

HEALTH PROBLEMS AMONG RADIOGRAPHERS: AN EMPIRICAL STUDY IN PRIVATE HOSPITALS

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Abstract:

Diagnosis is essential in health care management, because upon the results of diagnosis doctors and surgeons decide their treatment plan. Accurate diagnosis of the diseases is crucial to initiate the right treatment whereas inaccurate diagnosis will cause negative outcome, which will put patients at risk. Radiographers play a crucial role in diagnostic profession and contribute to the medical personnel to diagnose the diseases accurately. At the same time, radiographers, among other categories of paramedical employees in the health care sector, are more vulnerable to numerous health related issues (varying from headache to cancer in light of their nature of job – continuous exposure to high radiation rays). It not only endangers their physical health, but also impinges on their mental health. Sound health of radiographers is paramount to support them delivering productive outcomes, which assists the medical personnel to diagnose the underlying diseases of patients accurately and initiate the right treatment. On the contrary, the ill-health of radiographers not only distresses their own health and stakes the routine function of the department. It can also be a main source of reason for the inaccurate diagnosis by the medical personnel, which will eventually endanger the treatment of patients and also put the reputation of organizations at risk. Thus, since the health problems of radiographers remain a serious threat to patients and reputation of organizations, it is inevitable to analyse their health issues and find out the appropriate ways to prevent them from occurring. In view of this concept, this survey based on descriptive research has been undertaken in Tirunelveli City, Tamil Nadu with the objective of examining various health problems of radiographers working in private multi-speciality hospitals. In order to know the health-related problems, the present study has examined nine variables related to both physical and mental health. The study has sampled 60 radiographers using both convenience and judgement sampling techniques. Primary data for the study have been collected using the questionnaire method. Secondary data have been collected from books, journals and websites. Percentage has been administered to understand perception of radiographers towards various health-related problems. The result of the study has discovered that tiredness and low energy, body pain, difficulties in sleeping, depression, anger, emotional disturbances and digestive disorders are the foremost health-related problems. Skin and eye problems, urinary tract infection, diabetes mellitus and hypertension, irregular menstruations, weight loss and hair loss are the next foremost health-related problems of radiographers. The perception of the respondents to the discussed variables is moderate.

Keywords: radiographer; health; multi-speciality hospital; Tirunelveli City.

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1. Introduction

Background to the study

Multi-speciality hospitals consist of many medical disciplines: cardiology, neurology, gastroenterology, nephrology, urology, ophthalmology, dermatology, pulmonology, rheumatology, gynaecology. In addition, there are routine paramedical services: laboratory, blood bank, radiography, medical records, pharmacy. Also, they have non-medical departments: front office, accounting, security, housekeeping, administrative departments, maintenance, cafeteria. Since multi-speciality hospital has various disciplines and departments, the coordinated and cooperative nature of work from all employees is crucial. One department actually functions as an internal customer of another department. Thus, the fullest integrated way of functions is paramount for smooth functioning of any department.

However, numbers of patients coming to multi-speciality hospitals are huge, and numbers of employees working in multi-speciality hospitals are also large in numbers. Hence, it remains tough to coordinate functions of all employees of different departments. Similarly, the problems arising both from the side of both employees and patients are also huge in multi-speciality hospitals.

Radiographers are paramedical category of employees, who chiefly assist medical personnel to both diagnose the diseases and deformity, and to identify the treatment prognosis. In the current highly technologically progressed medical field, medical personnel are entirely depending on technologies to discover the causes and severity of the medical conditions, both to begin the treatment and to check the recovery of the same conditions after the treatment.

The radiography field is one of the examples of abundant growth of technology in the medical field. The current diagnosing is not possible without radiography: X-ray, CT and MRI scanning. At the same time, among other paramedical employees, radiographers are highly vulnerable. They are exposed to health-related issues due to their nature of job, which is highly radiation-related. Moreover, since the number of patients treated in multi-speciality hospitals is relatively larger with a need for radiography diagnosis, radiographers remain busy all the time in a work day, and the workload of them also remains generally high.

Today, results given by radiographers play a major role in deciding the treatment protocols of doctors. Therefore, the pressure of radiographers is actually high all the time in a day. Especially, when accident patients arrive at the hospital or immediate uncertain situations occur (e.g. collapse, sudden cardiac arrest, immediate surgery), the workload of radiographers doubles. In addition to dealing with routine out-patients, radiographers also need to deal with emergency patients with top priority, which gives them more pressure.

The study area, Tirunelveli City, has seen tremendous growth in the recent period in all areas: technology, infrastructure, economics, culture. The number of single-speciality and multi-speciality hospitals, diagnostic centres, pharmacies, individual clinics, educational institutions, banks and other business industries including small organizations increased significantly. Such results attribute to the high migration of people from villages to cities for education and employment than before. Similarly, students going for higher education have increased markedly, and customers using technologies have grown abundantly.

As a result of these remarkable changes, competition among businesses has increased manifolds. All organizations are compelled to give the best to their customers to retain, maintain and grow their brand name. Hence, all organizations have been changing their work culture: they give more importance to technology, and many entities have been replacing manpower with artificial intelligence.

Moreover, due to the changeable management culture, employees are given huge pressure to achieve the target than before. Previously, particular business organizations, especially marketing and sales-oriented, were setting targets (daily, weekly and monthly) for employees. Nowadays, many businesses which run on corporate culture set targets for all their employees to be achieved on the daily basis. Many organizations follow new management concepts like six sigma, five S and so on to get employees fully engaged and to get customers fully satisfied. Thus, irrespective of discipline, all employees work in the current period under tremendous pressure, which impacts their health negatively.

Although so many technological and cultural changes have brought positive results, as far as health care industry in the study area is concerned, many hospitals remain far behind in the practice of Human Resources Management. Twelve-hour duty with two-shift work system, low salary than prescribed by the government, lack of focus on career growth of employees, caste and religion discrimination, inadequate welfare facilities, imbalanced workload and employee ratio, unfair dispute resolution by the management are some of the evidences to witness how much deficiency lies in the Human Resources Management

practices in the study area. Since these poor and unhealthy Human Resources Management practices are used in many hospitals, most employees perform their job in the highly dissatisfied and stressed manners, which is the primary source of many diseases. Radiographers are not exempted from these conditions, and they undergo a lot of health issues related to the work and workplace. Hence, this study examines various health problems of radiographers that are revealed in the study area.

Need for the study

Both sound physical and mental health remain crucial for healthy contribution of employees of all kinds towards work. They decide interest and commitment of employees towards work and organization. Although maintaining strong physical and mental health is in the hands of employees, organizations, where they work, also play an equal role both in promoting physical and mental state of employees. When employee's health remains weak, their commitment to work gets deteriorated and their perfection in the work is eroded. That eventually paralyses internal and external customers severely.

There are many factors in the work place determining physical and mental health of employees. Fair workload, appropriate and adequate technological support to perform their duties simply, simple work processes (that does not extract too much energy), highly motivated managers, unbiased workload and work schedule allocation, increment, promotion, unbiased problem solving, normal working hours and proper work shift, decent salary, concern of the organization to assist employees and their family members when they need medical treatment and surgery, safety work environment and welfare facilities are some of the factors deciding and promoting strong physical and mental health of employees. When these factors are absent or deficit, employees will have to perform their work in complicated ways spending so much energy with the suffering of physical and mental health. That eventually will reflect on their work in the form of less productivity, absenteeism, lack of cooperation to colleagues, making mistakes in the work and expressing rude behaviour to superiors, colleagues and customers.

Radiographers are exposed to radiation every day as part of their work. It can cause many health-related issues: body pain, tiredness, cancer. Thus, radiographers always work under conditions they have to be cautious. In the study area, radiographers face many challenges from their organization and nature of work, which reflects on their health directly. In many hospitals, still the two-shift work system with the twelve-hour duty is followed. It not only affects the health condition of radiographers, but also disrupts their family and social life: they cannot devote enough time for their family and social activities. Apart from the two-shift system with the twelve hours, some work culture-related factors are highly seen in many hospitals. That concerns autocratic leadership style of managers, lack of manpower, rigid rules and regulations in working hours, work discrimination, inadequate facilities for employees in rest rooms, drinking water, cafeteria, accommodation, department comfort. All these factors affect both physical and mental health of radiographers either directly or indirectly.

The effects of these factors influencing physical and mental health of radiographers emerge in many ways: too much tiredness, body pain, low energy, difficulty in sleeping, challenge to get up from the bed, skin and eye problems, digestive disorders, urinary tract infection, emotional problems, diabetes mellitus and hypertension, irregular menstruations, weight loss, hair loss. All these effects not only deteriorate the work performance of radiographers, but also erode the reputation of organizations. Emotional burst and slowness in the work of radiographers eventually dissatisfy patients, which ultimately create a bad image among them about organizations. Moreover, emotional disturbance arising out of stress, work-life imbalance, heavy workload and disappointment affect the results of their work, which eventually influences the diagnosis of the medial conditions by doctors negatively. Similarly, the physical ill-health of radiographers does not allow them to extend their cooperation to internal customers such as Doctors and Nurses, whose work majorly depends on radiographers' work. The result will be further delayed in their work, lowering the satisfaction of patients and putting them in danger.

Similarly, health problems of radiographers also disturb their co-workers in departments. Prolonged sickness not taken care of by employees themselves and management will resort to either absenteeism and quit from the job, both of which disrupt the work of co-workers. Absenteeism either in the form of casual leave or medical leave will definitely disturb the work of co-worker because their workload will increase indefinitely. In some hospitals, where the radiography department is already running with lack of manpower, the absenteeism of radiographer will increase the workload of co-workers manifolds, which will lead them to develop many health disorders. If this situation of absenteeism continues, other workers who tackle too much workload will develop the intention of quitting from the job: all employees cannot adjust to absent co-workers and nor be ready to do additional work always. Thus, health problems of radiographers

not only affect them, but also disrupt the routine workflow of hospitals and patients' safety.

Therefore, it is necessary to study what are the various health problems, radiographers are affected with, and what steps management should take to sort out these problems. Hence, this study is undertaken in the study area with the objectives of identifying various health-related problems of radiographers.

Objective of the study

The objective of this research is to examine the perception of radiographers towards various health-related problems.

Scope of the study

This research has focused on radiographers working at private multi-speciality hospitals in Tirunelveli City, the capital of Tirunelveli District, which is located at the south end of Tamil Nadu State of India. The study has covered health problems of radiographers that arise as a result of organization-related factors.

Significance of the study

This study will be useful for hospital management to make policy decisions about various factors. Those are major causes of health issues of radiographers. The hospitals can compare the results of this study with other categories of employees to know how much these factors are related to their profession (before they make policy decisions about the alteration or improvement in work shift, working hours, leadership, technology, work processes, work culture, infrastructure, work environment). Similarly, the study results will give the deep insight to managers of radiography department to re-examine their leadership style; what knowledge they should update in terms of work and department to simplify the work and alter the work processes to enable radiographers to perform the work as simple as possible without spending too much energy. Also, we can define what role they should have with top management to improve the department in such a way it does not affect health of radiographers. In the same way, the factors discussed in this study will be helpful for radiographers to re-assess their health, and thereby enhance their knowledge about the safety precautions to be followed both in the work place and personal life as well. Likewise, the study topic, the discussed factors, the applied research methodology and obtained results will serve as sources of secondary data for future research scholars to proceed their own research.

2. Literature review

According to World Health Organization 1948, "health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity" (Park, 2000). Disease is a physiological or psychological dysfunction. Mental health has been defined as "a state of balance between the individual and the surrounding world, a state of harmony between oneself and others, a coexistence between the realities of the self and those of other people and environment" (Park, 2000). The state of physical health implies the notion of "perfect body functioning". The signs of physical health for an individual are: a good complexion, a clean skin, bright eyes, lustrous hair with a body well clothed with firm flesh, a sweet breath, a good appetite, sound sleep, regular activity of bowels and bladder as well as smooth, easy and coordinated body movements (Park, 2000).

In his study "Healthcare Workers in Europe and WHO Programmes", Kim (2010) found that the major occupational or health-related diseases and injuries are caused via an accident, musculoskeletal disorders in the back, limbs or other body parts, cardiovascular diseases, respiratory diseases, mental disorders, neurological or sensory disorders, digestive track disease and skin disorders.

Alfers (2010) undertook research of occupational health and safety for informal workers in Ghana as a cast study of market and street traders in Accra. The study found that dehydration, headache, waist pain, back pain, neck pain, disorganized mind, diarrhoea, vomiting, high blood pressure, malaria, fever and dizziness, vaginal infection, skin and nail infection on hands, sore ribs and chest, neck and upper back pain, arm pain, blurred vision, breathing problem and knee pain were major problems of such workers in Accra.

Rajan (2012) studied stress impact among radiographers. He discovered that inadequate staff and salary, inequality in shift work, long working hours, inadequate space facilities, lack of recognition are the foremost organization-related stressors. Lack of support and welfare facilities, inadequate increment and radiation allowances, frequent changes in policy and procedures, conflict with other departmental staff and lack of communication systems are the least organization-related stressors. Fear of radiation exposure, lack of protective devices to radiation, attending multiple accident cases at the same time, doing multiple work at

the same time were the foremost specific stressors for radiographers. Fear of exposure to chemicals, fear of resource wastages, heavy weight of the movable X-ray, attending opposite gender patients, lack of resources, blaming and criticism from patients, bending and lifting of heavy weights are the least radiographer-related stressors. Similarly, tiredness, backache, headache, difficulty to get up in the morning, poor sleeping, digestive problems, poor attitude, depression, and feeling of inadequacy were the foremost impacts of stress. Talking with colleagues, meditation, exercise, prioritising the work were the foremost coping strategies followed by radiographers.

Gupta & Tarique (2013) studied prevalence of musculoskeletal disorders in farmers of Kanpur – Rural India. It comprised 300 Kanpur farmers between 20 and 70 years of age. The study found that low back pain, knee pain, shoulder pain and back pain were major problems and they persisted for over a year. The study observed that poor posture and lack of ergonomic awareness were the principal causative factors contributing to the development of musculoskeletal disorders.

Rajan (2013) discovered that tiredness, drowsiness and sleepiness, difficulty in initiating and maintaining sleeping, inability to get up from the bed and headache and eye strain including migraine due to dimmed light were the foremost impact of work shift on physical health of paramedics. General body pain, feeling worse in the morning, loss of appetite, stomach ulcers and indigestion, constipation and abdominal pain were the next foremost impact of work shift on physical health of paramedics. Dry mouth, sore throat and heart burn, palpitation and fatigue and irregular menstrual were the least impact of work shift on physical health of paramedics.

Rajan (2014a) identified and differentiated sources of stress, impact of stress and coping strategies followed by radiographers working at private multi-speciality hospitals and single speciality hospitals in Tirunelveli City of Tamil Nadu, India. He discovered that high workload, insufficient salary, inequality in shift work, long working hours, inadequate space facilities and lack of recognition from the management were the organization-related factors perceived equally by radiographers working in both kinds of hospitals. Fear of exposure to radiation, lack of protective devices, unavailability of doctors, attending multiple accident cases at the same time, doing multiple work were specific stressors perceived equally by radiographers of both kinds of hospitals. Similarly, tiredness, backache, headache, difficulty to get up in the morning, poor sleeping, digestive problems, poor attitude, depression and feeling of inadequacy were the impacts of stress perceived equally by radiographers of both kinds of hospitals. Talking with colleagues, meditation, exercise, work prioritization were the coping strategies perceived equally by radiographers of both kinds of organizations.

Rajan (2014b) indicated that pain in neck, shoulder, upper and lower back, waist, leg and joints, eye problems, loss of appetite or its changes, digestive problems, stress and irritation, minute injuries, skin allergy, ear pain due to prolonged exposure to air condition, breathing difficulties due to excessive cold, sleep disorder, low spirit, menstrual irregularities, tiredness, fatigue, weight loss, anxiety and depression, lack of energy, difficulty paying attention, appendicitis, tuberculosis and other respiratory infections, hepatitis B and varicose vein were the foremost occupational hazards.

Rajan (2015) proved that restlessness and tiredness, fatigue, low energy and headache are the foremost impact of stress on general health of nurses. Worry and depression, poor sleeping and difficulty in falling asleep, nervousness, anger, aggression, fear, anxiety and dry mouth are the next foremost results of stress on health of nurses. Feeling worse in morning, isolation and tight and tense muscles are least experienced stress on general health of nurses.

Rajan (2016) examined the perceptions of radiographers towards the impact of occupational hazards on their physical and mental health. The study result discovered that weight loss, sleep disorder, pain, fatigue, gastrointestinal disorders, irregular sleep and sleeplessness, high stress and carcinoma due to prolonged exposure to radiation were the foremost factors perceived as occupational impacts by the radiographers. The extent of respondents' perception towards all these factors was moderate.

Rajan D (2017) analysed how workload impacts the health of sanitary workers. He uncovered that tiredness in work place and even after reaching home, weight lose, stress and irritation, general body pain, joint pains (knee, hip, shoulder and back), issues in appetite (overeating or lack of appetite), depression and panic, sleeping disorders (loss of sleep and absence of deep sleep, inability to stand up from bed), diabetes mellitus (because of long working hours and stress, appearance of old age, cardiovascular disorders, hypertension) are the health related problems caused due to heavy workload.

Hulls et al. (2018) examined work-related issues among radiographers in the UK between 1989 and 2015. The study analysed four categories of workers: radiography, ultrasonography, other radiography, other profession, senior radiography. It assessed four health-related issues: a) musculoskeletal, b) respiratory,

c) skin, d) mental, e) others. Results reported that work-related skin diseases were higher in radiographers compared with other occupations. In contrast, the incidence of work-related respiratory diseases was higher in other occupations compared with radiographers.

Rajan (2018) examined the perception of radiographers working in private multi-speciality hospitals towards causes of occupational hazards. He discovered that organization structure and policy, radiographer's specific, fear and safety-related factors were the foremost dimensions of causes of occupational hazards. Resources, workload, work shift, environment and hygiene were the next foremost dimensions of the causes of occupational hazards. Interruption, patient and communication and training-related factors were the least dimensions of causes of occupational hazards. The study results have also revealed that the perception level of radiographers towards these variables were moderate.

Rajan (2019) compared the perception of radiographers working in private multi-speciality hospitals and diagnostic centres in Tirunelveli City towards the impact of occupational hazards on their physical and mental health. He discovered there was no marked difference in the perception level of radiographers working in hospitals and diagnostic centres towards various impacts of occupational hazards. Moreover, the study found that the perception level of radiographers working in both kinds of organization was moderate towards impacts of occupational hazards.

In their study "Identification of Occupational Stressors amongst Radiographers", Jagodic et al. (2020) defined stress and correlated factors. They identified which stressors are present among radiographers in relation to their workplace from the sample of 236 radiographers. The study discovered that most stress is caused by conflict with supervisor followed by inappropriate management style, poor team communication and conflict with colleagues. Less stressful situations comprise work conditions, shift work, work with interns and students, students' mentoring, monotonous work and fear of work results. The study also proved that more than half of radiographers had a high level of stress. Radiographers who have good relationship with their co-workers and supervisors have a low level of stress. Those with a satisfactory level of relationship with multi-disciplinary teams had a low level of stress. The study concluded that the most relevant stressors are linked to management style and interpersonal relationship.

Chinene et al. (2023) evaluated the radiographers' views on the workplace factors that impact their mental health in a sample from Harare Metropolitan Province, Zimbabwe. The research discovered that the following are the mental issues affecting radiographers: frustration, stress, exhaustion/burnout, overwhelmed hope, unappreciated gratitude, anxiety, sadness, fear, pride, intimidation, anger, powerless, loneliness, grief. The study also observed that the following symptoms were found worsening or increasing: more likely to smoke, drink or use substances; racing thoughts; lower self-esteem; heightened awareness; worry; attention to being exposed to COVID 19; upsetting thoughts, images or dreams; physical symptoms; change in appetite; sleep trouble; compassion fatigue; questioning career path; work-related exhaustion. The study also found that the following are the work-related stressors: frequent equipment breakdown, poor remuneration, uncertainty about when things will settle down, burnout, no-utilization of radiographers' skills and abilities, concern of getting COVID-19, heavy/increased workload, insufficient PPF, lack of trust in the healthcare system concern about exposure to ionizing radiation, insufficient radiation protection, feeling of low personal accomplishment, subordination and paternalism from radiologists, insufficient communication, leadership, working too many hours, intimidation from politicians, concern of COVID-19 spread, little autonomy in patient management, insufficient training, inappropriate role designation, job security status.

According to the reviewed literature, various studies have been made about radiographers and their health issues. In the research area, work-related stressors of radiographers have been examined, and those studies discussed sources of stress. However, those studies did not exclusively discussed various health issues of radiographers. Hence, there is a gap to study in detail. Therefore, this present research fulfils that gap by exclusively examining health-related issues of radiographers in the study area.

3. Research methodology

This survey, a quantitatively and empirically based research, is descriptive in nature. This research describes the perception of radiographers working in private multi-speciality hospitals in Tirunelveli City (study area) towards various health-related problems arising as a result of their work.

The study has sampled a total of 60 respondents. They are qualified with Diploma in Radiography Technology (one and two year courses). Convenience and judgement sampling techniques are applied. From the chosen respondents, the primary data were collected using a structured self-made questionnaire. It

consisted of two sections: Section “A” talking about demographic characteristics; Section “B” revealing various health-related problems of radiographers. In the questionnaire framed via the Likert five-point scale, respondents were given five options to select their answer against each health-related problem: Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. These five options were given weightage as follows: Strongly Agree-5, Agree-4, Undecided-3, Disagree-2, Strongly Disagree-1. The secondary data were collected from books and journals. The study applied percentage method to analyse demographic characteristics, examine the perception of respondents towards various health-related issues of them.

4. Analysis and interpretation

Measure	Description	Frequency	Percentage
Sex	Male	20	33.33
	Female	40	66.67
Age	Below 30 years	08	13.33
	Between 30 and 35 years	17	28.33
	Between 35 and 40 years	17	28.33
	Above 40 years	18	30.00
Marital Status	Married	58	96.67
	Unmarried	02	03.33
Work experience in years	Below 2 years	09	15.00
	Between 2 and 4 years	16	26.67
	Between 4 and 6 years	19	31.67
	Above 6 years	16	26.67
Salary	Below 4000	20	33.33
	Between 4000 and 6000	26	43.33
	Between 6000 and 8000	10	16.67
	Above 8000	04	06.67

Table 1: Profile of the respondents

Source: Primary data (based on the author’s self-made questionnaire)

It would be understood from Table 1 that among the respondents 33.33% were male and 66.67% were female. Among them, 13.33% were below 30 years of age, 28.33% between 30 and 35 years, 28.33% between 35 and 40 years and 30% were above 40 years of age.

Furthermore, 96.67% were married and 3.33% were unmarried. 15% had below 2 years of work experience, 26.67% between 2 and 4 years, 31.67% between 4 and 6 years and 26.67% had above 6 years of work experience. Among them, 33.33% were drawing below Rs. 4000 of salary, 43.33% between Rs. 4000 and 6000, 16.67% between Rs. 6000 and 8000 and 6.67% were drawing above Rs. 8000 salaries.

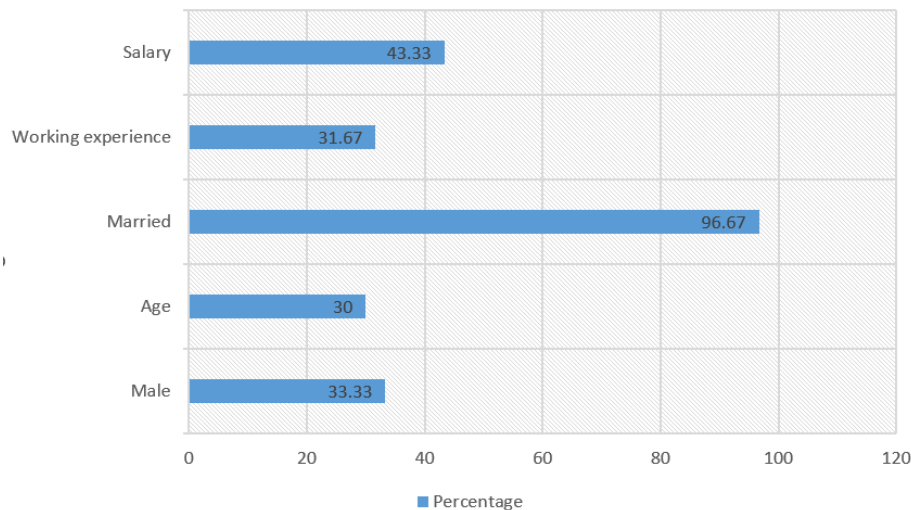


Figure 2: Majority in demographic details of respondents

Source: Generated by the author

Health problems	SA (%)	A (%)	UD (%)	DA (%)	SDA (%)
Tiredness and low energy	97	03	0	0	0
Body pain	97	03	0	0	0
Difficulties in sleeping	93	07	0	0	0
Depression, anger, emotional disturbance	92	08	0	0	0
Digestive disorders	87	13	0	0	0
Skin and eye problems	87	13	0	0	0
Urinary tract infection	83	17	0	0	0
Diabetes mellitus, hypertension	78	22	0	0	0
Irregular menstrual, weight loss, hair loss	75	25	0	0	0

Table 3: Health problems of radiographers

Source: Primary data (based on the author's self-made questionnaire)

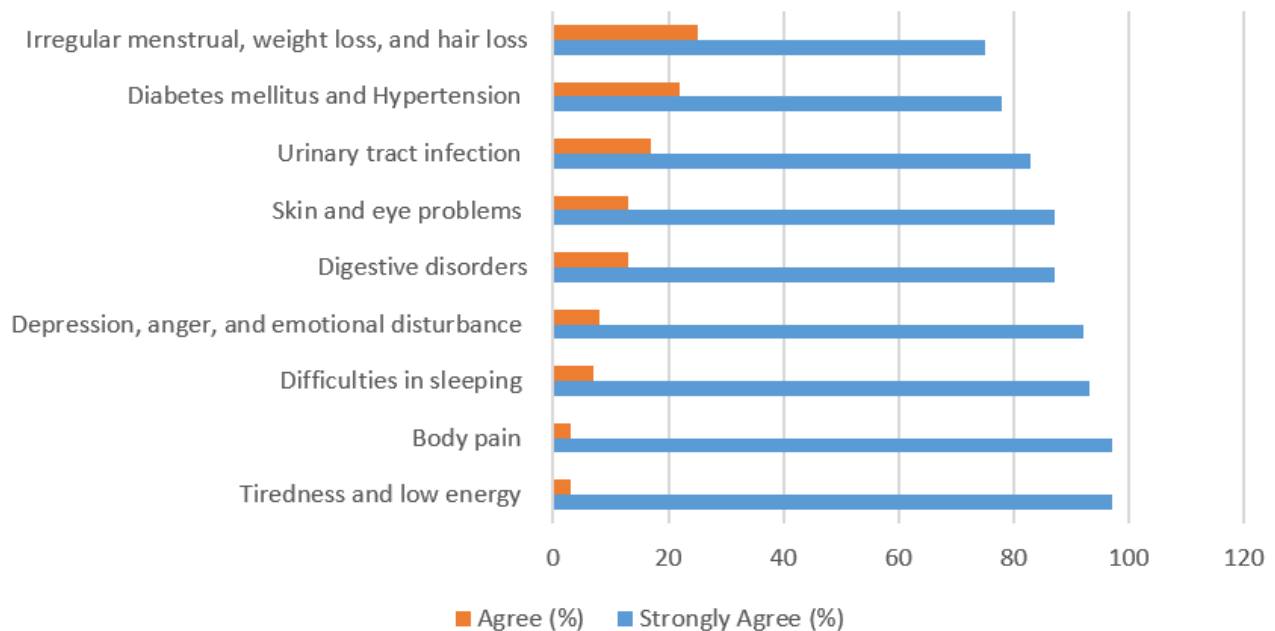


Figure 4: Health problems of radiographers

Source: Generated by the author

In addition to the table data, the researcher has added the information obtained during the discussion with respondents. Also, he shared the information personally experienced in the field of hospital administration to make the interpretation part as practical as possible.

Tiredness and low energy

Most respondents has strongly agreed that they often get tired and energyless being not able to continue the work briskly the whole day. When interviewed, they said that the department functions with inadequate radiographers, that is not enough to manage huge volume of the patients, and they work for twelve hours, both of which naturally get them tired and suck their energy. Besides, inadequate staff members and long working hours, administrative work of radiographers also get them tired. In the study area, radiographers are not given any assistance to carry out clerical and other department-related supportive works. In spite of the fact that they are technically qualified and experienced in the field, they are still considered as mere technicians in most of the hospitals, and they are not considered as professionals. Numerous administrative

works they perform include majorly clerical works such as maintaining records of the patients and payment details of the patients. Besides, whenever they need to treat the patients who need intravenous injection, they need to go to the doctor chambers personally and request them to give injection. When there are adequate staffs in the department, these types of works do not seem as a big burden for radiographers. However, with inadequate staff members in the department, these tasks enhance their work burden making them tired.

Other work-related factors causing radiographers tired and energyless is long travel, which is unavoidable for lower- and middle-class people in the study area. Most radiographers belong to the lower and lower middle income category who mainly use public transport. Moreover, notably very few radiographers (especially, woman radiographers who are unmarried) live at the hostel provided by the hospitals. Similarly, some unmarried male radiographers reside in the common accommodation for men provided by the hospital. Married women and male radiographers usually come to the work as day scholars from the house. Their economic status does not allow them to use car or bike. Most radiographers use public transport, which is also not regular in time. Therefore, to reach the work place they have to get ready earlier and leave the house earlier, which itself makes them tired before getting the work spot. As far as married women employees with children are concerned, they ought to perform their household works and then rush to the work. When the household works join travel challenges, they get more tired losing their energy level. Thus, before they reach the work spot, they lose a significant level of energy and get tired.

In the work place, radiographers encounter lot of challenges, which makes them tired both physically and mentally. Many hospitals do not have lift facilities to access top floors so that radiographers either have to use ramp or stairs. When they need to use a mobile X-ray to deal with bed-ridden patients, they have to use ramp, which definitely makes them tired because pushing the mobile X-ray to the top floors needs a lot of energy. So, when the mobile X-ray is moved to different wards in the top floor or underground areas multiple times, they have to use much energy.

Shift work is unavoidable, because health care sectors provide around-the-clock service. When it is fair and systematic, it is definitely fruitful and brings multiple benefits for employees. At the same time, when it is biased and unsystematic, it will not only remain a disadvantage for employees, but also will lead to job dissatisfaction and absenteeism among the employees. Many hospitals follow two shift work system in the study area against the government rules, which says the rotating three-shift work system should be followed in hospitals. When the department manager is biased in nature and prepares shift schedule in an unhealthy way, giving more importance to one employee and less importance to the others, it will increase the workload causing more tiredness among employees. For instance, instead of rotation manner, if one radiographer is given too long night shift or day shift, the other radiographer should be in his or her opposite shift for her until he or she completes the shift. Normally, in the morning shift the workload remains higher than night shift. Therefore, when employees move to night shifts, they can take some rest. However, when the employees work for a day shift for prolonged period of time without moving to a night shift, the huge workload will affect their health and will make them tired so much. Moreover, submissive radiographers and juniors are mostly affected with this biased shift schedule. In the morning shift, most doctors treat all patients, and number of patients referred to the X-ray, CT and MRI scanning is larger. In the night shift, whenever accident cases or emergency situations occur, the need of radiographers is urgent, otherwise they simply rest to compensate the more workload performed during the day shift. However, when radiographers are compulsorily and biasedly posted in the day shift, it will enhance their workload manifolds deteriorating their health conditions.

It is not always possible for radiographers to work as per the system established at the hospital. Sometimes, they have to do some work surpassing the rules due to stubborn nature of the patients and hurried nature of the doctors. Patients are routinely treated as per the order coming to the department. After the X-ray or CT scanning is taken, there is a need for some time, which is highly necessary to convert the X-ray to the photo form. Previously, chemicals were used to develop the film. Now, a digital computer system is used to develop the picture. Although it does not consume much time, the X-ray results are processed in a sequence as per the order. Sometimes, medical doctors or surgeons need the report very urgently especially when the patients are in critical situation or when they need the emergency surgery. During these times, radiographers should work hurriedly and give importance to the doctors' request, which consequently puts them in stress and enhances their workload (since they work beyond the routine protocol and these kinds of deviated work will make the waiting patients furious). Some patients will not be ready to wait and they shout demanding the result immediately. So, during those times, radiographers need to work fast, simultaneously working for the doctors who need the results quickly. During this kind of situations, if either lack of manpower or employee's absenteeism exist in the department, the work of remaining employees on

the duty will rise manifolds, which affects their health physically and mentally. Thus, tiredness and low energy occur from many causes: lack of manpower, transport challenges, shift work system. The management should involve strongly and take appropriate steps to fill manpower vacancies and unfair shift schedule so that they should not get radiographers fall in sick.

Body pain

Most respondents have strongly agreed that they frequently confront with bodyache (especially, neck pain, knee and hip joint pain). During the discussion, they said that climbing up the stairs frequently and moving the mobile X-ray to different wards not only exhaust them but also make their body pain. The twelve hours duty basically cause their tiredness. In addition, local vehicles (buses), which they use to come to the work place, also make the body pain because of long travel and seat conditions in those vehicles. Assisting patients, who are both immobilised and heavy in nature, to transfer them to the X-ray bed, many times in a day, makes their body pain, especially back pain. Lifting the patients to the X-ray bed from the stretcher or wheel chair is not an easy task, especially if the patients are heavy. Although the patients' attenders (relatives) assist the technicians to shift the patients to the X-ray bed, the major work is on radiographer's side. Similarly, after the X-ray is taken, shifting the patients back to the wheel chair or stretcher also extracts a significant amount of energy making them not only tired but also feel body pain.

Unlike earlier days, most hospitals have replaced the traditional film developing method, in which the film is processed with the help of chemical: it is soaked in the chemical solution and then is dried before sending to the consultants. Now, the process has completely changed: a digital computer is used to process the taken X-ray. Most hospitals have already transformed to the digital X-ray. Therefore, radiographers equally do computer work with a report print for patients. thus, they spend a remarkable amount of time on the computer in a day. Long sitting before computer and digital processing with the X-ray machine make their neck and back pain. In interview, when asked if they are given any training or education in the areas of ergonomics, most answers were negative. Since, long sitting in front of the computer without properly maintaining body posture will lead to neck and back pains and hurt their eyes. It will lead to absenteeism, which increases the workload of co-workers. Therefore, the hospital management should arrange ergonomics training including stretching exercises to radiographers at the frequent intervals. Similarly, they should be provided neck and head rest chairs and other comfortable seating arrangements within the department, so they can take rest during break hours comfortably.

Difficulties in sleeping

Since shift work is inevitable in health care sector, all categories of employees, not only radiographers, have to undergo sleeping issues, which is the main health challenge in the current period. In the shift work system, the body's physiological system gets changed, the consequence of which is the disturbance in the sleep pattern. If the shift system is healthy, i.e., the continuous rotation in week wise or quarter wise, the body will get accustomed to it. However, the unfairness in the shift system due to the partiality by managers and domination of seniors will drive junior employees or some group of employees to undergo the unhealthy shift system, as opposed to the continuous rotation pattern. When employees are forced to take this unfair shift system, i.e., a too long day shift or a too long night shift, the rhythmic pattern of their physiological system will get changed. The result will be a deep paralysis of their sound sleep system.

Most respondents have strongly agreed that difficulty in sleeping is the biggest health issue among radiographers. The primary reason is that most hospitals in the study area follow the two-shift work system with a twelve-hour duty against the government's labour policy, which insists an eight-hour duty. To run a hospital with eight hours, hospitals should have the three-shift system. Very few hospitals in the study area follow such a system.

In few months in a year, radiography department functions with full manpower strength. In many hospitals, shortage of manpower is seen in the radiography department. Once radiographers have got a reasonable experience, they migrate to big cities or they get a government position. In addition, many radiographers, after they work for few months after their graduation, get an affected health wise because of continuous exposure to radiation. Hence, they quit from the job and move either to study another degree or to do any other job. Besides, absenteeism is also another big issue in the study area, and employees cannot be stopped from availing their casual leave or sick leave, which some employees take every month and some employees take accumulatively.

Thus, whenever a manpower shortage occurs in the department either due to vacancy issues, absenteeism or permitted leave period, the radiographers in duty need to do overtime duty, which does not allow them

leaving from the duty on time. Some emergency situations arising unexpectedly also make them work for more hours. The result is that they have to leave the duty lately and reach home late, which impacts them not only on their sleeping pattern but also cause undue tiredness making them not able to get up from the bed in the next day morning. Lack of sleep and absence of deep sleep, if continues for a long period, over the period of time, will cause many side effects to the health such as diabetes, hypertension, white hair and old age appearance even in the young age.

Therefore, the hospital management should ensure whether the radiography department works with enough manpower always. It should continuously monitor the health status of employees considering their nature of work and consistently assess the leadership of radiography managers to know whether they allocate the shift work fairly and equally without bias and if there's defect or lack in the leadership qualities. The management should advise them and provide leadership training to run the department in a healthy manner.

Digestive disorders

Both adequate amount of sleep and having food on time without delay are equally important for sound health especially for maintaining proper digestive health. Lack of food, especially not having food on time, and inadequate sleep cause many digestive disorders: loss of appetite, constipation, stomach ulcer and appendicitis, which is very harmful if it continues in a long run. As far as radiographers in multi-speciality hospitals are concerned, they have to undergo hard times in most of the days in a week and month. The nature of the job itself causes them not to have their food on time, because a radiographer cannot leave the patients in the middle of the procedures and go for a lunch. Similarly, if a patient arrives at the time of lunch with emergency situations, a radiographer cannot say he or she cannot attend to him.

Thus, the nature of job and unavoidable situations, most of the time, get them not having food on time. Not only in the health care sector but also in the most service organizations, lunch time cannot be strictly followed due to the nature of job. However, in multi-speciality hospitals in the study area, not only radiographers but also all categories of employees cannot take their break time fast and dinner also on time due to the location of the hospital, working hour policy and workload.

Analysis reveals that most respondents have strongly agreed digestive disorders are their foremost health problems of radiographers. Their perception towards digestive disorders is moderate. Since most employees come to work from a far distance and the challenges they confront with in terms of transport scarcity, they cannot have their breakfast at home before they come to the duty. Most employees have their breakfast, which they bring from their houses, either in their department or canteen after they arrive at the hospital in order to avoid coming late to the work (many hospitals follow the policy of deducting the salary of employees if they are late to the work more than three times in a month).

In the study area, a lunch hour is the peak period. During this period, mostly all doctors deal with out-patients and do visit all departments to treat in-patients. Hence, the number of patients referred to the diagnostic centres is huge. Therefore, the workload of radiographers during lunch time remains high. As a result, radiographers, most of the day, skip their lunch without able to take it on time; normally, they have a lunch after 3.00 or 4.00 pm in the evening.

Moreover, in many of week days, they have to leave from the duty late. Due to the long working in hospitals and long distance to home, they usually reach home late. This late arrival at home further delays their intake of dinner. Since most radiographers belong to lower, lower middle or middle classes, they have to prepare their food after they get their home. Thus, radiographers, especially those who are married, have their three-time meal late, which is the primary source of ulcer.

When the late food intake is associated with inadequate sleep, as a result of long working hours and lack of knowledge about work-life balance, radiographers are greatly exposed to constipation and appendicitis, because adequate sleep, balanced food enriched with high fibre and protein and having the evening food on time are principally important for easy motion. When constipation and inadequate sleep last for a longer period of time, it will lead to appendicitis, which commonly and abundantly exists among much adulthood in the current period.

Furthermore, most radiographers do not have adequate college education. They are qualified with just a technical course (either one year or two years) in radiography (which they study after their school education without going to college). Henceforth, they do not have adequate knowledge about healthy and balanced food, which is the biggest drawback and cause of ulcer, constipation and appendicitis. Lack of manpower and sub-standard leadership qualities of managers are also the reasons for digestive disorders of radiographers. Inadequate manpower gets them to cover the work of other radiographers, which prevents

them from having food on time. Lack of concerns of managers about their health causes more disappointment among them towards the work and hospital leading to stress and worries.

Thus, the hospital management should appoint adequate employees including supportive people to enable radiographers to finish their work and food on time, leave from the duty on time. Those are the main reasons for maintaining sound health towards their digestive issues. Moreover, managers should be given adequate leadership training to take care of employees. They should have the knowledge of how to manage the shift time and engage employees during peak times without getting them to skip their food.

Skin and eye problems

Although many hospitals have transformed to digital X-ray systems, still many follow a traditional X-ray method: the X-ray is taken and the film is processed in a chemical called hydroquinone to get the visual image. Despite having the digital film development facilities, some consultants and surgeons do not prefer the digital mode film, instead they prefer the old X-ray method. They feel that the traditional X-ray method only will give complete accuracy. Exposure to radiation in a traditional X-ray machine is higher than modern method.

Moreover, the chemical used in film processing has side effects to both eye and skin, the biggest tissue of the body. Severe skin redness, burning or stinging, severe skin dryness, cracking or bleeding, blisters or oozing, blue or black discoloration of skin, pigmentation and permanent corneal damage are some of the side effects occurring as a result of exposure to the chemicals used for processing the X-ray. Despite the fact that technician is highly cautious, when the workload is too high i.e., the number of patients is too large in volume, technicians need to work fast. Sometimes, that makes technicians be exposed to the chemical, getting the skin and eyes affected.

Besides, the night shift is a primary reason to get the eyes affected, because employees need to be exposed to light for a long time. The long waking up at night, especially during crisis situations, will get employees' eyes affected. The bright light used at the hospital is also a reason for eyes to get affected.

The result of this study indicates most respondents have strongly agreed that skin and eye problems are their health-related issues. When interviewed, they said: during rush hours, either the number of patients is large in volume or they are exposed to the chemical when doctors urge radiographers for the report quickly. Mostly, their skin gets exposed to the chemicals. Also, a prolonged wake up at night and long night shifts, sometimes give discomfort to eyes.

Although they sleep some days, sometimes they have to remain awake for the whole night (especially, when complex surgeries are done followed by multiple accident cases). They have to remain awake for a long time at night exposing to bright light, which will also discomfort their eyes. Many hospitals have only one radiographer at the night shift on duty. On some days, radiographer's workload is huge, as a result of which the radiographer cannot sleep. Being awake the whole night without a little sleep and doing work at night will definitely distress their eyes, which leads them to wear power glasses even in young age.

The hospitals should transform to the digital X-ray system, give proper training and education as to how to protect their eyes and work in a relaxed way, appoint two X-ray technicians to work at night shifts.

Urinary tract infection

The standard of any organization irrespective of its kinds is determined by the number of rest rooms and their hygienic status. Many guidelines have been provided by government for all organizations, both public and private. Concerning the number of rest rooms, an organization should have for both employees and customers separately. Hygienic methods must be followed to ensure neatness and make them infection-free.

However, very few organizations abide by the rules and guidelines. Many organizations including hospitals do not have enough rest rooms for their employees and customers. Rest rooms in use are not maintained hygienically due to both lack of manpower to clean and maintain it and poor management system.

The result of this study indicate most respondents have strongly agreed that urinary tract infection is their health-related issue. As far as the hospital sector is concerned, separate rest rooms are paramount for both patients and employees, because it cannot be predicated who comes with what conditions. However, very few hospitals have separate rest rooms for both employees and patients. Even in those hospitals separate rest room facilities are available only for higher level officials; lower-level employees have to use either patients' rest rooms or rest rooms of other category of employees.

Many hospitals do not have separate rest rooms for their operative level employees. Even if they have rest rooms, they are very few in number, which is not enough to be used by all employees who are large in volume.

In multi-speciality hospitals, since both the volume of patients and numbers of employees working there are large in volume, if rest rooms for both patients and employees are not available adequately, both of them will suffer. The rest room use by employees varies from person to person. Some persons go to rest rooms more than 8 or 10 times during the day time. If employees are diabetics, the rest room use time will be higher.

In light of these situations, if hospitals do not have enough rest rooms and employees need to use a single bath room, one after another, the hygienic condition of that rest room must be maintained properly. Definitely, the rest room will become dirty due to frequent use and lack of cleaning, and this condition will cause employees urinary tract infection. In many hospitals, the number of rest rooms is very few. Both patients and employees are sharing the common rest room. In some hospitals, employees and patients are in queue to use the rest room.

Furthermore, due to both unhygienic conditions and long waiting time in the rest room, many woman employees do not drink enough water to avoid going to the rest room. Instead they control their urine, as a result of which they become more susceptible to urinary tract disorders. When interviewed, they said the same answer: they do not drink adequate water. They also said that due to uncleanness, distance to the rest room from the department, queue in the rest room and need to share the rest room with patients, many of them control their urine and use rest rooms once or twice in a day. Some departments (like CT and MRI) are fully air-conditioned, and whenever we need to work there and when we remain there for longer duration, we are abreast more than usual, but we (especially women employees) have to control our urine. When they were asked why they need to control their urine, they said there are no enough rest rooms and nor is separate for employees and nor is the rest room near. Due to these reasons, we usually control our urine most of the time.

Thus, it is witnessed from their response that they neither drink sufficient amount of water nor pass urine as often as necessary. Therefore, it is known that the role of management is highly needed to sort out the following issues. Firstly, the management should build separate rest rooms for employees. Secondly, each floor and department should have separate rest room facilities for woman employees. Thirdly, health education should be given about the frequent and enough intake of water and harm of controlling urine. In the same way, housekeeping manager should be instructed to ensure rest rooms are cleaned as often as the rules instruct without fail.

Irregular menstruations, weight and hair loss

Although regular and sound sleep is paramount for both men and women for both healthy physical and mental life, it is especially vital for women, because their menstrual life is completely depending on sound sleep. Irregular, inadequate and superficial sleep will disrupt their menstrual life. In case of unmarried women, they will affect their future child bearing capacity. Sound sleep is also associated with weight loss and hair loss. Inadequate sleep, prolonged stress, worry and too much of travelling will cause weight and hair loss.

Besides, organizational culture and working environment such as neat environment, friendly and supportive colleagues and manager, normal workload, motivating and supportive leadership of immediate managers and other higher officials are highly associated with happiness of workers. Absence of these organizational culture factors will not only directly cause job dissatisfaction, but also cause so much stress, which is the primary predisposing factor for sleeplessness and irregular menstrual cycle.

In the study area, in very few hospitals only, especially corporate ones, the Human Resources Management practice has grown significantly. As a result, employees are given adequate training in the areas of team work, leadership aspects, technologies (especially, information technologies), three-shift work system with a systematic way of attendance and salaries. Although these practices remain little harder for employees to learn and get used to, these proper and corporate style human resources create a healthy atmosphere where you have no bias and prejudices in carrying out Human Resources Management activities.

However, still many hospitals are functioning without a proper professional Human Resources Management system. Hence, employees suffer from stress, anger and depression, which is the supreme reason for sleeplessness. Inadequate and superficial sleep is the chief reason for an irregular menstrual cycle and hair fall. In addition to these, exposure to the radiation is also the biggest reason for hair loss and

tiredness. Not having food on time and lack of balanced food are also causes of hair fall and menstrual irregularities. Workload in the radiography department and lack of manpower are also reasons for stress and not taking food on time.

In the questionnaire, most respondents have strongly agreed that irregular menstrual issues, weight and hair loss are their health issues. When interviewed, most said they (especially, married women and day scholars) did not have sufficient and deep sleep. They did not have enough time to sleep due to the shift work, long working hours, heavy workload. Although they felt tired and felt of sleeping for some more time at home, they could not sleep because mind was fully obsessed with the next day duty. The gap between two shifts was short. During this short gap, they had to complete their family and social commitments. So, the shift gap was not much useful to have sufficient sleep.

When asked about their weight and hair loss, most employees said: inadequate rest, too much travel, financial issues, family worries, too long working hours are the primary reasons. In the beginning, they were worried about these issues, especially about too much hair loss. But over the time, they did not care about it.

When asked about how they managed weight and hair loss, what support they received from the hospital side, they said: there is no enough time to think about it. Time is only sufficient to manage the family commitments. Hospitals do not provide any assistance to recover. Even if severely sick, they have to go to government hospitals for treatment. Workers do not avail treatment from the hospitals where we work, because there is no any remarkable concession on treatment for employees. Hospitals are not much concerned about their employees' health and welfare.

Hospitals should pay more attention to their employees' health. Health education should be given about diets, stress relieving exercises, work and family balancing ways. Also, hospitals should give priority in giving treatment for their employees' health problems (such as free treatment for some conditions or giving a concession rate for treatment). Employees can be enrolled in health insurance policies under complete expenses of hospitals, or a portion of amount can be taken from their salaries for their insurance.

Depression, anger and emotional disturbance

Radiographers cannot escape from undergoing emotional issues at the workplace unlike accountants, human resource department employees or any other administrative employees. Everyday radiographers deal with various nature of patients who are suffering with pain and deformities as well as uncertain and unexpected crisis situations, which affects not only patients but also radiographers.

The way of dealing with uncertainty conditions and emotional situations varies depending upon the personality type of employees. Some employees deal with stressful situations very intelligently without taking it to mind and not get worried. The others take everything seriously and get worried, depressed. They lose their sleep and happiness, which over the time will be a source of many diseases: diabetes mellitus, hypertension, hair fall and even stomach ulcer. Usually, radiographers face emotional related issues due to the following issues: inappropriate leadership style of managers, heavy workload, crisis situation, delay in other departments (especially, from the doctors' side), emotionally imbalanced patients.

Analysis shows most respondents have strongly agreed that depression, anger and emotional disturbance are their health issues. The leadership issue remains a big problem because very few corporate hospitals appoint managers based on professional educational qualification and experience. On the contrary, most hospitals running as single man ones appoint managers on the basis of caste and religion. Thus, caste and religion are given top priority, which is the detrimental factor for the smooth department functioning.

Besides, age and experience are neither given importance nor priority in many hospitals. Instead, those who are senior among the employees are appointed as department managers. Thus, when a senior radiographer who is very young in age is appointed as the departmental head and when that person does not have necessary skills and leadership qualities, other employees in the department get offended and disturbed mentally. Anger, depression, isolation and stress will be the effects.

Moreover, radiographers qualified with one-year or two-year courses in radiography being offered as diploma courses at the medical college and other private institutions are mostly appointed in private hospitals in the study area. Very rarely, few radiographers can be seen with the Bachelor's Degree in Radiography. However, those who are qualified with the Bachelor Degree in Radiography prefer to work for corporate hospitals in big cities or prefer to go abroad. Thus, radiographers with just a diploma qualification find difficulty to cope with inappropriate leadership qualities of managers.

Moreover, workload arising out of inadequate manpower and large volume of patients' flow get them stressed, which is also a reason for their depression and emotional burst. Sometimes, radiographers have to

deal with emotionally imbalanced patients who are hurried in nature and impatience. Not only radiographers but also other employees who are less experienced get stressed, disappointed and angry when dealing with patients who are emotionally imbalanced in nature. Moreover, most hospitals in the study area do not give training to the employees. Hence, employees find challenges to deal with managers with inappropriate leadership qualities and how to handle uncertain and crisis situations.

When interviewed, most radiographers said: usually, the department runs with inadequate manpower. Under this situation, when there are many patients, it is difficult to remain calm. Similarly, when there is a delay from the doctors' side in giving the intravenous injection, patients exhibit their anger, which makes radiographers stressed and nervous to do the work. Managers do not know how to handle the patients' control or any other crisis situations. Instead, they blame and shout at radiographers for any delay in work, which makes more stress. Consequently, you may desire quitting the job.

Similarly, managers exhibit discrimination in scheduling the work and bias in treating the employees in terms of recognition and reward. When asked how to deal with these negative emotional feelings, most respondents could not tell anything clearly. Married employees said they showed anger on family members – spouse and children. When asked about what kind of training and education is given to deal with negative emotions at the workplace, most people answered negative. From their response, it can be understood that they suffer from negative emotions, which, if persists, would affect their health deeply.

Therefore, the hospital management should provide them training and health education as to how to deal with negative emotions intelligently.

Diabetes and hypertension

Most respondents have strongly agreed that diabetes and hypertension are their health related issues. Both diseases remain common and affect children, young and old persons. People have diabetes and hypertension even in the thirties or forties of their age. In some rare cases, children also have diabetes due to hereditary reasons. In spite of the fact that heredity plays a major role in causing diabetes among various ages of people, life style modification such as western food culture, less physical work and use of more technologies are additional causes of diabetes and hypertension.

Similarly, organization culture plays a vital role in causing diabetes and hypertension among employees. Organizational factors such as long working hours, autocratic leadership, inadequate salary, too much workload are some of the factors causing stress, which is the major source of diabetes and hypertension. In a similar manner, the middle-class family normally suffers from financial problems, which is due to both inadequate salary of the organization policy and poor money management skills of middle-class people. Inadequate sound sleep, lack of balanced food, no eating in time, too much travel between house and workplace, inadequate rest are some of the factors associated with organization practice that produce stress and cause diabetes mellitus and hypertension.

In the study area, the economic status of radiographers is poor because many radiographers are the first-generation higher education holders in their family. Due to poor family background, many students after their school education choose this kind of one or two years of diploma courses. They get job immediately as technicians in various paramedical departments: radiography, nursing, medical laboratory, catheterization lab, dialysis, ECG and EEG departments. However, their salary structure is poor, and their growth in the field is also minimal and slow.

Over the period of time, many employees get adapted to the work system. Hence, they do not go for any higher education. Although they do the work enthusiastically and cope with long working hours, when they get older, their health will not get used to long working hours and heavy workload, which arises due to lack of manpower and poor organizational culture.

Similarly, the poor salary structure in various hospitals is also the main reason that supports them to manage the family with no healthy and balanced food. Besides, long working hours and shift work also do not allow them devoting enough time for physical exercises. After forty years of age, all these factors join together: long working hours, heavy workload, financial issues, lack of nutritious diet and lack of attention on health. Consequently, diabetes mellitus and hypertension develop.

Respondents' perception about diabetes and hypertension is moderate. When asked whether they are diabetic and hypertensive, very few respondents, who are above 40 years said they are diabetic, not hypertensive. When asked further whether they know causes of diabetes, they enumerated too much stress, work pressure, family-related worries, inadequate sleep and rest, lack of balanced food.

Among few diabetics, some of them said their parents were diabetic. When asked about the way of handling diabetes, most took medicines but did not follow any life-style modification to manage it. They

also said they did not have enough time to do exercises and could not follow routine time schedule to take food and do physical exercises.

From the obtained responses, the organization related factors also play a remarkable role in the cause of diabetes. Hospital management should show deep concern about their employee's diabetes issues. If managers know that their employees are diabetic, they should give some relaxation in their work schedule. They can be allowed to have food in time. If they take medicines for diabetes, hospitals can, if possible, offer them medicines with a concession rate considering their salary range.

5. Discussion of findings

This present study has found that sleeping and digestive disorders are the health problems of radiographers. In interviews, most radiographers said that irregular shift work, long working hours, heavy workload and inadequate rest time are some of the reasons for these problems.

These findings are corroborated with the results by Holt (1993) who indicated stress can lead to a variety of physical complaints, including sleep and gastro-intestinal problems. Also, it correlates with Jackson & Schuler (1985) who investigated that stress affects confidence and produces anxiety and depression.

The results of the present study such as body pain and difficulties in sleeping are supported by the studies of Shah (1990), Critchley et al. (2004) and Mansor et al. (2003). They observed that physiological stress correlates with headache, migraine, abdominal pain, lethargic problems, backache, chest pain, fatigue, heart palpitation, sleep disturbance and muscle ache, as well as changes in eating, drinking, sleeping and smoking habits.

The present study has identified that depression, sleeping difficulties, and body ache are the health problems of radiographers. In discussion with radiographers, it was noted that stress, heavy workload, long working hours, inadequate manpower in the department and lack of support from the top officials are the reasons for health problems.

This finding goes along with the study of Maslach (1986) who indicated that stress has been connected with decreased psychological well-being and would manifest as depression, anxiety, low self-esteem or dissatisfaction. The same result also provides support for the study of Lu (2008) and Antoniou et al. (2003). They reported that stress produces sleep disturbance, leg cramp, back pain, stiff neck and headache, and that psychological stress is associated with anxiety and depression burnout, job alienation, hostility, depression, tension, anger, anxiety, nervousness, irritability and frustration.

The current research has also uncovered that hypertension, depression, emotional disturbances, digestive disorders are the problems of radiographers. In discussions with them, it was understood that heavy workload, lack of supportive leadership, long working hours, shift work systems, inadequate welfare facilities, too much stress are the causes of those problems.

Such problems are supported by the studies of Guthrie (2006), Kyriacou (2001) and Kyriacou & Sutcliffe (1977). They indicated that stress has also been strongly associated with temporary and chronic illnesses, such as headache, hypertension, reduced immune response, stomach complaints, ulcers, depression and stroke.

The findings of this present research, body pain, sleeplessness and weight loss are completely going along with the results of Rajan and Vijayalakshmi (2016). They exposed that pain in neck, back, waist and shoulder, sleeplessness, skin disorders and weight loss are typical for sanitary workers.

This research has found that emotional disturbance is the health problem of radiographers. It has been observed in the data collection that most respondents reported on heavy workload as the reason for emotional issues such as depression and stress. This result is corroborated with the findings of Gidman et al. (2007), Bond et al. (2008), Eden et al. (2009) and Gidman (2011). They observed that workload increased stress levels among pharmacists and disturbed balancing work and family life.

6. Suggestion and conclusion

Suggestion

The following suggestions are given by the researcher based on the study findings both to sort out risk factors associated with health problems and to improve health of radiographers working in multi-speciality hospitals:

- Hospitals should follow working hours prescribed by the government. The three-shift working system with eight-hour duties should be implemented so that employees should have normal workload since long working hours affect their health very severely. Adequate rest at the frequent interval should be given to cope with long working hours. In the same way, adequate manpower should be appointed according to the workload (volume of patients). Vacancy positions should be filled as immediate as possible so that few employees should not carry too much workload. In the same way, if necessary, assistants (non-radiographers) can be appointed to assist radiographers to transfer mobile radiography machines to different departments.
- Leadership skills of managers of radiography departments should be enriched by carrying out continuous assessment and providing training and development at frequent intervals so that they should learn how to facilitate the work processes, to treat subordinates equally with dignity and to allocate the tasks and shift schedules fairly without discrimination. They should also learn how to assess commitment levels, health conditions and other challenges of radiographers, and what steps have to be taken at their level to figure out those issues.
- Ergonomic training with regard to bending, lifting heavy weights and stair climbing should be given so that employees should perform their work simply and easily without getting physical hurts or injuries. Similarly, education and training about various precautionary methods must be followed while processing the X-ray film in chemicals without hurting skin or eyes. It is also important to provide health education about how to balance their work and family life equally, how to manage emotions intelligently, how to tackle emotionally imbalanced patients cleverly.
- Welfare facilities such as rest rooms, medical facilities with frequent medical check-up, nutritious food at a concession rate, immunization and infection-free environment should be given to maintain and improve health. Health education such as diet control, importance of balanced food, physical exercises and rest should be given both to prevent and manage diabetes mellitus, hypertension and mental stress.

Limitation of the study

The study comprises the following limitations.

Firstly, the study has focused on radiographers working in private multi-speciality hospitals. It has not studied radiographers in single speciality hospitals, government hospitals and diagnostic centres. Similarly, the study has chosen limited hospitals in Tirunelveli City only. It has neither covered all hospitals in the study area nor focused the entire district.

Secondly, the study has sampled only 60 respondents from chosen popular hospitals using both judgement and convenience sampling techniques. It has not studied all radiographers in the study area.

Thirdly, variables used in this study are very few. It has discussed only health problems radiographers suffer from. It has not considered what are the risk factors causing those health problems, despite being discussed in interpretation based on the data collected through interview process.

Fourthly, the study has administered the statistical tool: the percentage method. It has neither used advanced tools nor tested how the discussed health problems in this study differ among radiographers of age groups, gender and income status in terms of severity.

As a result of the limitation, results of this study cannot be extended to all hospitals in the study area. There is a need of huge precautions to generalise results to other professional employees, hospitals and districts. The work environment and other causative factors of health problems among radiographers differ from hospital to hospital.

Future research directions

This study gives enormous opportunities and shows so many ways for experts to carry out their research in future. Future studies can be undertaken in the following ways.

Firstly, this same problem can be examined as a big study with large samples, including either all hospitals in the study area or extending the study into the whole district. Similarly, this study can be extended to radiographers working in single speciality hospitals, government hospitals and diagnostic

centres to know their health status and also how far their health problems differ from radiographers of multi-speciality hospitals.

Secondly, the same concept can be applied to other categories of employees in hospitals: paramedical employees (nurses, pharmacists, medical laboratory technicians); non-medical employees (sanitary workers, maintenance workers, security guards, receptionists, administrative and cafeteria employees). Similarly, a comparative study can be undertaken as how health problems of radiographers differ from other paramedical and non-medical employees.

Thirdly, the same study can be done with some additional variables: risk factors associated with health problems of radiographers; impacts of health problems of radiographers on their commitment, productivity, morale and job satisfaction.

Fourthly we can frame hypothesis or add other dependent variables: commitment, productivity, morale, job satisfaction. We may study health problems differ among radiographers of different age groups, gender, experience and income status.

Conclusion

This survey based on the descriptive research undertaken in Tirunelveli City, Tamil Nadu has examined various health problems of radiographers working in private multi-speciality hospitals. The sample comprised 60 radiographers selected via convenience and judgement techniques. Primary data were collected using the questionnaire method. Secondary data were collected from books, journals and websites. The percentage method was administered to understand perception of radiographers towards various health related problems.

The study result found that tiredness and low energy, body pain, difficulties in sleeping, depression anger and emotional disturbances and digestive disorders were the foremost health-related problems. Skin and eye problems. urinary tract infection, diabetes mellitus and hypertension, irregular menstruations, weight and hair loss were the next foremost health problems of radiographers. The perception of the respondents towards the discussed variables was moderate.

To obtain maximal productivity from radiographers and get them to give their best to patients, it is crucial for hospital management to create proper work environment. It must be characterised by appropriate rules and regulations, proper leadership, great welfare facilities, high technologies. That can enable radiographers to work comfortably without spending too much energy and getting their health hurt and injured. Similarly, it is equally important to get radiographers aware of their health conditions and risk factors associated with their work. Otherwise, that influences their health negatively. Therefore, employees should know how to safeguard themselves from those risk factors.

Authors' contribution: Chapters 1-6 – Durairaj Rajan. Data analysis – Piyanka Dhar.

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