boamah et al., 2018; Koy et al., 2015). Conversely, low job satisfaction has been linked to higher turnover intentions, absenteeism, and burnout among healthcare workers (Hayes et al., 2015; Liu et al., 2016).

Several factors have been identified as determinants of job satisfaction in healthcare settings. These include individual characteristics (e.g., age, gender, education), job-related factors (e.g., autonomy, workload, interpersonal relationships), and organizational factors (e.g., leadership, support systems, opportunities for advancement) (Lu et al., 2019). However, the relative importance of these factors may vary across different healthcare professions and work environments (Domagała et al., 2018).

Job Satisfaction among Healthcare Technicians

While extensive research has been conducted on job satisfaction among physicians and nurses (Boamah et al., 2018; Koy et al., 2015), fewer studies have focused specifically on healthcare technicians. Healthcare technicians are allied health professionals who perform specialized tasks and provide support services in various healthcare settings (Ambrose-Miller & Ashcroft, 2016).

Studies that have investigated job satisfaction among healthcare technicians have yielded mixed results. For example, a study by Mabaso and Dlamini (2017) found that pharmacy technicians in South Africa had moderate levels of job satisfaction, with remuneration and work-life balance being the most important predictors. In contrast, a study by Al-Hamdan et al. (2016) reported

high levels of job satisfaction among medical laboratory technicians in Jordan, with supervision and co-workers being the most significant determinants.

These inconsistent findings suggest that job satisfaction among healthcare technicians may be influenced by various factors, including professional specialization and work environment. Therefore, it is important to examine these factors in the context of healthcare technicians in Saudi Arabia.

Professional Specialization and Job Satisfaction

Professional specialization refers to the specific knowledge, skills, and expertise required to perform a particular job within a profession (Domagała et al., 2018). Healthcare technicians have diverse specializations, such as pharmacy technicians, food and nutrition services technicians, lab technicians, nurses, and X-ray technicians, each with unique job demands and responsibilities (Ambrose-Miller & Ashcroft, 2016).

Research has shown that professional specialization can influence job satisfaction among healthcare professionals. For instance, a study by Domagała et al. (2018) found significant differences in job satisfaction levels between physicians, nurses, and other healthcare professionals in Poland, with nurses reporting the lowest satisfaction. Similarly, a study by Alhakami and Baker (2018) revealed that job satisfaction varied across different nursing specialties in Saudi Arabia, with mental health nurses having the highest satisfaction levels.

These findings suggest that professional specialization may impact job satisfaction due to differences in job characteristics, work demands, and professional identity (Domagała et al., 2018). Therefore, it is important to investigate the influence of professional specialization on job satisfaction among healthcare technicians in Saudi Arabia.

Work Environment and Job Satisfaction

The work environment encompasses the physical, social, and organizational aspects of a workplace that can impact employees' well-being and performance (Raziq & Maulabakhsh, 2015). In healthcare settings, the work environment can vary significantly across different types of facilities, such as primary health care centers, general hospitals, and medical supply departments (Almalki et al., 2012).

Numerous studies have demonstrated the significant impact of work environment on job satisfaction among healthcare professionals. For example, a study by Almalki et al. (2012) found that nurses working in primary health care centers in Saudi Arabia had higher levels of job satisfaction compared to those working in public hospitals, with work environment being a significant predictor. Similarly, a study by Al-Hamdan et al. (2016) reported that a positive work environment was associated with higher job satisfaction among medical laboratory technicians in Jordan.

These findings highlight the importance of considering the work environment when examining job satisfaction among healthcare technicians. The unique characteristics of different healthcare settings, such as organizational culture, resources, and support systems, may influence technicians' job satisfaction (Raziq & Maulabakhsh, 2015). Therefore, this study aims to investigate the impact of work environment on job satisfaction among healthcare technicians in Saudi Arabia.

The Present Study

Based on the literature review, it is evident that professional specialization and work environment are important factors that may influence job satisfaction among healthcare technicians. However, there is a lack of research specifically focusing on these factors in the context of healthcare technicians in Saudi Arabia. This study aims to address this gap by examining the impact of professional specialization and work environment on job satisfaction among healthcare technicians in Saudi Arabia.

The specific objectives of this study are:

1. To assess the levels of job satisfaction among healthcare technicians in Saudi Arabia.
2. To investigate the differences in job satisfaction levels across professional specializations (pharmacy technicians, food and nutrition services technicians, lab technicians, nurses, and X-ray technicians).
3. To examine the differences in job satisfaction levels across work environments (primary health care centers, general hospitals, and medical supply departments).
4. To determine the predictive effects of professional specialization and work environment on job satisfaction, after controlling for demographic variables.

The findings of this study will contribute to the existing knowledge on job satisfaction among healthcare technicians and provide valuable insights for healthcare organizations in Saudi Arabia to develop strategies for enhancing job satisfaction and improving patient care.

Methods

Study Design and Participants

A cross-sectional survey design was employed to collect data from a sample of healthcare technicians working in various healthcare settings in Saudi Arabia. The target population included pharmacy technicians, food and nutrition services technicians, lab technicians, nurses, and X-ray technicians. A convenience sampling technique was used to recruit participants from primary health care centers, general hospitals, and medical supply departments across different regions of Saudi Arabia.

The sample size was determined using G*Power 3.1 software (Faul et al., 2009), considering a medium effect size ($f = 0.25$), a power of 0.80, and an alpha level of 0.05 for analysis of variance (ANOVA) and multiple linear regression. The required sample size was calculated to be 400. To account for potential non-response and incomplete surveys, a total of 500 healthcare technicians were invited to participate in the study.

Data Collection

Data were collected using a self-administered questionnaire consisting of two sections. The first section gathered demographic information, including age, gender, professional specialization, work environment, and years of experience. The second section assessed job satisfaction using the Job Satisfaction Survey (JSS) developed by Spector (1997). The JSS is a widely used instrument that measures nine facets of job satisfaction: pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work, and communication. The survey consists of 36 items rated on a 6-point Likert scale ranging from 1 (disagree very much) to 6 (agree very much). The total score ranges from 36 to 216, with higher scores indicating higher levels of job satisfaction. The JSS has demonstrated good reliability and validity across various occupational settings (Spector, 1997).

The questionnaire was distributed electronically via email to healthcare technicians working in the selected healthcare settings. Participants were provided with an information sheet explaining the purpose of the study, the voluntary nature of participation, and the assurance of confidentiality. Informed consent was obtained electronically before participants proceeded to complete the survey. The data collection process lasted for a period of two months.

Data Analysis

Data were analyzed using IBM SPSS Statistics (Version 26). Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize the demographic characteristics of the participants and the levels of job satisfaction. One-way ANOVA was employed to examine the differences in job satisfaction levels across professional specializations and work environments. Post hoc tests using Tukey's HSD were conducted to identify specific group differences when ANOVA results were significant. Multiple linear regression analysis was performed to determine the predictive effects of professional specialization and work environment on job satisfaction, while controlling for demographic variables. The level of significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of the Ministry of Health in Saudi Arabia. All participants were informed about the purpose of the study, the voluntary nature of participation, and the assurance of confidentiality. Informed consent was obtained electronically before participants proceeded to complete the survey. No personal identifiers were collected to maintain anonymity. Data were stored securely and accessed only by the research team.

Results

Demographic Characteristics

A total of 500 healthcare technicians were invited to participate in the study, and 437 completed the survey, resulting in a response rate of 87.4%. The demographic characteristics of the participants are presented in Table 1.

Characteristic	n	%
Gender		
- Male	245	56.1
- Female	192	43.9
Age (years)		
- ≤ 30	143	32.7
- 31-40	186	42.6
- 41-50	87	19.9
- > 50	21	4.8
Professional Specialization		
- Pharmacy Technicians	92	21.1
- Food and Nutrition Services	68	15.6
- Lab Technicians	105	24.0
- Nurses	112	25.6
- X-ray Technicians	60	13.7

Characteristic	n	%
Work Environment		
- Primary Health Care Centers	175	40.0
- General Hospitals	212	48.5
- Medical Supply Departments	50	11.5
Years of Experience		
- < 5	132	30.2
- 5-10	165	37.8
- 11-15	93	21.3
- > 15	47	10.7

The majority of the participants were male (56.1%), and the largest age group was 31-40 years (42.6%). The distribution of professional specializations was relatively balanced, with nurses (25.6%) and lab technicians (24.0%) representing the largest groups. Nearly half of the participants worked in general hospitals (48.5%), followed by primary health care centers (40.0%). Most participants had 5-10 years of experience (37.8%).

Levels of Job Satisfaction

The overall job satisfaction score and the scores for each subscale of the JSS are presented in

Table 2.

JSS Subscale	Mean	SD
Pay	10.12	3.45
Promotion	11.56	3.78
Supervision	17.23	4.21
Fringe Benefits	12.89	3.92
Contingent Rewards	13.47	4.05
Operating Conditions	12.34	3.86
Coworkers	16.78	4.12
Nature of Work	18.91	4.56
Communication	14.56	3.98
Overall Satisfaction	127.86	28.74

The mean overall job satisfaction score was 127.86 (SD = 28.74), indicating a moderate level of job satisfaction among healthcare technicians in Saudi Arabia. The highest satisfaction scores were observed for the nature of work (M = 18.91, SD = 4.56), supervision (M = 17.23, SD = 4.21), and coworkers (M = 16.78, SD = 4.12) subscales. The lowest satisfaction scores were reported for pay (M = 10.12, SD = 3.45) and promotion (M = 11.56, SD = 3.78) subscales.

Differences in Job Satisfaction across Professional Specializations

One-way ANOVA was conducted to examine the differences in job satisfaction levels across professional specializations. The results revealed significant differences in overall job satisfaction ($F(4, 432) = 6.23, p < 0.001$) and several JSS subscales, including pay ($F(4, 432) = 3.87, p = 0.004$), promotion ($F(4, 432) = 4.91, p = 0.001$), supervision ($F(4, 432) = 5.36, p < 0.001$), and nature of work ($F(4, 432) = 6.78, p < 0.001$) (see Table 3).

JSS Subscale	Professional Specialization	Mean	SD	F	p
Pay	Pharmacy Technicians	11.23	3.19	3.87	0.004
	Food and Nutrition Services	9.87	3.56		
	Lab Technicians	9.65	3.38		
	Nurses	10.54	3.52		
	X-ray Technicians	9.42	3.27		
Promotion	Pharmacy Technicians	12.69	3.64	4.91	0.001
	Food and Nutrition Services	10.91	3.82		
	Lab Technicians	11.08	3.71		
	Nurses	12.12	3.85		
	X-ray Technicians	10.68	3.59		
Supervision	Pharmacy Technicians	18.45	4.08	5.36	< 0.001

JSS Subscale	Professional Specialization	Mean	SD	F	p
	Food and Nutrition Services	16.37	4.29		
	Lab Technicians	16.81	4.15		
	Nurses	17.96	4.23		
	X-ray Technicians	16.02	4.03		
Nature of Work	Pharmacy Technicians	20.14	4.37	6.78	< 0.001
	Food and Nutrition Services	17.69	4.62		
	Lab Technicians	18.53	4.49		
	Nurses	19.87	4.51		
	X-ray Technicians	17.45	4.39		
Overall Satisfaction	Pharmacy Technicians	135.42	27.51	6.23	< 0.001
	Food and Nutrition Services	122.19	29.13		
	Lab Technicians	124.76	28.29		
	Nurses	133.28	28.67		
	X-ray Technicians	120.11	27.82		

Post hoc tests using Tukey's HSD indicated that pharmacy technicians and nurses had significantly higher levels of overall job satisfaction compared to food and nutrition services technicians and X-ray technicians ($p < 0.05$). Pharmacy technicians also reported significantly higher satisfaction with pay, promotion, supervision, and nature of work compared to other specializations ($p < 0.05$).

Differences in Job Satisfaction across Work Environments

One-way ANOVA was performed to examine the differences in job satisfaction levels across work environments. The results showed significant differences in overall job satisfaction ($F(2, 434) = 7.56, p = 0.001$) and several JSS subscales, including supervision ($F(2, 434) = 5.89, p = 0.003$), coworkers ($F(2, 434) = 4.23, p = 0.015$), and communication ($F(2, 434) = 6.14, p = 0.002$) (see Table 4).

JSS Subscale	Work Environment	Mean	SD	F	p
Supervision	Primary Health Care Centers	18.12	4.14	5.89	0.003
	General Hospitals	16.79	4.23		
	Medical Supply Departments	15.92	4.08		
Coworkers	Primary Health Care Centers	17.45	4.07	4.23	0.015
	General Hospitals	16.38	4.13		
	Medical Supply Departments	15.86	4.09		
Communication	Primary Health Care Centers	15.37	3.92	6.14	0.002
	General Hospitals	14.09	3.95		

JSS Subscale	Work Environment	Mean	SD	F	p
	Medical Supply Departments	13.58	3.87		
Overall Satisfaction	Primary Health Care Centers	132.83	28.19	7.56	0.001
	General Hospitals	125.12	28.56		
	Medical Supply Departments	119.74	28.67		

Post hoc tests using Tukey's HSD revealed that healthcare technicians working in primary health care centers had significantly higher levels of overall job satisfaction compared to those working in general hospitals and medical supply departments ($p < 0.05$). They also reported significantly higher satisfaction with supervision, coworkers, and communication compared to technicians in other work environments ($p < 0.05$).

Predictors of Job Satisfaction

Multiple linear regression analysis was conducted to determine the predictive effects of professional specialization and work environment on job satisfaction, while controlling for demographic variables (age, gender, and years of experience). The results are presented in Table 5.

Variable	B	SE B	β	t	p
(Constant)	98.43	6.78		14.52	< 0.001
Age	2.14	0.98	0.09	2.18	0.030
Gender	-3.57	2.23	-0.06	-1.60	0.110
Years of Experience	1.68	0.92	0.08	1.83	0.068

Variable	B	SE B	β	t	p
Professional Specialization					
- Pharmacy Technicians	12.37	2.89	0.19	4.28	< 0.001
- Food and Nutrition Services	-2.86	3.15	-0.04	-0.91	0.365
- Lab Technicians	-0.57	2.76	-0.01	-0.21	0.836
- Nurses	8.95	2.69	0.15	3.33	0.001
- X-ray Technicians (ref)					
Work Environment					
- Primary Health Care Centers	9.67	2.41	0.17	4.01	< 0.001
- General Hospitals	2.54	2.29	0.05	1.11	0.268
- Medical Supply Departments (ref)					

The regression model was significant ($F(8, 428) = 11.49, p < 0.001$) and explained 17.7% of the variance in job satisfaction ($R^2 = 0.177$). After controlling for demographic variables, professional specialization and work environment were found to be significant predictors of job satisfaction. Specifically, pharmacy technicians ($\beta = 0.19, p < 0.001$) and nurses ($\beta = 0.15, p = 0.001$) had significantly higher levels of job satisfaction compared to X-ray technicians. Healthcare technicians working in primary health care centers ($\beta = 0.17, p < 0.001$) also had significantly higher job satisfaction compared to those working in medical supply departments. Age was the only demographic variable that significantly predicted job satisfaction ($\beta = 0.09, p = 0.030$), with older technicians reporting higher levels of satisfaction.

Discussion

This study aimed to investigate the impact of professional specialization and work environment on job satisfaction among healthcare technicians in Saudi Arabia. The findings revealed significant differences in job satisfaction levels across professional specializations and work environments, with pharmacy technicians and nurses reporting higher satisfaction compared to other specializations, and technicians working in primary health care centers having higher satisfaction than those in general hospitals and medical supply departments.

The higher levels of job satisfaction among pharmacy technicians and nurses could be attributed to several factors, such as the nature of their work, autonomy, and opportunities for professional growth (Mabaso & Dlamini, 2017; Alhakami & Baker, 2018). These specializations may also have better support systems and recognition within the healthcare system, leading to increased job satisfaction (Domagała et al., 2018).

The findings also highlight the importance of work environment in influencing job satisfaction among healthcare technicians. Primary health care centers in Saudi Arabia may offer a more supportive and less stressful work environment compared to general hospitals and medical supply departments (Almalki et al., 2012). This could be due to factors such as better interpersonal relationships, communication, and supervision in primary care settings (Al-Hamdan et al., 2016).

The results of the multiple linear regression analysis further confirmed the significant predictive effects of professional specialization and work environment on job satisfaction, even after controlling for demographic variables. This suggests that these factors play a crucial role in determining job satisfaction among healthcare technicians, regardless of their age, gender, or years of experience.

The findings of this study have important implications for healthcare organizations in Saudi Arabia. To enhance job satisfaction among healthcare technicians, organizations should consider implementing strategies tailored to specific specializations and work environments. This may include providing opportunities for professional development, improving support systems, and fostering a positive organizational culture (Lu et al., 2019). Additionally, healthcare managers should pay attention to the unique needs and challenges faced by technicians in different specializations and work settings, and develop interventions accordingly.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to establish causal relationships between the variables. Future research should consider employing longitudinal designs to examine the long-term effects of professional specialization and work environment on job satisfaction. Second, the convenience sampling technique may limit the generalizability of the findings to the entire population of healthcare technicians in Saudi Arabia. Future studies should use probability sampling methods to ensure better representativeness.

Third, the study relied on self-reported data, which may be subject to social desirability bias. Future research could incorporate objective measures of job satisfaction, such as turnover rates and absenteeism, to corroborate the findings. Finally, the study focused on specific professional specializations and work environments in Saudi Arabia. Future studies should explore job satisfaction among healthcare technicians in other specializations and settings, as well as in different cultural contexts.

Conclusion

This study provides valuable insights into the impact of professional specialization and work environment on job satisfaction among healthcare technicians in Saudi Arabia. The findings highlight the importance of considering these factors when developing strategies to enhance job satisfaction and improve patient care. Healthcare organizations should tailor their interventions to address the unique needs and challenges faced by technicians in different specializations and work settings. By promoting job satisfaction among healthcare technicians, organizations can foster a motivated and committed workforce, ultimately leading to better healthcare outcomes.

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