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The Impact of High Workload on Occupational Burnout among Radiologic Technologists in Tertiary Healthcare Settings

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Abstract

Radiologic technologists play an important role in diagnostic imaging services and are frequently exposed to high patient volume, staffing shortages, rotating shifts, and time pressure that may contribute to occupational burnout. Despite the growing literature on burnout among healthcare professionals, limited studies have focused specifically on radiologic technologists in Philippine tertiary healthcare settings. This study examined the impact of high workload on occupational burnout among radiologic technologists using a quantitative descriptive-correlational design. Forty (40) licensed radiologic technologists from selected tertiary hospitals in the Philippines participated through non-probability sampling. Data were gathered using a structured questionnaire assessing workload and burnout dimensions, namely emotional exhaustion, depersonalization, and reduced personal accomplishment. Frequency, percentage, weighted mean, and Pearson correlation were used in data analysis. Most respondents were 22–25 years old (60.0%), female (60.0%), single (92.5%), and had 1–3 years of experience (67.5%). The overall workload mean was 3.84, interpreted as Agree, with work pressure during peak hours obtaining the highest mean (4.17). Emotional exhaustion had the highest burnout mean (3.43), while the overall burnout mean was 3.13, interpreted as Neutral. Pearson correlation analysis revealed a significant positive relationship between workload and occupational burnout ($r = 0.61$, $p < 0.01$). The findings showed that high workload contributes mainly to emotional exhaustion among radiologic technologists. Adequate staffing, workload management, and workplace support may help reduce burnout and support employee well-being in radiology departments.

Keywords: Workload, Occupational Burnout, Radiologic Technologists, Emotional Exhaustion, Tertiary Hospitals

Introduction

Diagnostic imaging is an essential component of healthcare delivery, providing information necessary for disease detection, diagnosis, treatment planning, and emergency decision-making. Within this system, radiologic technologists perform critical clinical and technical responsibilities, including patient preparation and positioning, image acquisition, radiation protection, equipment operation, and coordination with other healthcare professionals. The quality, safety, and efficiency of imaging services therefore depend not only on technological resources but also on the capacity of radiologic technologists to perform these responsibilities consistently under demanding clinical conditions.

The increasing demand for diagnostic imaging has placed greater pressure on radiologic technologists, particularly those working in tertiary healthcare institutions. These facilities commonly manage high patient volumes and provide continuous services for emergency, inpatient, and outpatient cases. Consequently, radiologic technologists may be required to perform multiple examinations within limited periods while maintaining image quality, radiation safety, patient communication, and efficient workflow. High patient volume, prolonged working hours, inadequate staffing, multitasking, rotating schedules, and increased pressure during peak hours may collectively contribute to substantial workload demands. Understanding these demands is important because workload is not simply a measure of the amount of work performed; it may also influence the physical, psychological, and occupational well-being of healthcare personnel.

The importance of examining workload becomes more evident when considering its potential relationship with occupational burnout. Burnout represents an important occupational concern because persistent work-related demands may contribute to emotional exhaustion, reduced professional engagement, and difficulties in maintaining effective workplace functioning. Among radiologic technologists, these concerns may have implications beyond individual well-being. Emotional fatigue and prolonged occupational strain may potentially affect concentration, communication, patient interaction, job satisfaction, and the consistent delivery of safe and efficient imaging services. Thus, investigating workload and burnout can provide useful evidence for understanding how workplace conditions may affect radiologic professionals and the healthcare services they provide.

Existing evidence supports the need to examine this issue among imaging professionals. Ramalho et al. (2026) reported that radiographers experience occupational stress and burnout associated with workload pressure, staffing shortages, shift schedules, radiation-related concerns, and limited organizational support. Similarly, Kennedy et al. (2024) found that excessive workload, inadequate staffing, time pressure, and poor management were associated with burnout and lower job satisfaction among radiographers. These findings demonstrate that workload-related concerns may have consequences for both employee well-being and organizational functioning. Examining these factors among radiologic technologists can therefore help identify workplace conditions that may warrant organizational attention.

The practical utility of studying workload and occupational burnout lies in its potential to inform workplace and workforce management. Evidence regarding workload levels and their relationship with burnout may assist radiology department supervisors and hospital administrators in evaluating staffing allocation, scheduling practices, task distribution, patient flow, and workload management strategies. Rather than addressing burnout solely after symptoms have developed, identifying workload-related concerns may allow healthcare institutions to implement preventive measures that promote employee well-being and support sustainable clinical practice. Such measures may include appropriate staffing during periods of high patient demand, balanced work schedules, improved workflow systems, adequate rest periods, and stronger organizational support.

This issue is particularly relevant in the Philippine healthcare context. Tertiary hospitals in the country provide advanced diagnostic imaging services and commonly accommodate substantial patient demands. Radiologic technologists working in these institutions are expected to manage continuous imaging requests while maintaining technical accuracy, radiation protection, patient safety, and professional standards. Baloloy-Mascariñas and Acosta (2025) reported workload-related pressures and burnout concerns among radiologic technologists working in selected tertiary government hospitals in Metro Manila. These findings highlight the relevance of examining the working conditions of Filipino radiologic technologists and the potential occupational consequences of sustained workload demands.

Despite the importance of radiologic technologists in diagnostic healthcare services, research specifically examining the relationship between workload and occupational burnout among these professionals remains limited, particularly in the Philippine setting. Existing occupational burnout literature has frequently focused on other healthcare professionals, such as nurses and physicians, while comparatively fewer studies have examined the experiences of radiologic technologists. Ganzon and Calaguas (2025) likewise identified the need for further workforce-related research involving Filipino radiographers. This gap is significant because radiologic technology involves unique combinations of technical responsibilities, patient-care demands, radiation-safety requirements, equipment operation, and time-sensitive clinical procedures that may influence workload and occupational well-being differently from other healthcare professions.

The findings of such a study may be useful to several stakeholders. Radiologic technologists may benefit from increased recognition of workload-related occupational concerns and the development of workplace strategies that support their well-being. Radiology department supervisors and hospital administrators may use the findings to evaluate staffing, scheduling, task allocation, and workflow practices. Healthcare institutions and workforce planners may use the evidence to support employee-wellness initiatives and workforce-management decisions. Furthermore, future researchers may use the findings as a basis for further investigation into occupational stress, burnout, staffing, and working conditions among radiologic professionals in different healthcare settings.

More importantly, determining whether workload is significantly related to occupational burnout may provide an evidence-based basis for improving working conditions within diagnostic imaging departments. If higher workload is associated with greater burnout, healthcare institutions may have stronger justification for examining organizational factors that contribute to excessive work demands. Conversely, understanding the extent of burnout despite existing workload demands may help identify areas where radiologic technologists demonstrate resilience and effective adaptation. Therefore, examining both variables provides a more useful understanding of the occupational experiences of radiologic technologists rather than focusing exclusively on burnout as an individual problem.

Guided by the Job Demands–Resources (JD-R) Theory, the present study considers workload as an important job demand that may influence occupational well-being. The theory proposes that excessive job demands, particularly when adequate workplace resources are unavailable, may contribute to stress, fatigue, and burnout. In tertiary healthcare settings, workload demands may include high patient volume, prolonged duties, staffing limitations, multitasking, rotating schedules, and pressure during peak clinical hours. Examining these conditions among radiologic technologists may therefore provide empirical evidence regarding the relationship between workplace demands and occupational burnout.

Accordingly, this study examined the relationship between workload and occupational burnout among radiologic technologists in tertiary healthcare settings. Specifically, it sought to determine the level of workload experienced by the respondents, assess their level of occupational burnout in terms of emotional exhaustion, depersonalization, and reduced personal accomplishment, and determine whether a significant relationship exists between workload and occupational burnout. The findings are intended to provide practical evidence that may assist hospital administrators, radiology department supervisors, workforce planners, and other relevant stakeholders in developing appropriate workload-management, staffing, scheduling, and employee-support strategies. Ultimately, the study seeks to contribute to the promotion of radiologic technologists' occupational well-being while supporting safe, efficient, and sustainable diagnostic imaging services.

Theoretical Framework

This study is anchored on the Job Demands–Resources (JD-R) Theory developed by Demerouti et al. (2001). The theory explains that every occupation contains job demands and job resources that influence employee well-being and work performance. Job demands refer to aspects of work that require sustained physical, mental, or emotional effort, including workload, time pressure, prolonged duties, and multitasking responsibilities. Meanwhile, job resources pertain to workplace factors that help employees manage their responsibilities, such as staffing support, balanced scheduling, organizational assistance, and healthy work environments.

The Job Demands–Resources Theory explains that when job demands become excessive and workplace resources remain limited, employees may experience fatigue, stress, emotional strain, and burnout-related symptoms. In healthcare settings, continuous exposure to

demanding clinical responsibilities may gradually affect employee well-being, particularly among professionals assigned in fast-paced environments such as diagnostic imaging departments.

In the context of the present study, workload served as the primary job demand experienced by radiologic technologists working in tertiary healthcare institutions. Factors such as high patient volume, rotating schedules, staffing limitations, multitasking responsibilities, and pressure during peak clinical hours may contribute to occupational burnout. Burnout was examined through the dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment. Guided by the Job Demands–Resources Theory, the study assumed that increasing workload demands may contribute to higher burnout-related experiences among radiologic technologists when workplace support and recovery opportunities become insufficient.

Conceptual Framework

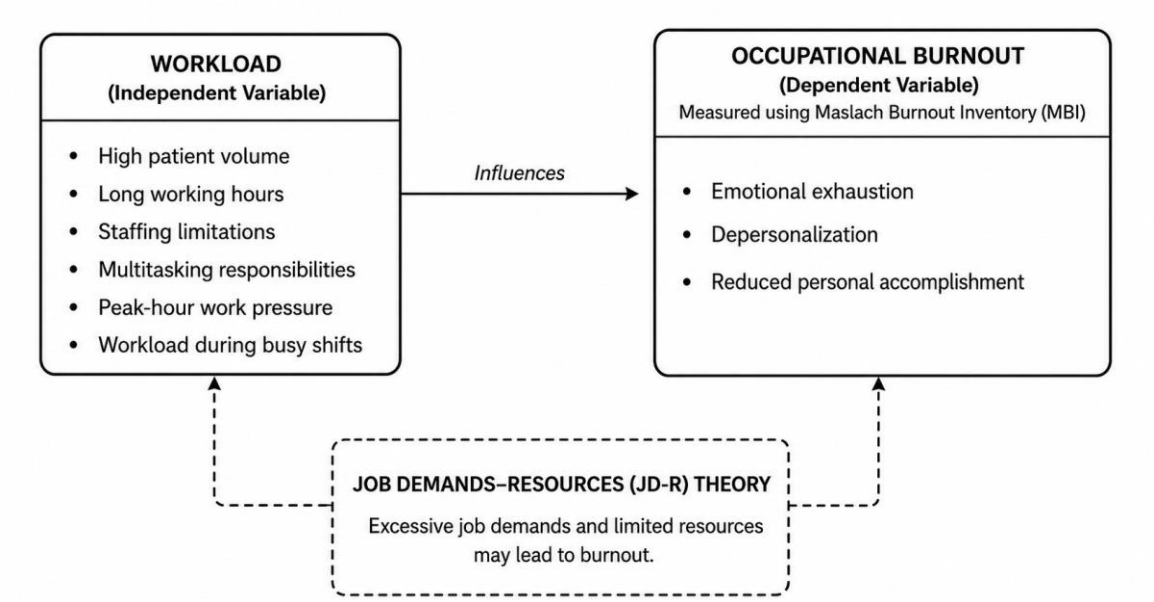

Figure 1. Conceptual Framework of The Impact Of High Workload On Occupational Burnout Among Radiologic Technologists In Tertiary Healthcare Settings

The conceptual framework of the study presents the relationship between workload and occupational burnout among radiologic technologists working in tertiary healthcare institutions. Workload served as the independent variable and included high patient volume, long working hours, staffing limitations, multitasking responsibilities, work pressure during peak hours, and workload during busy shifts. These conditions reflect the common work demands encountered in diagnostic imaging departments.

Occupational burnout served as the dependent variable and was measured using the Maslach Burnout Inventory (MBI), particularly through the dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment. The framework assumes that increasing workload demands may influence the level of burnout experienced by radiologic technologists assigned in clinical imaging settings.

The framework was guided by the Job Demands–Resources Theory of Demerouti et al. (2001), which explains that excessive work demands combined with limited workplace resources may contribute to stress and burnout-related experiences among healthcare workers. In the present study, workload-related demands were examined as factors that may affect the occupational well-being of radiologic technologists in tertiary healthcare institutions.

Hypothesis

The study tested the null and alternative hypotheses at the 0.05 level of significance to determine whether a significant relationship existed between workload and occupational burnout among radiologic technologists. The hypothesis which were statistically tested states that:

H_1: There is a significant positive relationship between workload and occupational burnout among radiologic technologists in tertiary healthcare settings.

Methodology

Research Design

This study utilized a quantitative descriptive-correlational research design. The design was considered appropriate because it described the workload and occupational burnout experienced by radiologic technologists and determined whether a significant relationship existed between the identified variables without manipulating study conditions.

Research Setting

The study was conducted in selected tertiary healthcare hospitals in the Philippines that provide advanced diagnostic imaging services and accommodate high patient volume. These institutions operate continuously and commonly manage emergency, inpatient, and outpatient imaging procedures.

Participants

The respondents of the study were licensed radiologic technologists currently assigned in diagnostic imaging departments of selected tertiary healthcare institutions. A total of forty (40) respondents participated in the study. Participants were selected through non-probability sampling based on the following inclusion criteria: currently employed as a radiologic technologist, actively performing clinical duties, and directly involved in imaging services during the conduct of the study.

Research Instrument

The researchers utilized a structured questionnaire as the primary data-gathering instrument. The questionnaire consisted of three (3) parts. Part I determines the demographic and work-related information of the respondents. Part II assessed workload indicators, including patient volume, working hours, staffing adequacy, multitasking, and workload management during busy shifts.

Part III assessed occupational burnout in terms of emotional exhaustion, depersonalization, and reduced personal accomplishment.

The questionnaire utilized a five-point Likert scale to determine the respondents' level of agreement with each statement included in the study. The scale and corresponding verbal interpretations are presented below:

Interpretation Guide for 5-point Likert Scale (Bhandari & Nikolopoulou, 2023)

Scale	**Range**	**Verbal Interpretation**
5	4.21 – 5.00	Strongly Agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Neutral
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly Disagree

The weighted mean obtained from each indicator and variable was interpreted using the corresponding verbal interpretation shown in the table above.

Content Validation and Reliability Analysis

The questionnaire underwent content validation by professionals with expertise in research methodology and radiologic technology practice to ensure the clarity, relevance, organization, and appropriateness of the questionnaire items. The validators reviewed the instrument and provided recommendations for improvement prior to the final administration of the questionnaire.

To determine the internal consistency and reliability of the instrument, Cronbach's alpha coefficient was utilized. Cronbach's alpha is a statistical measure commonly used to evaluate the reliability and consistency of questionnaire items within a research instrument. A higher Cronbach's alpha value indicates better internal consistency among the indicators included in the questionnaire.

Interpretation Guide for Cronbach's Alpha Reliability Coefficient cited from (Zakariya, 2022)

Cronbach's Alpha Coefficient	**Interpretation**
≥ .90	Excellent
≥ .80	Good
≥ .70	Acceptable
≥ .60	Questionable
≥ .50	Poor
< .50	Unacceptable

To determine the internal consistency and reliability of the instrument, Cronbach's alpha coefficient was utilized. The questionnaire obtained a Cronbach's alpha coefficient of 0.88, interpreted as Good reliability. The result indicates that the questionnaire items

demonstrated strong internal consistency and were considered appropriate for data collection. The obtained reliability coefficient suggests that the instrument produced stable and consistent responses in measuring workload and occupational burnout among radiologic technologists.

Data Collection Procedure

Prior to data collection, permission to conduct the study was secured from the appropriate institutions and respondents. The questionnaire was distributed electronically through Google Forms. Eligible participants were informed regarding the purpose of the study, voluntary participation, confidentiality of responses, and their right to withdraw from participation at any time. Respondents completed the questionnaire voluntarily, and responses were automatically recorded in a secured database accessible only to the researchers.

Data Analysis

The collected data were analyzed using descriptive and inferential statistics. Frequency and percentage were utilized to describe the demographic profile of the respondents. Weighted mean was used to determine the level of workload and occupational burnout experienced by the respondents. Pearson correlation coefficient was utilized to determine whether a significant relationship existed between workload and occupational burnout. Statistical significance guided the interpretation of the findings.

Frequency Formula

f = number of responses in a category

Percentage Formula

$$P = (f / N) \times 100$$

Where:

P = Percentage
f = Frequency
N = Total Number of Respondents

Weighted mean was utilized to determine the level of workload and occupational burnout experienced by the respondents. It was also used to assess the respondents' level of agreement with each statement included in the questionnaire.

Weighted Mean Formula

$$WM = \Sigma fx / N$$

Where:

WM = Weighted Mean
Σfx = Sum of the product of frequency and corresponding scale value N = Total Number of Respondents

Pearson Product-Moment Correlation Coefficient was employed to determine whether a significant relationship existed between workload and occupational burnout among radiologic technologists.

Pearson r Formula

$$r = [N(\Sigma XY) - (\Sigma X)(\Sigma Y)] / \sqrt{[N(\Sigma X^2) - (\Sigma X)^2][N(\Sigma Y^2) - (\Sigma Y)^2]}$$

Where:

r = Pearson correlation coefficient X = Workload scores Y = Occupational burnout scores N = Number of respondents

The **level of significance** was set at **0.05**. A p-value lower than 0.05 indicated a statistically significant relationship, while a p-value greater than 0.05 indicated no statistically significant relationship between workload and occupational burnout.

Ethical Consideration

Before the conduct of the study, approval and permission were secured from the appropriate institutions and hospital authorities to ensure that the study followed accepted ethical standards for research involving human participants.

Participation in the study was voluntary. The respondents were informed about the purpose of the study, the nature of their participation, and their right to decline or withdraw at any point without consequence. Informed consent was obtained from all participants before the distribution of the questionnaire.

Confidentiality and privacy were strictly observed throughout the study. The researchers did not collect or disclose personal identifiers that could reveal the identity of the respondents. All information gathered from the participants was treated with confidentiality and was used solely for academic and research purposes.

The study involved no invasive procedure and posed minimal risk to the respondents. The questionnaire focused only on workload and burnout-related experiences encountered in the workplace. All collected data were stored securely and were accessible only to the researchers during the conduct of the study.

Results and Discussion

This chapter presents the results and discussion of the study based on the responses of 40 radiologic technologists. The data include the respondents' demographic and work-related profile, workload assessment, and burnout-related indicators in terms of emotional exhaustion, depersonalization, and reduced personal accomplishment. The results are presented using frequency, percentage, weighted mean, and verbal interpretation.

Part 1. Profile of the Respondents

Table 1

Distribution of Respondents According to Age

Age	Frequency	Percentage
22-25 years old	24	60.0%
26-30 years old	15	37.5%
30 years old and above	1	2.5%
Total	40	100.0%

Table 1 presents the distribution of respondents according to age. Most respondents belonged to the 22–25 years old age group, comprising 60.0% of the total population, followed by those aged 26–30 years old with 37.5%. Only 2.5% were aged 30 years old and above. The findings indicate that most respondents were young radiologic technologists in the early stage of their professional careers.

The predominance of younger respondents suggests that many are still adjusting to the demands of hospital-based clinical practice, including rotating schedules, increasing patient responsibilities, and workload pressure. Due to limited professional experience, younger healthcare workers may still be developing workplace efficiency and coping strategies in managing physically and mentally demanding responsibilities.

The findings support the study of Kennedy et al. (2024), which reported that early-career radiographers commonly experience workplace pressure associated with high workload demands and time-sensitive responsibilities. Similarly, Akudjedu et al. (2021) noted that younger radiologic professionals may be more vulnerable to occupational stress because of continuous exposure to demanding healthcare environments and limited clinical experience.

Table 2

Distribution of Respondents According to Sex

Sex	Frequency	Percentage
Male	16	40.0%
Female	24	60.0%
Total	40	100.0%

Table 2 shows the distribution of respondents according to sex. Female respondents comprised the majority of the study population with 60.0%, while male respondents accounted for 40.0%. The findings indicate that female radiologic technologists were more represented among the respondents during the conduct of the study.

The greater representation of female respondents suggests that women constitute a substantial portion of the radiologic technology workforce in the selected tertiary healthcare institutions. Regardless of sex, radiologic technologists are routinely exposed to demanding clinical responsibilities such as patient handling, prolonged standing, imaging procedures, and time-sensitive tasks. These working conditions may contribute to physical and emotional strain among imaging professionals assigned in high-demand healthcare environments.

The findings may be interpreted by Arif (2024), who reported that female radiographers comprised a considerable portion of the imaging workforce and were commonly exposed to workload-related pressure and burnout concerns in clinical settings. Similarly, Shubayr & Alashban (2024) noted that radiologic technologists frequently encounter occupational stress associated with workplace demands, staffing concerns, and continuous imaging responsibilities in hospital environments.

Table 3
Distribution of Respondents According to Civil Status

Civil Status	Frequency	Percentage
Single	37	92.5%
Married	3	7.5%
Total	40	100.0%

Table 3 presents the distribution of respondents according to civil status. Most of the respondents were single, comprising 92.5% of the total population, while only 7.5% were married. The findings show that the respondents were predominantly unmarried during the conduct of the study.

The result may be associated with the relatively young age profile of the respondents, wherein many are still establishing their professional careers in clinical practice. Radiologic technologists assigned in hospital settings are commonly exposed to demanding schedules, prolonged duty hours, and continuous patient care responsibilities. These conditions may affect personal routines and work–life balance regardless of civil status.

The findings are comparable to the study of Lemon et al. (2023), which noted that radiographers working in demanding healthcare environments commonly experience occupational stress associated with workplace responsibilities, organizational demands, and changing work schedules. The study further emphasized that workload-related pressure remains evident among healthcare imaging professionals exposed to continuous clinical duties.

Table 4
Distribution of Respondents According to Years of Experience as a Radiologic Technologist

Years of Experience	Frequency	Percentage
Less than 1 year	8	20.0%
1-3 years	27	67.5%
4-7 years	2	5.0%
8-10 years	2	5.0%
10 years and above	1	2.5%
Total	40	100.0%

Table 4 presents the distribution of respondents according to years of experience as radiologic technologists. The findings revealed that respondents with 1–3 years of experience obtained the highest percentage, comprising 67.5% of the total population. In contrast, respondents with 10 years and above of experience registered the lowest

percentage at 2.5%. The results indicate that most of the participants were relatively early in their professional careers.

The high proportion of respondents with limited clinical experience suggests that many are still adapting to the demands of radiologic practice in hospital settings. Early-career radiologic technologists are commonly exposed to continuous patient interaction, technical responsibilities, and demanding workloads that require adjustment and development of workplace efficiency. On the other hand, the small number of respondents with longer professional experience may indicate workforce turnover, career advancement to other roles, or fewer senior personnel assigned in the selected institutions.

The findings can be attributed to Sipos et al. (2024), who reported that radiographers with fewer years of experience commonly encounter increased occupational stress associated with workload demands and fast-paced clinical environments. The study further noted that less experienced imaging professionals may require greater workplace adaptation and coping strategies while managing clinical responsibilities in healthcare institutions.

Table 5
Distribution of Respondents According to Employment Status

Employment Status	**Frequency**	**Percentage**
Probationary	12	30.0%
Regular	27	67.5%
Job Order	1	2.5%
Total	40	100.0%

Table 5 presents the distribution of respondents according to employment status. Regular employees obtained the highest percentage at 67.5%, while job order personnel recorded the lowest percentage at 2.5%. Probationary employees accounted for 30.0% of the respondents. The findings show that most radiologic technologists included in the study had regular employment status.

The high number of regular employees suggests that many respondents have fixed roles in their respective departments and are continuously involved in patient care and imaging services. Even with stable employment, workload concerns may still occur because radiologic technologists remain exposed to patient volume, shift schedules, and clinical responsibilities. On the other hand, the small number of job order personnel may reflect limited temporary staffing in the selected hospitals.

The findings aligned with Elshami et al. (2020), who reported that radiology workers experienced changes in workload, workplace pressure, and anxiety during demanding clinical periods. Their study also noted that radiology staff continued to perform essential imaging duties
despite increased work demands, showing that employment status alone does not remove the possibility of occupational strain in hospital imaging departments.

Table 6
Distribution of Respondents According to Work Shift Type

Work Shift Type	Frequency	Percentage
7 AM-3 PM	3	7.5%
3 PM-11 PM	0	0.0%
11 PM-7 AM	0	0.0%
Rotating/Changing Shift	32	80.0%
Others	5	12.5%
Total	40	100.0%

Table 6 presents the distribution of respondents according to work shift type. Respondents assigned to rotating or changing shifts comprised the highest percentage at 80.0%, while no respondents were assigned exclusively to the 3 PM–11 PM and 11 PM–7 AM schedules. The findings indicate that most radiologic technologists in the selected healthcare institutions worked under varying duty schedules based on operational needs.

The large number of respondents assigned to rotating shifts suggests frequent adjustment to changing work hours and clinical demands. In tertiary healthcare settings, radiologic technologists are commonly required to provide continuous imaging services for emergency, inpatient, and outpatient cases. Repeated exposure to changing schedules may affect rest patterns, physical recovery, and workplace performance, particularly among personnel assigned in busy imaging departments.

The findings are comparable to the study of Elliott et al. (2024), which reported that mixed shift rotations and irregular schedules may contribute to fatigue, sleep disturbance, and burnout-related symptoms among healthcare imaging professionals. The study further emphasized that changing work schedules may influence the overall well-being of personnel exposed to continuous clinical responsibilities and demanding workloads.

Table 7
Distribution of Respondents According to Hospital Type

Hospital Type	Frequency	Percentage
Private	33	82.5%
Government	7	17.5%
Total	40	100.0%

Table 7 presents the distribution of respondents according to hospital type. Respondents employed in private hospitals recorded the highest percentage at 82.5%, while those assigned in government hospitals accounted for 17.5%. This shows that most respondents were working in private healthcare institutions during the conduct of the study.

The higher number of respondents from private hospitals may reflect the distribution of participants across the selected study sites. Radiologic technologists in government hospitals are often involved in continuous diagnostic imaging services, patient assistance, equipment operation, and time-sensitive procedures. Differences in staffing, patient volume, and institutional workflow may also affect the daily workload of imaging personnel.

The findings may be supported by Shubayr and Alshamrani (2022), who reported that radiologic technologists in hospital settings experience occupational burnout symptoms linked with work conditions, job satisfaction, and workplace demands. This supports the view that hospital type and work setting may shape the workload experiences of radiologic technologists.

Table 8
Distribution of Respondents According to Assigned Area

Assigned Area	Frequency	Percentage
X-ray	17	42.5%
CT Scan	10	25.0%
MRI	2	5.0%
Ultrasound	6	15.0%
NucMed	1	2.5%
Others	4	10.0%
Total	40	100.0%

Table 8 presents the distribution of respondents according to assigned area. X-ray obtained the highest percentage at 42.5%, while Nuclear Medicine recorded the lowest percentage at 2.5%. The results show that most respondents were assigned to general radiographic services, while only a small portion worked in a highly specialized imaging area.

The greater number of respondents assigned in X-ray may be linked to the frequent use of general radiography in hospital settings. X-ray departments commonly handle routine, emergency, inpatient, and outpatient examinations, which may increase patient contact and daily workload. In contrast, Nuclear Medicine usually requires specialized procedures, specific equipment, and fewer assigned personnel compared with general imaging areas.

McNulty and Zarb (2025) emphasized that radiographers work across medical imaging, nuclear medicine, and radiotherapy, with staffing needs affected by workload, equipment availability, service demand, and role requirements. This supports the finding that assigned imaging areas may differ in staff distribution and workload exposure.

Part 2. Workload Assessment

The respondents rated each workload statement using a five-point scale: 1 = Strongly Disagree, 2= Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.Scale and Verbal Interpretation

Scale	Range	Verbal Interpretation
5	4.21-5.00	Strongly Agree
	3.41-4.20	Agree
3	2.61-3.40	Neutral
2	1.81-2.60	Disagree
1	1.00-1.80	Strongly Disagree

Table 9

Workload Assessment of the Respondents

Workload Statement	Weighted Mean	Verbal Interpretation
I handle a high number of patients during my shift.	4.05	Agree
My working hours are long and physically demanding.	3.67	Agree
Staffing is not enough to manage patient volume.	3.92	Agree
I perform multiple tasks within a limited time.	3.80	Agree
Work pressure increases during peak hours.	4.17	Agree
I often finish tasks beyond my scheduled duty hours.	3.73	Agree
I experience difficulty managing workload during busy shifts.	3.52	Agree
Overall Mean	3.84	Agree

Table 9 presents the workload assessment of the respondents. The overall weighted mean was 3.84, interpreted as Agree, showing that the respondents generally experienced workload-related demands in their workplace. The highest-rated item was "Work pressure increases during peak hours," with a weighted mean of 4.17. The lowest-rated item was "I experience difficulty managing workload during busy shifts," with a weighted mean of 3.52. Although it received the lowest mean, it was still interpreted as Agree.

The highest result suggests that peak hours place greater pressure on radiologic technologists because of increased patient volume, urgent imaging requests, and the need to complete procedures within limited time. The lowest result may indicate that although respondents experience difficulty during busy shifts, they may still be able to manage their duties through routine practice, teamwork, and work experience. However, the overall result still shows that workload remains a concern among the respondents.

Arif et al. (2024) reported that workload and work-related factors were associated with burnout and perceived stress among radiographers. Their study noted that radiographers experience pressure from clinical duties, patient care demands, and work conditions, which may affect performance and well-being. This supports the present finding that workload demands are evident among radiologic technologists, especially during periods of increased departmental activity.

Part 3. Burnout-Related Indicators

Table 10

Emotional Exhaustion Among Respondents

Emotional Exhaustion Statement	Weighted Mean	Verbal Interpretation
I feel emotionally drained after work.	3.70	Agree
I feel tired when I start my shift.	3.15	Neutral
I feel overwhelmed by work demands.	3.45	Agree
Overall Mean	3.43	Agree

Table 10 presents the level of emotional exhaustion among the respondents. The overall weighted mean was 3.43, interpreted as Agree. The highest-rated item was "I feel emotionally drained after work," with a weighted mean of 3.70, while the lowest-rated item was "I feel tired when I start my shift," with a weighted mean of 3.15 interpreted as Neutral. The results show that emotional exhaustion was more evident after duty than before the start of the shift.

The high rating for feeling emotionally drained after work may be related to continuous patient interaction, repeated imaging procedures, time pressure, and the need to maintain accuracy throughout the shift. The lower rating for feeling tired before duty suggests that some respondents may still begin work with enough energy, but fatigue becomes more apparent after completing their clinical responsibilities.

Gransjøen et al. (2024) reported that stress and burnout among radiological personnel may affect both staff well-being and patient care, with workplace demands contributing to emotional strain. This supports the present finding that emotional exhaustion among radiologic technologists is closely linked with demanding clinical duties and daily workload exposure.

Table 11

Depersonalization Among Respondents

Depersonalization Statement	Weighted Mean	Verbal Interpretation
I feel less concerned about patients than before.	2.83	Neutral
I feel detached during work interactions.	2.90	Neutral
I treat patients in a mechanical way.	3.40	Neutral
Overall Mean	3.04	Neutral

Table 11 presents the level of depersonalization among the respondents. The overall weighted mean was 3.04, interpreted as Neutral. The highest-rated item was "I treat patients in a mechanical way," with a weighted mean of 3.40, while the lowest-rated item was "I feel less concerned about patients than before," with a weighted mean of 2.83. The findings show that depersonalization was not strongly present among the respondents, although some signs of routine or task-focused patient interaction were observed.

The higher rating for treating patients in a mechanical way may be linked to repeated imaging procedures, high patient volume, and limited time for longer patient interaction during busy shifts. However, the lower rating for reduced concern toward patients suggests that the respondents still maintained care and professional responsibility despite workplace pressure.

Alsultan et al. (2024) reported that radiographers showed moderate depersonalization scores, while emotional exhaustion and personal accomplishment also remained important burnout indicators. This supports the present finding that depersonalization may appear in radiologic practice, but it may not always be the strongest burnout concern among imaging professionals.

Table 12
Reduced Personal Accomplishment Among Respondents

Reduced Personal Accomplishment Statement	**Weighted Mean**	**Verbal Interpretation**
I feel like I am not achieving meaningful work results.	3.12	Neutral
I feel less effective in my job.	2.77	Neutral
I feel like my skills are not fully used at work.	2.80	Neutral
Overall Mean	2.90	Neutral

Table 12 shows the level of reduced personal accomplishment among the respondents. The overall weighted mean was 2.90, interpreted as Neutral. The highest-rated item was "I feel like I am not achieving meaningful work results," with a weighted mean of 3.12, while the lowest-rated item was "I feel less effective in my job," with a weighted mean of 2.77. The findings indicate that reduced personal accomplishment was not strongly evident among the respondents.

The higher rating for not achieving meaningful work results may be linked to repeated clinical routines, heavy patient load, and pressure to complete imaging procedures within limited time. However, the lower rating for feeling less effective suggests that most respondents still recognized their ability to perform their duties. This may mean that although workload affects their emotional condition, many respondents still maintain confidence in their role as radiologic technologists.

Alakhras et al. (2022) reported that radiographers experienced burnout concerns linked with job satisfaction and workplace demands. Their study also used the Maslach Burnout Inventory, which includes personal accomplishment as one of the burnout dimensions. This supports the present finding that personal accomplishment remains an important part of assessing burnout among radiologic technologists.

Table 13
Summary of Burnout-Related Indicators

Burnout Dimension	Overall Mean	Verbal Interpretation
Emotional Exhaustion	3.43	Agree
Depersonalization	3.04	Neutral
Reduced Personal Accomplishment	2.90	Neutral
Overall Burnout Mean	3.13	Neutral

Table 13 summarizes the burnout-related indicators among the respondents. The overall burnout mean was 3.13, interpreted as Neutral, indicating that the respondents generally experienced a moderate level of burnout-related symptoms. Among the three burnout dimensions, emotional exhaustion obtained the highest overall mean of 3.43 interpreted as Agree, while reduced personal accomplishment registered the lowest overall mean of 2.90 interpreted as Neutral. The findings suggest that emotional fatigue was the most noticeable burnout-related experience among the respondents.

The higher mean for emotional exhaustion may be associated with continuous patient interaction, demanding imaging procedures, workload pressure, and prolonged clinical responsibilities commonly encountered in hospital-based imaging departments. In contrast, the lower mean for reduced personal accomplishment suggests that many respondents still maintained confidence in their professional skills and responsibilities despite workplace demands. Although burnout-related symptoms were present, the findings indicate that respondents generally remained engaged in their work and patient care duties.

The findings are supported by Gransjøen et al. (2024), who reported that emotional exhaustion was one of the most commonly observed burnout dimensions among radiological personnel exposed to demanding workplace conditions and continuous clinical responsibilities. Their review further noted that depersonalization and reduced personal accomplishment may occur at lower levels when healthcare workers continue to maintain professional commitment and confidence in their clinical roles.

Table 14
Significant Relationship Between Workload and Occupational Burnout

Variables	Pearson r-value	p-value	Interpretation	Decision
Workload and Occupational Burnout	0.61	< 0.01	Significant Positive Relationship	Reject Null Hypothesis

The correlation result (r = 0.61) showed a moderate-to-strong positive relationship between workload and occupational burnout among radiologic technologists. This indicates that respondents who experienced heavier workload also tended to report higher burnout-related experiences. Increased patient volume, prolonged duties, staffing concerns, multitasking responsibilities, and pressure during busy clinical hours may contribute to physical and emotional train among imaging personnel. Repeated exposure to these workplace demands may gradually affect employee well-being, particularly emotional exhaustion, which obtained the highest burnout mean in the study. The result is similar to the findings of Kennedy et al. (2024), who reported that excessive workload

and inadequate staffing were associated with burnout and lower workplace well-being among radiographers. The findings also support the Job Demands–Resources (JD-R) Theory of Demerouti et al. (2001), which explains that excessive job demands may contribute to stress and burnout when workplace support becomes limited.

Discussion

This section discusses the findings of the study regarding workload and occupational burnout among radiologic technologists in tertiary healthcare institutions. It presents the interpretation and analysis of the results, integration of related literature, theoretical support, and practical implications based on the findings of the study.

The study showed that radiologic technologists working in tertiary healthcare institutions experienced considerable workload demands during their clinical duties. The overall workload mean was interpreted as Agree, indicating that the respondents were regularly exposed to high patient volume, prolonged duties, multitasking responsibilities, staffing concerns, and pressure during busy clinical hours. Among the workload indicators, pressure during peak hours obtained the highest mean, suggesting that respondents experienced greater strain when several imaging requests had to be accommodated simultaneously within limited periods.

The present results suggest that workload demands in radiology departments extend beyond the performance of routine imaging procedures. Radiologic technologists are required to manage patient positioning, operate imaging equipment, accommodate emergency requests, and maintain imaging accuracy while working within time-sensitive clinical settings. In tertiary hospitals where imaging services operate continuously, repeated exposure to these demands may contribute to physical fatigue and emotional strain, particularly during periods of increased departmental activity.

The study further revealed that the overall burnout level of the respondents was interpreted as Neutral. However, among the burnout dimensions, emotional exhaustion obtained the highest mean, while depersonalization and reduced personal accomplishment remained at a neutral level. The findings indicate that although severe burnout symptoms were not strongly manifested, signs of emotional fatigue were already evident among the respondents.This suggests that emotional exhaustion may accumulate progressively throughout clinical duties as workload demands and operational pressures persist during the shift.

The high rating for emotional exhaustion may be associated with continuous patient interaction, repeated imaging procedures, prolonged concentration, and pressure to complete examinations efficiently throughout the shift. Although respondents generally maintained professional engagement and confidence in their clinical responsibilities, persistent exposure to demanding workplace conditions may gradually affect emotional well-being when experienced over extended periods. The relatively lower means observed in depersonalization and reduced personal accomplishment suggest that the respondents continued to maintain patient concern and professional commitment despite workplace strain.

The statistical analysis revealed a significant positive relationship between workload and occupational burnout ($r = 0.61$, $p < 0.01$). The correlation indicates a moderate-to-strong positive relationship, which means that respondents who experienced heavier workload also tended to report higher burnout-related experiences. This implies that increasing patient demands, staffing limitations, multitasking responsibilities, prolonged duties, and pressure during peak hours collectively contribute to emotional and occupational strain among radiologic technologists.

The results are consistent with Kennedy et al. (2024), who reported that excessive workload, limited staffing, and time pressure contribute to burnout and reduced workplace well-being among radiographers. Similarly, Arif et al. (2024) explained that radiographers exposed to demanding clinical environments commonly experience stress and burnout associated with patient care responsibilities and operational workload. Gransjøen et al. (2024) likewise identified emotional exhaustion as one of the most common burnout dimensions among radiological personnel exposed to continuous workplace demands. The similarity between the present findings and previous studies strengthens the evidence that workload remains a major occupational concern among radiologic professionals working in healthcare institutions.

Similar observations were reported by Baloloy-Mascariñas and Acosta (2025), who found that radiologic technologists in tertiary hospitals experienced workload-related concerns linked with increasing patient demands and workplace responsibilities. Their observed results emphasized that continuous exposure to demanding clinical conditions may negatively affect employee well-being and contribute to workplace strain among imaging personnel. These related studies further support the present findings that workload remains an important factor affecting the occupational well-being of radiologic technologists, particularly in tertiary healthcare settings where imaging services are continuously required.

The outcome of the study may also be interpreted through the Job Demands–Resources (JD-R) Theory of Demerouti et al. (2001), which explains that excessive job demands combined with insufficient workplace resources may contribute to stress and burnout. In the present study, workload-related factors such as high patient volume, rotating schedules, multitasking responsibilities, prolonged duties, and staffing concerns served as major job demands requiring sustained physical, emotional, and mental effort from radiologic technologists. When these demands persist without sufficient workplace support, adequate staffing, and recovery opportunities, emotional exhaustion may gradually develop among healthcare personnel. The significant positive relationship identified in the study therefore supports the assumption of the JD-R Theory that increasing job demands are associated with higher occupational strain and burnout-related experiences.

From a practical perspective, the pattern observed among respondents emphasize the importance of strengthening workload management practices within radiology departments. Since pressure during peak hours and emotional exhaustion emerged as major concerns, healthcare institutions may benefit from implementing balanced staffing allocation, improved scheduling systems, and workflow management practices that

reduce excessive workload concentration during busy clinical periods. Providing adequate rest periods, supportive workplace environments, and wellness initiatives may help reduce emotional fatigue and promote the well-being of radiologic technologists assigned in demanding imaging settings.

The results of the study may further guide hospital administrators and department supervisors in developing institutional policies focused on workforce welfare, workload monitoring, and employee support. Addressing workload-related concerns may help improve workplace conditions, maintain employee well-being, support workforce retention, and promote safe and efficient diagnostic imaging services within tertiary healthcare institutions.

Recommendations

Based on the findings of the study, the following recommendations are proposed to help address workload-related concerns and support the well-being of radiologic technologists working in tertiary healthcare settings:

Strengthen staffing during peak hours

Hospital administrators and radiology department supervisors may consider assigning additional personnel during periods of increased patient volume. Adequate staffing may help reduce work pressure, improve workflow efficiency, and lessen the burden placed on individual radiologic technologists during busy clinical hours.

Review work shift schedules

Since most respondents were assigned to rotating or changing shifts, healthcare institutions may review existing scheduling practices to ensure sufficient rest periods between duties. More balanced scheduling may help reduce fatigue, improve recovery time, and support employee well-being.

Monitor workload distribution within imaging departments

Department supervisors may regularly assess task allocation and patient assignments to avoid excessive workload among specific personnel. Fair distribution of responsibilities may help lessen workplace strain and improve daily work management within imaging sections.

Promote supportive workplace practices

Radiology departments may strengthen communication and teamwork among staff members. Regular workplace support from supervisors and colleagues may help reduce emotional fatigue and improve the overall work environment for radiologic technologists.

Provide employee wellness and stress management activities

Hospitals may conduct seminars, workshops, or wellness programs focused on stress management, mental well-being, and healthy coping practices. These activities may help radiologic technologists better manage workplace demands and emotional stress associated with clinical responsibilities.

Improve workflow and patient scheduling systems

Radiology departments may review patient scheduling procedures, workflow organization, and imaging coordination during busy periods. More organized workflow practices ay help reduce delays, improve efficiency, and lessen workload pressure among imaging personnel.

Observe early signs of emotional exhaustion

Since emotional exhaustion emerged as the most evident burnout-related concern, healthcare institutions may regularly monitor staff members for signs of fatigue, stress, and emotional strain. Early recognition of these concerns may help prevent the progression of more serious burnout-related conditions.

Encourage regular employee feedback

Hospital management may provide opportunities for radiologic technologists to communicate concerns regarding workload, staffing, scheduling, and workplace conditions. Employee feedback may assist administrators in identifying operational concerns and developing practical workplace improvements.

Support future workforce-related studies in radiologic technology

Future researchers may conduct similar studies involving larger sample sizes, additional healthcare institutions, and other imaging specialties. Further investigation may provide broader information regarding workload, burnout, and workplace conditions among radiologic technologists in different clinical settings.

Develop workplace policies focused on employee well-being

Healthcare institutions may consider strengthening policies related to employee welfare, rest periods, workload monitoring, and workplace support systems. These measures may help maintain workforce stability, improve job satisfaction, and support safe and efficient radiologic practice.

Conclusion for Discussion and Recommendations

The study shows that radiologic technologists experience a demanding workload, especially during peak hours, busy shifts, and situations where staffing is insufficient. Although the overall burnout level was neutral, emotional exhaustion was already present among the respondents. This means that workload is beginning to affect their emotional well-being.

Therefore, hospital administrators and radiology supervisors should take steps to manage workload, improve staffing, provide proper rest periods, and support the mental and emotional health of radiologic technologists. Addressing these concerns can help maintain employee well-being, improve work performance, and ensure quality patient care.

Summary of Key Results Used as Basis for Discussion

Area	Result	Interpretation
Overall Workload	3.84	Agree
Highest Workload Item	Work pressure increases during peak hours: 4.17	Agree
Emotional Exhaustion	3.43	Agree
Depersonalization	3.04	Neutral
Reduced Personal Accomplishment	2.90	Neutral
Overall Burnout-Related Mean	3.13	Neutral

Conclusion

The findings of the study showed that radiologic technologists assigned in tertiary healthcare institutions experience considerable workload demands associated with high patient volume, rotating schedules, multitasking responsibilities, staffing limitations, and pressure during peak clinical hours. Emotional exhaustion emerged as the most evident burnout-related concern among the respondents, indicating that continuous exposure to demanding workplace conditions may already affect the emotional well-being of radiologic technologists in diagnostic imaging departments.

Despite these workplace demands, depersonalization and reduced personal accomplishment remained at a neutral level. The findings suggest that many respondents continue to maintain professional engagement, patient concern, and confidence in performing their clinical responsibilities despite experiencing workload-related strain.

Statistical analysis confirmed a significant positive relationship between workload and occupational burnout among radiologic technologists. The findings indicate that increasing workload is associated with higher burnout-related experiences, particularly emotional exhaustion. This supports the Job Demands–Resources Theory, which explains that excessive job demands combined with limited workplace resources may contribute to occupational stress and burnout among healthcare professionals.

The study emphasizes the importance of effective workload management, adequate staffing, balanced scheduling, and supportive workplace practices within radiology departments. Strengthening these areas may help reduce emotional fatigue, support employee well-being, improve workplace conditions, and maintain safe and quality diagnostic imaging services in tertiary healthcare institutions.

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