RADIOLOGIC TECHNICIANS' STRESS, JOB SATISFACTION, ANXIETY&DEPRESSION, AND ITS IMPACT ON THEIR PROFESSIONAL RELATIONSHIP WITH RADIOLOGISTS: THE CASE OF 65 RADIOLOGIC TECHNICIANS IN PUBLIC FACILITIES IN ADDIS ABABA, ETHIOPIA.

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MSW DISSERTATION PROJECT RESEARCH

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Declaration

I hereby declare that the dissertation entitled RADIOLOGIC TECHNICIANS' *STRESS, JOB SATISFACTION, ANXIETY&DEPRESSION AND ITS IMPACT ON THEIR PROFESSIONAL RELATIONSHIP WITH RADIOLOGISTS: THE CASE OF 65 RADIOLOGIC TECHNICIANS IN PUBLIC FACILITIES, IN ADDIS ABABA, ETHIOPIA* Submitted by me for the partial fulfillment of the MSW to Indra Gandhi National Open University (IGNOU) New Delhi is my own original work and has not been submitted earlier to IGNOU or to any other institution for the fulfillment of the requirement for any other program of study. I also declare that no chapter of this manuscript in whole or in part is lifted and incorporated in this report from any earlier work done by me or others.

Certificate

This is to certify that *Mr. Tesfaye Ejigu Begashaw* student of MSW from Indra Gandhi National Open University, New Delhi was working under my supervision and guidance for his project work for the Course **MSWP-0**

Address of the Supervisor_____

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Phone No _____

Certificate

This project work entitled RADIOLOGIC TECHNICIANS' STRESS, JOB SATISFACTION, ANXIETY&DEPRESSION, AND ITS IMPACT ON THEIR PROFESSIONAL RELATIONSHIP WITH RADIOLOGISTS: THE CASE OF 65 RADIOLOGIC TECHNICIANS IN PUBLIC FACILITIES IN ADDIS ABABA, ETHIOPIA which I am submitting, is my genuine and original work.

Place: **Signature**_____

Date: **Name**_____

Acknowledgement

Abbreviations

CT – Computerized Tomography

DR – Digital Radiography

IPE – Inter-professional Education

MRI – Magnetic Resonance Imaging

RT – Radiologic Technologist

ERRTA- Ethiopian Radiographers' & Radiologic Technologists' Association

A.A.U. - Addis Ababa University

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CHAPTER ONE

1. INTRODUCTION

The diagnostic radiology team comprises of radiologists and radiographers or radiologic technologists. The two had organized the diagnostic undertaking in such a way that radiographers do the image and radiologists do the interpretation and the ultrasound, until very recently. Radiologists have a graduate certificate but radiographers have not. Radiologists are paid higher than the radiographers and are bound to be the boss in the department.

Medical radiography is a broad term that covers several types of studies that require the visualization of the internal parts of the body using x-ray techniques. Radiography means a technique for generating and recording an x-ray pattern for the purpose of providing the user with a static image(s) after termination of the exposure (www.fda.gov).

Casual observation and informal discussions indicated that radiographers are not happy about their professional relationship with radiologists for a number of reasons. Radiologists are superior over radiographers. They gain financially at the expense of radiographers, who do the risky and daunting part of the duty. Radiographers are exploited systematically by radiologists and even others (Esayas Tiruneh, head of Ethiopian Radiographers & Radiologic Technologists Association/ERRTA). They enjoyed inferior professional position given the fact that their curriculum was outdated and interfered with negatively by radiologist. As teachers at the department of medical radiologic technology remarked the curriculum had been organized intentionally, to incapacitate radiographers academically until finally radiographers themselves engaged in curriculum development to change the situation.

Radiographers are denied equality. They are denied carrier development options and are singled out as worthless slaves in the health care profession. Their professional development efforts remained stunted. They don't have post graduate educational programs to look up to, till date. Also, they are hindered from doing ultrasound examinations says the Ethiopian Radiographers' and Radiologic technologists' Association (ERRTA).

Radiographers also feel that radiography does not give them career development options and seem to dislike it. For this reason as well, in 2007 G.C freshly assigned students boycotted the department of radiography to shift to other departments (A.A.U. College of Health Science, Department of Medical Radiologic Technology). Taken aback University officials asked why they boycotted only to hear from the assignee that the infamous radiography has no carrier development options or has gloomy future. Most radiographers, this researcher has known, changed their profession lacking in hope and educational opportunities to grow.

In an informal discussion with professionals, this researcher found that the radiographers suffered from recurrent anxiety and depression. Radiologists, however, took the upper hand. They controlled the bureaucracy. "Doctor-hood" hypnotized all others out of wit. All of these resulted in a rough professional or social relationship. The two interest groups do not communicate well. Derision deeply rooted between radiologist and radiographers/technologists hindered progress. Standardized health care provisions, for clients, remained far-fetched. Patients suffered from unsatisfactory diagnostic results and poor communication as a result of rough relationship between radiologists and radiographers (Anonymous hospital sources). These differences may also be a result of different trainings and philosophical approaches underpinning the professions (Fitzsimmons & White, 1997).

Rough relationship persists not only in radiology, but also in other fields such as psychiatry and pharmacy. Psychiatrists and psychiatry MSC graduates, have similar battle to fight. Gynecologists and midwives suffer similar incompatibility. Pharmacists and druggists had to fight the territory battle all along the time in Ethiopia asserted hospital sources. Baxter and Brumfitt (2008) argued "Inter-professional working clearly presents considerable challenges to practices dominated by power and status considerations. Professional differences have been described as "tribalism" (Beattie, 1995), developed as a result of professions evolving separately, with deeply rooted boundaries between them".

Nonetheless, no efforts have so far been made to address the issue in a social actionist manner to the best knowledge of this researcher. Some formed professional associations to fight for their right, but professional associations got easily cracked down. In a personal interview with a couple of psychiatry MSC graduates this researcher found an impression that Psychiatry MSC graduates have not yet been able to form professional association because of infiltrations.

Workers, experiencing job dissatisfaction may involve themselves into unionization. Attempts at unionization can spread an individual's perception into the perceptions of others compounding the effects of dissatisfaction (Robbins & Judge 2007). It had been noted that a major distinction between joint working practice in healthcare and in other contexts such as business and industry, is that workers in healthcare have professional groupings and different allegiances (Firth-Cozens, 2001).

Very recently few radiologic technologists managed to do ultrasound as a result of generation-old struggle to change the curriculum. That is only a quick fix to the hindrance though. Also, the department detached itself from radiology department (A.A.U. College of Health Science, Department of Medical Radiologic technologist). Graduates reported that the newly developed curriculum was updated to include the four major medical departments: *pediatrics, gynecology, surgery*, *and medicine*. Despite the effort much remains to be achieved in the direction of opening post- graduate programs for technologists. Sorting out territorial disputes by legally acknowledging radiographer's and technologists' contribution in benefitting the general public and also empowering the side-lined professional radiographers and technologists to a level of worth and confidence is the direction towards changes.

Existence of rough relationship between the two parties manifest in lack of effective communication, job dissatisfaction, occupational stress, lack of career development options, territorial dispute and many other variables (ERRTA). Communication is a challenge in all human endeavors. And poor communication occurs regularly in every day interactions from personal relationship to business transactions. Rarely, however, does faulty communication risk such grave consequences as when it occurs in the health care setting where the lives of vulnerable patients lie in the balance. (Dixion, Larison, & Zebari, 2006)

Lack of inter-professional understanding and effective communication leads to confusion, concerning the various roles of health care professionals; thus leading to increased occupational stress. "Stress has been identified as 'nonspecific response of the body to any demand made upon it' (Sechrist and Frazer, 1992, p. 97)". Employees in health care settings and technologists in particular, must deal with significant amounts of occupational stress. When stress levels reach uncontrollable amounts or when employees do not cope effectively with stress, burnout can

occur. Burnout is characterized by negative emotional, psychological and physical reactions to work related stress (Raj, 2006, p. 2).

The major source of stress, for those employed in the health care fields, are as diverse as the fields themselves. Some of the general areas identified are: Work content, work organization, responsibility, role conflict/ambiguity, and career development (Sechrist & Frazer, 1992). Sechrist and Frazer identified 35 stressors in radiologic technology. Eight of the 35 were related to communication and interpersonal relations. 'Disrespectful physicians" was ranked as the number one cause of stress. Other stressors related to poor communication included 'lack of respect', which ranked 5th of the 35 stresses, followed by "uncooperative radiologists", "non supportive radiologists", and "demanding radiologists" ranking 7th, 8th, and 9th respectively. "Demanding physicians" ranked 14th, "uncooperative workers" 16th, "uncooperative hospital staff" 20th and finally "uncooperative nurses" ranked 35th.

In a 2006 study, Raj supported the findings of Sechrist and Frazer's 1992 study when he listed role ambiguity and role conflict as one of the six categories of stressors for radiologic technologists. He stated, "although stressors encountered at work are many and varied, they can be separated into the following categories: organizational stress, work overload, boundary extension, career developments, leadership style, and role ambiguity and role conflict" (Raj, 2006, p. 1). It seems that the issue of role ambiguity and role confusion would be the easiest to address and could have been resolved in the 14 years gap between the 1992 Sechrist and Frazer's study and the 2006 Raj's study; however, these issues continue to cause stress among allied health professionals.

The department of medical radiologic technology at Addis Ababa University (AAU) was first established in 1971G.C at Menelik II hospital along with laboratory, pharmacy and health assistants' training programs- collectively known as "Medical auxiliary training school (MATS)". In 1982G.C, the school of radiography was separately transferred to Tikur Anbessa hospital A.A.U. College of Health Science, Department of Medical Radiologic Technology. In over 40 years of service, the school has graduated around 350 diploma graduates!! That is to say, every year, for the last 40 years, it has graduated eight professionals. However, some of the graduates have now abandoned their profession and shifted to other walks of life. Radiography, as a field of health Care, is experiencing a successful leap along with the ever advancing medical

imaging technology worldwide (Addis Ababa University (AAU) College of Health Science, Department of Medical Radiologic Technology).

2. Statement of the Problem

Diagnostic radiography or radiologic technology is a profession where patients are referred to take X-ray, Computerized Tomography (CT), Magnetic Resonance Imaging (MRI) and Ultrasound examinations. The profession, as any other in medicine works in a team to realize medical examinations. Patients benefit from the examinations as does the examiner, for imaging technologies provide infallible medical data.

Diagnosis realizes when a radiographer or radiologic technologist works in tandem with radiologist, in a team under the department of radiology. Radiologists are engaged in the interpretation of images, done by radiographers/rts. They are recruited to specialize in diagnostic radiology after serving as medical doctor. Radiographers & radiologic technologists however, are diploma or degree graduates, with 2-6 years University study. The two professionals have worked together ever since the introduction of diagnostic radiology in Ethiopia.

But the relationship between the two has not been assessed by any systematic study. Several radiographers openly state that the doctors have been dominant, domineering and oppressive against the technicians/technologists. They take the lion's share of the benefits earned. They took the upper hand in the management of the department undertakings. Keeping the technicians/rts relegated to servitude, they secured financial superiority and bureaucratic power. Lawlessness coupled with "doctor-hood" enabled them to take bureaucratic ascendancy to deny their teammates carrier development options. Technicians/RTs have not led a decent life because they did not get a decent payment. They risked their health and their life from radiation but have been underpaid. They have been denied education, which would have taken them up the ladder. Their professional development endeavors have met huge challenges till date. It has been subject to the direct and indirect influences of the radiologists. Technicians'/RT's professional carrier development has been conceived as a direct threat to the financial benefits of radiologists (Esayas Tiruneh, head of ERRTA).

This socially irresponsible move continued unabated despite government's policy to foster mid-level health professionals. Many professionals in the field feel that this resulted in

hopelessness, sadness, anger and helplessness. Anxiety and depression has taken hold of the victims. The fact that their colleagues (in other departments) comparatively succeeded in life and in professional development adds to the psychological trauma technologists suffered for so long. For instance, one of the teachers at the department of medical radiologic technology at Addis Ababa University; having no career development options shifted to study medicine, incurring all the costs on his own. One can cite numbers of such examples. Their relationship with radiologists deemed to remain rough throughout.

The youth in the radiologic technology profession say that they have a dark future now. Some have already left the profession behind and changed their field. In 2007 alone, a class full of assignees (55 students) boycotted radiologic technology on account of the fact that radiologic technology lacks in prospect and pride (A.A.U. College of Health Science, Department of Medical Radiologic Technology). Their complaint received attention from Addis Ababa University officials and hence, shifted to other fields after a lapse of one year. Even after the department separated from the department of radiology to stand on its feet, the challenge continued secretly. Radiologists continued to influence indirectly through the bureaucratic network "doctor-hood" instigated. School of radiography/RT still needs the support of the radiology department to run some of its programs at least until it train its own staves on post-graduate level. Post-graduate programs for technologists failed to kick off due to radiologists' ill will (former head of the department of the medical radiologic technology told this researcher that radiologists are eager to open post-graduate programs for technologists in a non-medical stream, against technologists' interest).

This is a serious social problem that has affected generations of youth who were unfortunate enough to be assigned to study radiography/ radiologic technology…. To this end this research attempts to look into the current professional relationship between the two interest groups in Ethiopian radiology.

3. Research Question

What is technologists' professional relationship with radiologists like; with respect to stress, job satisfaction and anxiety& depression?

4. Objective

Relationship, good or bad, exists between radiologists and radiographers/rts. The two professional groups work together under the department of medical diagnostic radiology. One cannot exist without the other, as the two professional groups are highly inter-related and one finds completeness in the other. This research attempts to make an assessment of the current relationship (professional) between the professional groups in relation to Work Stress, Job Satisfaction and Anxiety & Depression and examine its impact.

4.1 Specific Objectives
- Assess the professional relationship that exists between Radiologists & Radiographers/rts.
- Assess how the professional relationship manifests in day to day interactions.
- Assess Radiographers'/rts' Job Satisfaction.
- Assess Work Stress among Radiographers/rts.
- Assess Anxiety & Depression among Radiographers/rts.
- Assess the implications of the Current professional Relationship.
- Assess the impact of this on Radiographers/rts.
- Assess how the relationship can be improved to the benefit of the mass.

5. Significance of the Study

This research will figure out the relationship between Radiographers/RT and Radiologists in terms of inter-professional communication, occupational stress, job Satisfaction, and anxiety & depression on the part of the former. Understanding current relationship between the two professional groups helps identify factors affecting their relations positively or negatively and promote the positive ones; curtailing the negative factors. This, in turn helps improve radiologic service provision to patients. It also paves the way to empower Radiographers/RTs in future endeavors. Tensions created as the aftermath of current relationship will be resolved if recommendations and suggestions of this study are heeded. Above all, the significance lays in the protection and saving of future generations from professional stagnation and frustration. Professional titles camouflaged the dire situation radiographers/technologist got stuck in. But this is a serious issue affecting the major social group in the country-*the youth*. Systematic deprivation of radiographers/RTs cannot continue like this for generations. It must be changed and updated to the level of international practices.

6. Scope of the Study

The research on radiology-radiography relationship and the anxiety/depression, work stress and job satisfaction among radiographers/ technologists observed the situation from the side of the vulnerable group.

For the reasons of unresponsiveness and un-cooperation, radiologists are not involved in the study or the situation from their side has not been included. Had it been included, it would have added a new dimension to the results to be obtained. Also, the bigger picture of the challenge would have been drawn.

However, this is a fundamental descriptive research done on the belief that it will pave the way for researchers to delve deep into the details of *radiological inter-professional relationship*. And hence makes a restricted contribution to understanding relationship.

CHAPTER TWO

2. Review of Literature

Stacey Q. Deshkulkarni in heritages on "perception of inter-professional communication: causes and effects on patient care, occupational stress, and job satisfaction" reviewed the following. The science of radiologic technology, also referred to as radiography, has a long and interesting history that began over 100 years ago. Following in the footsteps of Sir William Crookes, Phillip Lenard, and Arthur Good speed, a German physicist named Wilhelm Conrad Roentgen discovered x-rays on November 8, 1895 (Harris, 1995). Roentgen gave the first oral presentation of his discovery on January 23, 1896. Following the discussion, he produced a Roentgen ray image of one of the attendees. "….Interestingly enough, the linkage between the discovery of x-rays and its application to the medical profession was immediate" (Harris, 1995, p. 2). Reactions of physicians varied. Many viewed the discovery with contempt but, fortunately, there were those who recognized the remarkable potential of the diagnostic uses of x-rays (Harris, 1995).

To be exact 120 years lapsed since x- radiation was first discovered. The first x-ray image produced was that of Roentgen's wife, in the laboratory where Roentgen was studying the properties of Cathode rays. Along with the birth of a science came the birth of a profession. Those who worked to guard the purity of intent of x-rays were those who would gain the name of technician. "The relationship between doctor and technician would be a long struggle for understanding and professional credibility as the responsibility for performing diagnostic and therapeutic procedures shifted to medical specialists educated in anatomy, radiation safety, and patient care - the radiologic technologists of today" (Harris, 1995, p. 3).

This struggle continues as evidenced by Sechrist and Frazer's 2006 study that reported 'disrespectful physicians' as the number one source of stress for radiographers. Doctor's and

technician's relationship has been spoiled since the time x-ray was discovered. Doctors are contemptuous, disrespectful and source of stress for radiographers since then. Their relationship would be characterized by a long struggle for understanding and for professional credibility.

2.1 Inter-Professional Communication and Collaboration

"Each health care profession has a different culture that includes values, beliefs, attitudes, customs, and behaviors. Professional cultures evolved as the different professions developed, reflecting historic factors, as well as social class and gender issues" (Hall, 2005, p. 188). Radiologic technologists, nurses, physicians, and various other allied health professions that form health care teams have varying degrees and educational requirements. "Educational experiences and the socialization process that occur during the training of each health profession reinforce the common values, problem-solving approaches and language/jargon of each profession" (Hall, 2005, p. 188).

Increasing levels of complexity of knowledge and skills required caring for the aging population and patients with chronic illnesses, has led to an increase in specialization of health care disciplines and decreased interdisciplinary exchange.

It is more comfortable to remain in one's own discipline where communication is facilitated by specialized vocabulary, similar approaches to problem solving, common interests, and understanding of issues. This discipline-specific view of the world is taught and reinforced through the socialization process of educational experiences. (Hall & Weaver, 2001, p. 867) Communication with other members of other health care disciplines becomes increasingly difficult as the cognitive map developed through professional education and socialization becomes more ingrained (Hall & Weaver, 2001).

Culture in Ethiopian radiology relegates technicians or technologists. Owing to the specialty certificate, radiologists look down on technologists. They are bossy, arrogant and exploitative. They are not immune from the sickness "doctor-hood" instigates. They tend to get rich at the cost of radiographers and technologists.

Northouse and Northouse (1998) identified three problem areas that hinder inter-professional communication. Role stress, the first of the problem areas, refers to anxiety brought on by the basic nature of working in health care and by difficulty in carrying out professional roles. Role stress can be delineated into role conflict and role overload. Health professionals who

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are socialized to carry out one role but are expected to fit another in the workplace experience role conflict. This type of role stress is caused primarily by a gap between education and service. "...New graduates learn that their ideals and aspirations are seldom the same as the values that receive praise on the job" (Northouse & Northouse, 1998, p. 94). However, not only new graduates experience role conflict. More seasoned professionals can experience this type of role stress as a result of being expected to perform tasks that are not related to their professions. Role overload is brought on by a situation in which a health professional becomes responsible for more than he or she can reasonably achieve in a given period of time (Northouse & Northouse, 1998).

Lack of inter-professional understanding, Northouse and Northouse's second problematic area, has been linked to role confusion and territorial disputes. "We would expect health providers, of all people, to understand the many professional roles in health care settings. Amazingly, this is not the case"(Northouse & Northouse, 1998, p. 97). Some progress has been made in this area; nonetheless, confusion about the unique expertise and knowledge of each profession still exists. The major cause of this problem is the fact that professional education takes places in virtual isolation from other health care disciplines. "A health professional can spend between 2 and 8 years in an educational program and yet get little exposure to the roles and skills of the other professions" (Northouse & Northouse, 1998, p. 97).

Territorial disputes lay behind the bad professional relationship within the realm of Ethiopian diagnostic radiology. The fight to regain control of radiography's territory, from the grips of radiologists has been fierce. Radiologists do not want radiographers to do Sonography examinations. They do not want radiographers to do film interpretation. They do not allow appropriate career development options for radiographers and technologists. Today, radiography is the only profession within the health care realm that has got no post graduate program in the country.

Radiologists only gain financially by allowing themselves the benefit of doing ultrasound examination and film interpretation. If radiographers/technologists do these, radiologist's personal gain will be compromised. Yet, the wider public benefits from the accessibility of quality radiological services. In public hospitals there are only 105 radiologists and 271 radiologic technicians (Ethiopian Ministry of Health, Annual Performance report; 2013/14).

The third problematic area that hampers inter-professional communication identified by

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Northouse and Northouse is the struggle for autonomy. The freedom to self-govern is vital for professionals to fulfill their roles. "In today's continually changing health care system, health professionals need autonomy so that they can shape changes rather than just respond to them" (Northouse & Northouse, 1998, p. 100).

The ability to communicate and function effectively as part of a team is, for most, a learned skill. "With the increasing prevalence of teamwork in health care settings, health professional students need to learn how to be effective and contributing team members" (Rodger, Mickan, Marinac, & Woodyatt, 2005, p. 230).

In a study conducted at an Australian university, 81 allied health students participated in a 4-hour inter-professional workshop designed to enhance teamwork. The important role of inter-professional education in increasing students' positive attitudes toward their own and other professional groups and in minimizing negative professional stereotypes was highlighted. The majority of students reported that the most significant insight gained through the workshop understood the roles of different professionals. "This recognition of the comparative value of different professional contributions in providing holistic patient care is one of the starting points for education about inter-professional teamwork…." (Rodger et al., 2005, p.230). Implementing components of inter-professional education in healthcare curricula is a much needed step in improving inter-professional communication.

Many researchers have called for the implementation of inter-professional education (IPE); however, this is not as simple as it may seem. Obstacles to employ IPE within the educational system extend beyond difficulties in scheduling across curricula. Opinions of faculty members are also crucial points to consider. "It has been suggested that the diverse attitudes and values that prevail amongst different health sciences faculty members, including lack of respect and knowledge of each other, can be fundamental barriers to inter-professional teaching and learning" (Curran, Sharpe, & Forestall, 2007, p. 892-893).

In a study conducted at the Memorial University of Newfoundland, a survey was completed by faculty members from the medicine, nursing, pharmacy, and social work departments. "….Profession, gender, and prior experience with IPE appear to be key attributes that are related to positive attitudes towards IPE and inter-professional teamwork" (Curran et al., 2007, p. 893). Medical faculty scored the lowest in overall mean score across three survey categories. "As faculty attitudes are believed to be an important factor influencing the

development of IPE initiatives within academic health science settings, faculty development efforts aimed at changing attitudes and increasing understanding of inter-professional collaboration are critical" (Curran et al., 2007, p. 895-896).

Inter-professional collaboration within the multidisciplinary health care team is vital to its success in achieving the objective of delivering the highest quality of care to the patient. A radiologic technologist's common teammates include physicians and nurses. Nurses form an important connection between allied health professionals and physicians. "...Some researchers link nurse/physician collaboration to increased patient and staff satisfaction, enhanced retention, and reduced costs" (Kramer & Schmalenberg, 2003, p. 35). In a study of nurses' perceptions of multidisciplinary teamwork, Atwal and Caldwell interviewed 19 nurses and conducted direct observation to study nurses' interactions while participating in multidisciplinary teams.

The findings of this study identified three barriers that hindered teamwork: (i) differing perceptions of teamwork, (ii) different levels of skill acquisitions to function as a team member, and (iii) the dominance of medical power that influenced interaction in teams. Thus, education establishments and nursing managers need to ensure that the acquisition of team-playing skills is an integral part of continued professional development (Atwal & Caldwell, 2006, p. 359).

Although radiologic technologists and nurses encounter each other frequently, strained interaction persists. A 2003 article published by two registered nurses offered suggestions for improving relations between radiologic technologists and nurses. Poor inter-professional understanding between these two health professional groups is a source of misconceptions. Perception is everything. ...The radiologic technologist may think the nurse does not want to help. The nurse may think it is his/her job to stay out of the way of the radiologic technologist. The nurse does not understand why a certain position (that sometimes looks like a yoga contortion) is necessary. Nurses often perceive that the radiologic technologist does not worry about tubes becoming dislodged or causing the patient discomfort. It is all perception, and the radiologic technologist will have to find a strong voice and speak up. "The overall goal of improving communication and reducing the number of false perceptions will improve both the quality of patient care and the psyche of the health care practitioner…." (Feaster & Joy, 2003, p.42).

In order to achieve this goal, Feaster and Joy recommend that radiographers take every opportunity to educate their nursing colleagues by explaining procedures and rationale behind

the process because nurses receive very little education about radiologic procedures. They further advocate that radiographers take the time to understand the nurse's viewpoint that portable procedures are a disruption to the patient. "…Without collaboration and a collegial relationship [between radiologic technologists and nurses], perceptions by the patient that they are not receiving good care will become a reality" (Feaster & Joy, 2003, p. 42).

Collaborative practice involving good inter-professional communication and teamwork is hardly a new concept. "Key factors in the successful implementation of collaborative practice include a hospital environment receptive to change, proper timing, the staff's desire to improve the quality of patient care and inter-professional communication…" (Crowley & Wollner, 1987, p.59)   In an article published in 1987, Crowley and Wollner presented a plan for implementing collaborative practice and outlined the benefits of doing so.

The benefits for nurses, physicians, and the institution include:

- Improved communication, trust, and respect;

- Increased understanding of each other's roles and responsibilities;

- Greater consideration of each other's time and effort when developing treatment plans, research projects, or other changes in practice;

- A more collegial atmosphere with greater job satisfaction and feelings of self- worth resulting in improved nurse/physician recruitment and retention;

- More consistent policies and standards of practice developed and agreed upon by all parties concerned;

- The knowledge that changes can occur before they are induced by crises, and can be discussed with consideration for everyone's opinions and suggestions; and

- Reduced tensions among medical, nursing, and administrative staff at all levels. (Crowley & Wollner, 1987, p. 63)

"Collaboration is a substantive idea repeatedly discussed in health care circles. The benefits are well validated. Yet collaboration is seldom practiced" (Gardner, 2005, p. 1). Gardener identified lack of a shared definition, the complexity of collaboration, and the complexity of skills required to facilitate collaboration as barriers. In recognition of these obstacles, she offered 10 lessons to follow:

Lesson #1: Know yourself. Many realities exist simultaneously. Each person's reality is based on

self-developed perceptions. Requisite to trusting self and others is in knowing your own mental model (biases, values, and goals).

Lesson #2: Learn to value and manage diversity. Differences are essential assets for effective collaborative processes and outcomes.

Lesson #3: Develop constructive conflict resolution skills. In the collaborative paradigm, conflict is viewed as natural and as an opportunity to deepen understanding and agreement.

Lesson #4: Use your power to create win-win situations. The sharing of power and the recognition of one's own power base is part of effective collaboration.

Lesson #5: Master interpersonal and process skills. Clinical competence, cooperation, and flexibility are the most frequently identified attributes important to effective collaborative practice.

Lesson #6: Recognize that collaboration is a journey. The skill and knowledge needed for effective collaboration take time and practice. Conflict resolution, clinical excellence, appreciative inquiry, and knowledge of group process are all life-long learning skills.

Lesson #7: Leverage all multidisciplinary forums. Being present both physically and mentally in team forums can provide an opportunity to assess how and when to offer collaborative communications for partnership building.

Lesson #8: Appreciate that collaboration can occur spontaneously. Collaboration is a mutually established condition that can happen spontaneously if the right factors are in place.

Lesson #9: Balance autonomy and unity in collaborative relationships. Learn from your collaborative successes and failure. Becoming part of an exclusive team can be as bad as working in isolation. Be willing to seek feedback and admit mistakes....

Lesson #10: Remember that collaboration is not required for all decisions. Collaboration is not a panacea. (Gardner, 2005, p. 8)

2.2 Occupational Stress and Burnout

Facing continual challenges while attempting to meet the expectations imposed by funding agencies, administrators, and patients is an invariable part of a health care professional's workday. "Some of these challenges include communicating with patients, dealing with emotional issues often involving illness or death, working with other health professionals, and problematic scheduling associated with shift work" (DiGiacomo & Adamson, 2001, p. 106).

These circumstances may cause an individual to experience stress. "Detrimental effects of such stress may include both immediate and long-term physical, emotional, or psychological problems…." (DiGiacomo & Adamson 2001, p.106).

"An occupational stressor may be defined as any demand, physical or psychological, encountered in the course of working. ….Work stressors are influenced by such personal characteristics as personality, value system, health, educational background, goal orientation and perception of job situation" (Raj, 2006, p. 1). Raj outlined organizational stress, work overload, boundary extensions, careers developments, leadership style, and role ambiguity and role conflict as categories of occupational stressors. Of these six categories, five can easily be related to inter-professional communication and collaboration.

The first of these categories is organizational stress which Raj defined as "…the general and often unconscious mobilization of the individual's energy when confronted with any organizational or work demand" (Raj, 2006, p.1). Physical demands, role conflicts, tasks, and interpersonal relationships are included in this category. Mismanagement of organizational stress is capable of causing harmful effects to employees in the form of strain and distress. It is not, however, a one-way street in view of the fact that a positive feedback loop is created that detrimentally affects the organization as well. "Factors such as accidents, low productivity, absenteeism, and increased tardiness may disrupt the operation of an organization" (Raj, 2006, p.**2**).

Work overload stressors are the second category. This group of occupational stressors can be classified as either qualitative or quantitative. Qualitative overload stressors are more relevant to inter-professional communication and relationships and "occur when employees feel as though they do not possess the knowledge, skills, or aptitude to complete tasks" (Raj, 2006, p. 1). Quantitative stress occurs when an employee is not provided with adequate time to complete job assignments.

Thirdly, and perhaps the most readily applicable to inter-professional communication, is boundary extension stressors. These "occur in jobs where employees are required to work with other departments or organizations" (Raj, 2006, p. 1). Raj listed non-routine activities, demanding performance standards, and working in diverse, dynamic environments as possible causes of boundary extension stressors.

Career developments, Raj's fourth category, can also be stressful. "The process of changing jobs while trying to further one's career is very stressful; however, the lack of personal development associated with job mastery and prolonged experience in the same position often lead to boredom and stress" (Raj, 2006, p. 1-2).

The fifth category that contributes to occupational stress is leadership style. "Managers who display authoritarian behavior and are demanding, condescending, critical, or have no regard for personal relationships may cause pressure and tension to subordinates" (Raj, 2006, p. 2). Bolman and Deal support this conclusion with the results of a classic study performed by Lewin, Lippitt, and White in 1939. In this study of leadership styles conducted among boys' clubs "they found that leadership style had a powerful impact on both productivity and morale.

Under autocratic [authoritarian] leadership, the boys were productive but joyless and experienced a high level of dependence and frustration" (Bolman & Deal, 2003, p. 170). Hackman and Johnson further add credence by stating "...the leader adopting authoritarian communication can expect: high productivity...; increased hostility, aggression, and discontent; and decreased commitment, independence, and creativity among followers" (Raj, 2004, p. 42).

The sixth and final category listed by Raj is role stress. Northouse and Northouse agree with Raj that role stress is a cause of occupational stress but differs on their categorization. Northouse and Northouse listed role conflict and role overload while Raj listed role conflict and role ambiguity as the two types of role stress with work overload as a separate category of occupational stressors. According to Raj, "role ambiguity occurs when there is inadequate information about expected employee behavior. Role conflict occurs when an employee is forced to endure incompatible job demands" (2006, p. 2). DiGiacomo and Adamson further explain that "role stress is also characterized by role ambiguity, in which health professionals are given unclear instructions by their employers concerning policies, procedures, responsibilities, and authority" (2001, p. 106).

"When stress-coping skills are not adequate, burnout may occur…" (DiGiacomo & Adamson 2001, p.106). Schaufeli and Greenglass define burnout "as a state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding" (2001, p. 501). Considerable research has been conducted on burnout over the past 25 years.

What has emerged from all of this research is a conceptualization of job burnout as a

psychological syndrome in response to chronic interpersonal stressors on the job. The three key dimensions of this response are an overwhelming exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment. (Maslach, Schaufeli, & Leiter, 2001, p. 399)

The elemental quality and the most palpable manifestation of burnout is exhaustion. "…Of the three aspects of burnout, exhaustion is the most widely reported and the most thoroughly analyzed" (Maslach et al., 2001, p. 403). In order to cope with exhaustion and overload, an exhausted employee then takes action to distance himself/herself from the job both emotionally and cognitively. "…Distancing is such an immediate reaction to exhaustion that a strong relationship from exhaustion to cynicism (depersonalization) is found consistently in burnout research across a wide range of organizational and occupational settings" (Maslach et al., 2001, p. 403). Feelings of exhaustion or job detachment, in turn, lead to a feeling of inefficacy. "It is difficult to gain a sense of accomplishment when feeling exhausted or when helping people toward whom one is indifferent…" (Maslach et al. 2001, p.403).

Health care workers are especially susceptible to burnout. Their exposure to patient problems (psychological, social, and physical) leaves them vulnerable to chronic stress, which can be emotionally draining and, in due course, lead to burnout. Left unchecked, occupational burnout can have grave implications not only for health care workers, but also for their patients. (Akroyd, Caison, & Adams, 2002, p. 215)

In 2002, Akroyd et al. conducted a study on patterns of burnout among radiographers in the United States. The study found that "as a professional group, radiographers, exhibit high levels of the first stage of burnout (emotional exhaustion) when compared with national norms" (p. 218). The 2002 study also researched the predicators of burnout among radiographers. "Reassurance of worth, guidance, and workload had a significant impact, regardless of the stage of burnout. ...These findings indicate the importance to radiographers of being recognized as a valuable member of the work team" (Akroyd et al., p. 220).

Summary

After reviewing the comparative literature and research studies, the importance of effective inter-professional communication to health care in general and the profession radiologic technology in particular is obvious. In fact, it is so vital to radiography that the

American Society of Radiologic Technologist states in its practice standards for the profession: "To provide quality patient care, all members of the health care team must communicate effectively and work together efficiently" (ASRT, 2007, p. 27). "Radiologic technologists play an important role in the movement toward better communication. They must communicate directly with the patient, radiologists, and numerous other staff" (Scott, 2007 p.206).

3. Professional Boundaries

From Weber, sociologists have shown how professional groups seek to establish a privileged position for themselves closed off from the rest of society, a phenomenon Weber termed 'social closure'. Parkin (1979) shows how social closure is not 'once and for all', but is, in fact, a contested process. Other groups will attempt to come along and usurp the privileges of the 'professional' group in an attempt to gain some of the privileges of professional status, such as secure employment, higher wages, professional autonomy and so on. Witz (1992) has applied these ideas to nursing and midwifery, showing how these professions has simultaneously sought to exclude usurpers from below, while seeking to extend their role into areas hitherto considered being that of medicine. While Witz's analysis is largely historical, the struggle between, for instance, medicine and midwifery, continues to this day. We would maintain, along with, for instance Svensson (1996) and Allen (2001a, 2001b), that boundaries between professions are not fixed; either by statute or by the professions involved, but are, instead, a socially constructed phenomenon. While legislators and the profession's governing bodies can influence where the boundaries might be found, they remain locally determined and are, at least in part, negotiated.

4. What Is Social Construction?

4.1 Social Construction

Social construction talk is all the rage. But what does it mean and what is its point? The core idea seems clear enough. To say of something that it is socially constructed is to emphasize its dependence on contingent aspects of our social selves. It is to say: This thing could not have existed had we not built it; and we need not have built it at all, at least not in its present form. Had we been a different kind of society, had we had different needs, values, or interests, we might well have built a different kind of thing, or built this one differently. The inevitable contrast is with a naturally existing object, something that exists independently of us and which

we did not have a hand in shaping.

There are certainly many things, and facts about them, that are socially constructed in the sense specified by this core idea: money, citizenship and newspapers, for example. None of these things could have existed without society; and each of them could have been constructed differently had we so chosen.

As Ian Hacking rightly observes, however, in his recent monograph, *The Social Construction of What?* (1999), social construction talk is often applied not only to worldly items - things, kinds and facts - but to our *beliefs* about them. Consider Helene Moussa's *The Social Construction of Women Refugees* (1992). Clearly, the intent is not to insist on the obvious fact that certain women come to be refugees as a consequence of social events. Rather, the idea is to expose the way in which a particular *belief* has been shaped by social forces: the belief that there is a particular kind of person - the woman refugee - deserving of being singled out for special attention.

Talk of the social construction of belief, however, requires some elaboration of the core idea. For it is simply trivially true of *any* belief that we have that it is not necessary that we should have had it and that we might not have had it had we been different from the way we actually are. Consider our belief that dinosaurs once roamed the earth. It is obviously not inevitable that we should have come to this belief. We might never have considered the question. Having considered it, we might have arrived at a different conclusion, for a variety of causes: we might not have been interested in the truth; we might not have been as intelligent at figuring it out; we might never have stumbled across the relevant evidence (the fossil record).

These observations supply various boring senses in which any belief might be considered dependent on contingent facts about us. The important question concerns the role of the social once all of these factors have been taken into account: that is, keeping our skills and intelligence fixed, and given our interest in the question and our desire to learn the truth about it, and given our exposure to the relevant evidence, do we *still* need to invoke contingent social values to explain why we believe that there were dinosaurs? If the answer is 'Yes' - if it's true that another society, differing from us only in their social values, would have arrived at a different and incompatible belief - then we could say that our belief in dinosaurs is socially constructed.

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It is crucial, therefore, to distinguish between a constructionist claim that's directed at things and facts, on the one hand, and one that's directed at beliefs on the other, for they are distinct sorts of claim and require distinct forms of vindication. The first amounts to the *metaphysical* claim that something is real but of our own creation; the second to the *epistemic* claim that the correct explanation for why we have some particular belief has to do with the role that belief plays in our social lives, and not exclusively with the evidence adduced in its favor. Each type of claim is interesting in its own way.

If a thing were shown to be socially constructed in the first sense, it would follow that it would contravene no law of nature to try to get rid of it (which is not the same as saying that it would be easy to do so - consider Manhattan). If a belief of ours were shown to be socially constructed in the second sense, it would follow that we could abandon it without fear of irrationality: if we have the belief not because there is adequate evidence in its favor but because having it sub-serves some contingent social purpose, then if we happen not to share the social purpose it sub-serves we ought to be free to reject it.

Much important work has been done under each of these headings; most significantly, it seems to me, for the topics of gender and race. Simone de Beauvoir *(The Second Sex,* 1953) and other feminist scholars since have illuminated the extent to which gender roles are not inevitable but are rather the product of social forces. Anthony Appiah *(Color Conscious: The Political Morality of Race,* 1996, with Amy Gutman) has been particularly forceful in demonstrating that nothing physical or biological corresponds to the racial categories that play a pervasive role in our social lives, that these categories owe their existence more to their social function than they do to the scientific evidence.

Other claims are more controversial. Mary Boyle has argued that our belief in schizophrenia is socially constructed *(Schizophrenia: A Scientific Delusion?* 1990). Her claim is that there is no adequate reason to believe that the symptoms commonly lumped under this label are manifestations of a single underlying disease and, hence, that the search for its etiology by neurochemistry is doomed. Perhaps she is right: our understanding of mental illness is certainly in its infancy. On the other hand, there appears to be increasing evidence that the symptoms associated with schizophrenia are predictable significantly before their onset and that the condition is highly heritable. These facts point in the opposite direction.

In a flourishing research program, we find the expected mix of important and debatable work. What bears emphasis, however, is that while some particular social construction claims may be *empirically* controversial, the templates of which they are instances are in no way *philosophically* controversial. Both the abstract thought that some things are created by societies and the thought that some beliefs owe more to social values than they do to the evidence in their favor are as old as reason itself. Whence, then, the widespread impression that social constructionists are anti-rationalist, anti-realist and anti-objectivist?

The answer is that it stems not from the forms of the claims themselves, and not from their application to this or that empirically debatable subject matter. It stems, rather, from the desire of some prominent theorists in this tradition to extend social construction talk to absolutely everything and, in particular, to the facts studied by, and the knowledge claims emanating from, the *natural* sciences. If we are to find our way through the muddy battleground on which these now famous science wars are being waged it will help to observe certain distinctions. I will begin with the claim about facts and things.

4.2 Socially Constructed Things

Money, citizenship and newspapers are transparent social constructions because they obviously could not have existed without societies. Just as obviously, it would seem, anything that could have - or that did - exist independently of societies could *not* have been socially constructed: dinosaurs, for example, or giraffes, or the elementary particles that are supposed to be the building blocks of all matter and that physicists call "quarks." How could they have been socially constructed if they existed *before* societies did?

Yet when we turn to some of the most prominent texts in the social construction literature, we find an avalanche of claims to the effect that it is precisely such seemingly mind- and society-independent items that are socially constructed. Take Andrew Pickering's book, *Constructing Quarks* (1984). As his title suggests, Pickering's view seems to be that quarks were socially constructed by scientists in the 1970s when the so-called "Standard Model" was first developed. And the language of the text itself does not disappoint: ...the reality of quarks was the upshot of particle physicists' practice.... But how can this be? If quarks exist - and we are assuming for present purposes that they do - they would have had to have existed before there

were any societies. So how could they have been constructed by societies?

Perhaps Pickering does not mean what he says; perhaps he intends only to be making a claim about our belief in quarks rather than about the quarks themselves, a thesis we shall also want to examine in due course. Whether or not Pickering intended the worldly claim, however, claims like that seem to be all around us. Here, just for another example, are Bruno Latour and Steve Woolgar on the subject of the facts studied by natural science *(Laboratory Life: The Social Construction of Scientific Facts,* 1979, pp.180-182):

We do not wish to say that facts do not exist nor that there is no such thing as reality. ..Our point is that "out there ness" is a consequence of scientific work rather than its cause.

But it is not easy to make sense of the thought that facts about elementary particles or dinosaurs are a *consequence* of scientific theorizing. How could scientific theorizing have caused it to be true that there were dinosaurs or that there are quarks? Of course, science made it true that we *came to believe* that dinosaurs and quarks exist. Since we believe it, we *act as though* dinosaurs and quarks exist. If we allow ourselves some slightly florid language, we could say that *in our world* dinosaurs and quarks exist, in much the way as we could say that in the world of Shakespeare's *Hamlet,* Ophelia drowns. So, still speaking in this vein, we could say that science made it true that in our world there are dinosaurs and quarks. But all we could coherently mean by this is that science made it true that *we came to believe that* dinosaurs and quarks exist. And that no one disputes. Despite all the evidence in their favor, these beliefs may still be false and the only thing that will make them true is whether, out there, there really were dinosaurs and there really are quarks. Surely, science cannot construct those things; at best, it can discover them.

The views apparently on offer here hark back to the discredited 'transcendental idealism' of Immanuel Kant. On Kant's picture (or at least on one influential way of reading it), there is a world that exists independently of human minds, so we do not have to go so far as to say that we created the world. But in and of itself this world is structure-less: it is not broken up into things, kinds of things, or facts. We impose structure on the world by thinking of it in a certain way, by having one set of beliefs about it rather than another.

There are two different ways to understand the Kantian claim that we impose structure on the world. On the first, we literally make it the case that there are certain kinds of things in the world - mountains - by thinking of the world in terms of the concept 'mountain,' by believing

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there to be mountains. On the second, the structure remains entirely on our side of the divide: the claim that there are mountains is just a way of talking about what is true according to our conceptual scheme or language game. It is not even to try to make a claim about how things are in some mind-independent reality.

The first alternative, the one that Pickering's and Latour's language most closely suggests, is hopelessly bizarre. How could the mind carve the world out there into kinds? How could it create things and give them properties? And what happens when the world is carved up in two incompatible ways by two different societies? Some of us believe in immaterial souls and others of us do not. Does the world out there then both contain and not contain immaterial souls?

In writings that are much cited by social constructionists, however, Richard Rorty has suggested that talk of the social construction of facts and kinds is perfectly cogent provided it is understood along the lines of the second alternative: One reason the question of mind-independent reality is so vexed and confusing is an ambiguity in the notion of "independence." [My critics] sometimes [write] as if philosophers who, like myself, do not believe in "mind-independent reality" must deny that there were mountains before people had the idea of "mountain" in their minds or the word "mountain" in their language. But nobody denies that. Nobody thinks there is a chain of causes that makes mountains an effect of thoughts or words... Given that it pays to talk about mountains, as it certainly does, one of the obvious truths about mountains is that they were here before we talked about them. If you do not believe that, you probably do not know how to play the language games that employ the word "mountain." But the utility of those language games has nothing to do with the question of whether Reality as it is in itself, apart from the way in which it is handy for human beings to describe it, has mountains in it.

Rorty is recommending that the social constructionist distance himself from the claim that we cause there to be mountains by talking about them. According to Rorty, the way to put the point is, rather, this: It pays for us to adopt some ways of talking over others. Among the ways of talking that it pays for us to adopt is one according to which there are mountains and they exist independently of humans. However, no way of talking could be said to be more faithful to the way things are in and of themselves than any other, because there is no way things are in and of themselves. There is just how we talk about how things are and the fact that some of those ways are better for our purposes than others. It is therefore, correct to say that we do not

make the mountains; i.e. a claim that is licensed by a way of talking that it pays for us to adopt. However, that does not mean that it is just plain true that there are mountains independently of humans; it never makes sense to say that anything is just plain true. All we can intelligibly talk about is what is true according to this or that way of talking, some of which it pays for us to adopt.

This, however, is an impossible view, as many critics have pointed out (see especially Thomas Nagel's *The Last Word,* 1997, and Bernard Williams' review of Nagel's book in *The New York Review of Books,* 1998). First, even Rorty doesn't succeed in distancing himself from any commitment to the idea that some claims are just plain true, and not just true relative to this or that way of talking; he simply commits himself to the implausible view that the only kinds of claim that are just plain true are claims about which ways of talking it pays for us to adopt, rather than claims directly about mountains. Otherwise, he could not simply assert, as he does, that it pays for us to talk about mountains, but only that it pays for us to talk about its paying for us to talk about mountains, and so on without end.

Second, if we accept his view that there is no higher authority concerning what's true than how it pays for us to talk, and if, as Rorty admits, it pays for us to say that science discovers a ready-made world, replete with mountains and giraffes, then there is simply no perspective from which he can also say, as he must if he is to express his distinctive view, that there *isn't* a ready-made world for science to discover, replete with mountains and giraffes. He can't have it both ways; but having it both ways is what his view requires.

4.3 Socially Constructed Belief

If the preceding considerations are correct, social construction talk does not cogently apply to the *facts* studied by the natural sciences; does it fare any better when applied to the *beliefs* about those facts produced by those sciences? The issue is not whether science is a social enterprise. Of course, it is. Science is conducted collectively by human beings who come equipped with values, needs, interests and prejudices. And these may influence their behavior in a variety of potentially profound ways: they may determine what questions they show an interest in, what research strategy they place their bets on, what they are willing to fund, and so forth.

The usual, view, however, is that none of this matters to the believability of a particular claim produced by science, *if that claim is adequately supported by the factual evidence.* Kepler

may have become interested in planetary motion as a result of his religious and occult preoccupations, and for all I know, he may have been strongly invested in getting a certain outcome. But so long as his eventual claim that the planets move in elliptical orbits could be justified by the evidence he presented for it, it does not matter how he came to be interested in the question, or what prior investment he may have had. The view is now there, with a claim on our attention, and the only way to reject it is to refute the evidence adduced in its favor. It is irrelevant that Kepler would not have engaged in his research had it not been for preoccupations that we do not share or that he may have had extra-evidential motives for hoping for a certain outcome.

To put this point another way, we commonly distinguish between what philosophers of science call the "context of discovery" and what they call the "context of justification." And while it's plausible that social values play a role in the context of discovery, it's not plausible that they play a role in the context of justification. Social constructionists about knowledge deny this; for them it is naive to suppose that while social values may enter into the one context, they need not enter into the other.

Well, how could social values enter into the context of justification? There are *four* distinct ways of articulating the thought a constructionist may have in mind here; while all four may be found in the literature, they are not always sufficiently distinguished from one other. To begin with, a constructionist may hold that it is not the factual evidence that does the justifying, but precisely the background social values. And while it may seem incredible that anyone could have seriously thought anything like this, but there are certainly assertions out there that seem to demand just such a reading. Here is one (Kenneth Gergen, "Feminist critiques of science and the challenge of social epistemology," in *Feminist Thought and the Structure of Knowledge,* edited by Mary Gergen, 1989): The validity of theoretical propositions in the sciences is in no way affected by factual evidence. However, anyone who really thought that, say, Maxwell's Equations could be *justified* by appeal to Maxwell's, or anyone else's, social or political beliefs would betray a complete incomprehension of the notion of justification. An item of information justifies a given belief by raising the likelihood that it is true. Admittedly, this is not an unproblematic notion. But unless we are to throw it out altogether, it is perfectly clear that one cannot hope to justify the fundamental laws of electromagnetism by appeal to one's political convictions or career interests or anything else of a similar ilk.

If one were absolutely determined to pursue something along these lines, a *slightly* better avenue, and the second of our four options, would be to argue that, although social values do not justify our beliefs, we are not actually moved to belief by things that justify; we are only moved by our social interests. This view, which is practically orthodoxy among practitioners of what has come to be known as "science studies", has the advantage of not saying something absurd about justification; but it is scarcely any more plausible. On the most charitable reading, it stems from an innocent confusion about what is required by the enterprise of treating scientific knowledge sociologically.

The view in question derives from one of the founding texts of science studies, David Bloor's *Knowledge and Social Imagery* (1977). Bloor's reasoning went something like this: If we wish to explain why certain beliefs come to be accepted as knowledge at a given time, we must not bring to bear *our* views about which of those beliefs are true and which false.

If we are trying to explain why *they* came to hold that some belief is true, it cannot be relevant that we know it not to be true. This is one of the so-called "Symmetry Principles" of the sociology of knowledge: treat true and false propositions symmetrically in explaining why they came to be believed.

It's possible to debate the merits of this principle, but on the whole it seems to me sound. As Ian Hacking rightly emphasizes, however, it is one thing to say that true and false beliefs should be treated symmetrically and quite another to say that justified and unjustified ones should be so treated. While it may be plausible to ignore the truth or falsity of what I believe in explaining why I came to believe it, it is not plausible to ignore whether I had any evidence for believing it. For some reason that is never explained, however, Bloor and his colleagues seem to think that the two principles are on a par and are both equally required by the enterprise of treating scientific belief sociologically. Bloor builds both into the very foundation of the subject: [The sociology of knowledge] would be impartial with respect to truth and falsity, rationality or irrationality, success or failure.

However, absent an argument for being skeptical about the very idea of a good reason for a belief - and how could there be such an argument that did not immediately undermine itself? - One of the possible causes for my believing what I do is that I have good evidence for it. Any explanatory framework that insisted on treating not only true and false beliefs symmetrically, but justified and unjustified ones as well, would owe us an explanation for why evidence for belief is

being excluded as one of its potential causes. And it would have to do so without undermining its own standing as a view that is being put forward because justified.

This is not, of course, to say that scientific belief must *always* be explained in terms of the compelling evidence assembled for it; the history of science is replete with examples of views - phrenology, for example - for which there never was any good evidence. It is simply to insist that scientific belief is *sometimes* to be explained in terms of compelling evidence and that the history and sociology of science, properly conceived, need have no stake in denying that.

This brings us to a third, milder conception of how social values might be indispensable for the justification of scientific belief. On this view, although evidence can enter into the explanation for why a particular view is believed, it can never be enough to explain it. Any evidence we might possess always *underdetermines* the specific belief that we arrive at on its basis. Something else must close the gap between what we have evidence for and what we actually believe, and that something else is provided by the thinker's background values and interests.

This idea, that the evidence in science always underdetermines the theories that we believe on its basis, has exerted considerable influence in the philosophy of science, even in non-constructionist circles. In its modern form, it originated in the thought of the turn of the century French physicist and philosopher, Pierre Duhem. Suppose that an experimental observation is inconsistent with a theory that you believe: the theory predicts that the needle will read '10' and the needle does not budge from zero, say.

What Duhem pointed out is that this does not necessarily refute the theory. For the observational prediction is generated not merely on the basis of the theory, but, in addition, through the use of auxiliary hypotheses about the functioning of the experimental apparatus. In light of the recalcitrant observational result, *something* has to be revised, but so far we do not yet know exactly what: perhaps it's the theory; perhaps it's the auxiliary hypotheses. Perhaps, indeed, it is the very claim that we recorded a genuinely recalcitrant result, as opposed to merely suffering some visual illusion.

Duhem argued that reason alone could never decide which revisions are called for and, hence, that belief revision in science could not be a purely rational matter: something else had to

be at work as well. What the social constructionist adds is that this extra element is something social. This is a clever argument that does not long conceal its difficulties. Is it really true that we could never have more reason to revise one of our theories rather than another in response to recalcitrant experience? Consider Duhem's example of an astronomer peering through his telescope at the heavens and being surprised at what he finds there, perhaps a hitherto undetected star in a galaxy he has been charting. Upon this discovery, according to Duhem, the astronomer may revise his theory of the heavens or he may revise his theory of how the telescope works. And rational principles of belief fixation do not tell him which to do.

The idea, however, that in peering at the heavens through a telescope we are testing our theory of the telescope *just as much* as we are testing our astronomical views is absurd. The theory of the telescope has been established by numerous terrestrial experiments and fits in with an enormous number of other things that we know about lenses, light and mirrors. It is simply not plausible that, in coming across an unexpected observation of the heavens, a rational response might be to revise what we know about telescopes! The point is not that we might *never* have occasion to revise our theory of telescopes; one can certainly imagine circumstances under which that is precisely what would be called for. The point is that not *every* circumstance in which something about telescopes is presupposed is a circumstance in which our theory of telescopes is being tested, and so the conclusion that rational considerations alone cannot decide how to respond to recalcitrant experience is blocked.

Perhaps, however - to come to the fourth and final way in which belief and social values might be intertwined - the correct thought is not that the social must be brought in to fill a *gap* left by the rational, but simply that the rational itself is constitutively social. A good reason for believing something, according to this line of thought, only has that status relative to variable social factors - a sharp separation between the rational and the social is illusory.

This is currently perhaps the single most influential construal of the relation between the rational and the social in constructionist circles. What it amounts to is a relativization of good reasons to variable social circumstance, so that the same item of information may correctly be said justify a given belief under some social circumstances, in some cultures, but not in others. It is nicely expressed in the following passage (Barry Barnes and David Bloor, "Relativism, rationalism and the sociology of knowledge," 1981): ...there is no sense to the idea that some standards or beliefs are really rational as distinct from merely locally accepted as such.

But this is an impossible construal of reasons for belief, as Plato understood some time ago (see his *Theatetus).* We cannot coherently think of ourselves as believing and asserting *anything,* if all reasons for belief and assertion are held to be inexorably tied to variable background perspective in the manner being proposed. There are many ways to show this, but perhaps the most telling is this: not even the relativist would be able to adopt such an attitude towards his own view. For, surely, the relativist does not think that relativism about reasons is justified only relative to his own perspective? If he did, why is he recommending it to us who do not share his perspective?

When we believe something we believe it because we think there are reasons to think it is true, reasons that we think are general enough to get a grip even on people who do not share our perspective. That is why we feel entitled to recommend it to them. It's hard to imagine a way of thinking about belief and assertion that precluded the possibility of that sort of generality.

4.4 The Cultural Authority of Science

Neither a generalized constructionism about the objects and facts investigated by the natural sciences, nor one about the reasons for belief provided by those sciences carries much plausibility. To what does this matter? Here are two contrasting views. Rorty ("Phony Science Wars," *Atlantic Monthly,* 1999):

The science wars are in part a product of deep and long-lasting clashes of intuition, but mostly they are just media hype - journalists inciting intellectuals to diabolize one another. Diabolization may be helpful in keeping intellectuals aroused and active, but it need not be taken very seriously.

By way of contrast we have Dorothy Nelkin: Current theories about science do seem to call into question the image of selfless scientific objectivity and to undermine scientific authority, at a time when scientists want to claim their lost innocence, to be perceived as pure unsullied seekers after truth. That is what the science wars are about.

I think that Nelkin is closer to being right. As social constructionists realize only too well, we would not attach the same importance to science if we came to be convinced by constructionist conceptions of it. In what does the cultural importance of science consist? This is, of course, a vast subject, but there are, it seems to me, two central elements. First, and most importantly, in matters of belief we defer to science. It would be hard to overestimate the

significance of this practice, reflected as it is in what we are prepared to teach our children at school, to accept as evidence in courts of law and to base our social policies upon. Second, we spend vast sums of money on basic scientific research, research that does not look as though it will have any immediate practical payoff.

Rorty's laid-back attitude depends on the thought that neither of these practices has any interesting philosophical presuppositions, and so cannot be vulnerable to constructionist critique. But this seems wrong. For deference to make sense, it has to be plausible that science delivers the sort of knowledge that *everyone* has reason to believe, regardless of their political or more broadly ideological commitments. But this would be directly challenged by a constructionist thesis about reasons for belief, on any of its available versions.

If we look at the practice of spending vast sums on basic science, science with no foreseeable practical payoff, it is arguable that an even greater amount of philosophy is presupposed, that we have to hold not only that science delivers knowledge that everyone has reason to believe, but that it delivers true or approximately true knowledge of the structure of an independently existing reality. For if we ask why, given the many pressing social problems we face, we should spend tens of billions of dollars to build a super-collider that will smash ever smaller particles into each other in the hope of releasing ones that we have never seen but which our theories predict, what could possibly be a compelling answer if not that doing so will help us to understand the fundamental, hidden constitution of the universe, and that that is worth doing? If it doesn't make sense to think that there is such a hidden constitution to probe, or even if there is, if it doesn't make sense to think that science is capable of probing it, what rationale could there be for spending such vast sums, when that money could equally be spent on AIDS or on poverty? (To be clear: I am not saying that a search for the fundamental truths automatically trumps all other considerations, only that its coherence as a goal is required to make sense of the importance we attach to basic science.)

Conclusion

At its best - as in the work of de Beauvoir and Appiah- social constructionist thought exposes the contingency of those of our social practices that we had wrongly come to regard as inevitable. It does so by relying on the standard canons of good scientific reasoning. It goes

astray when it aspires to become either a general metaphysics or a general theory of knowledge. As the former, it quickly degenerates into an impossible form of idealism. As the latter, it assumes its place in a long history of problematic attempts to relativize the notion of rationality. It has nothing new to add to these historically discredited views; if anything, social constructionist versions tend to be murkier and more confused than their traditional counterparts. The difficulty lies in understanding why such generalized applications of social construction have come to tempt so many.

One source of their appeal is no doubt their efficiency. If we can be said to know up front that any item of knowledge only has that status because it gets a nod from contingent social values, then any claim to knowledge can be dispatched if we happen not to share the values on which it allegedly depends. There is no need to get into the often complex details. But that only postpones the real question. Why this fear of knowledge? Whence the need to protect against its deliverances? Hacking writes of certain feminists, for example, who ...see objectivity and abstract truth as tools that have been used against them.

They remind us of the old refrain: women are subjective, men are objective. They argue that those very values, and the word objectivity, are a gigantic confidence trick. If any kind of objectivity is to be preserved, some argue, it must be one that strives for a multitude of standpoints. (p96)

Hacking professes not to know whether to side with this thought. But he should know. Whatever legitimate worry may be at work here, it cannot be expressed by saying that objectivity and abstract truth *are* tools of oppression. At most what these observations entitle us to say is that there have been occasions when those concepts have been used as tools of oppression; and no one will want to dispute that. But the fact that a concept can be, and has been, abused can hardly be a basis for indicting the concept itself. Are we to be suspicious of the value of freedom because the Nazis inscribed "Arbeit Macht Frei" on the gate at Auschwitz?

The intuitive view is that there is a way things are that is independent of human opinion, and that we are capable of arriving at belief about how things are that is objectively reasonable, binding on anyone capable of appreciating the relevant evidence regardless of their ideological perspective. Difficult as these notions may be, it is a mistake to think that recent philosophy has disclosed any good reasons for rejecting them.

5. What is a Professional Relationship?

A professional relationship is an ongoing interaction between two people that observes a set of established boundaries or limits that is deemed appropriate under governing ethical standards. Establishing proper professional relationships is the backbone of career development.

The nature of a person's relationships with colleagues and those under direct care, management or supervision can determine success in a chosen professional. A professional relationship is typically characterized by collegiality that doesn't cross over into over-familiarity or inappropriate closeness. Most professions have standards that govern interpersonal relationships to prevent improprieties ranging from coercion to harassment. Failing to maintain the proper level of professionalism in a business relationship can lead to loss of employment and legal problems according to Lawrence University (WWW.ask.com)

5.1 Building Good Work Relationships

5.1.1 Making Work Enjoyable and Productive

How good are the relationships that you have with your colleagues?
According to the Gallup Organization, people who have a best friend at work are seven times more likely to be engaged in their jobs. And it doesn't have to be a best friend: Gallup found that people who simply had a good friend in the workplace are more likely to be satisfied.

In this article, we're looking at how you can build strong, positive relationships at work. We'll see why it's important to have good working relationships, and we'll look at how to strengthen your relationships with people that you don't naturally get on with.

5.1.2 Why have Good Relationships?

Human beings are naturally social creatures – we crave friendship and positive interactions, just as we do food and water. So it makes sense that the better our relationships are at work, the happier and more productive we're going to be.

Good working relationships give us several other benefits: our work is more enjoyable when we have good relationships with those around us. Also, people are more likely to go along with changes that we want to implement, and we're more innovative and creative. What's more,

good relationships give us freedom: instead of spending time and energy overcoming the problems associated with negative relationships, we can, instead, focus on opportunities.

Good relationships are also often necessary if we hope to develop our careers. After all, if your boss doesn't trust you, it's unlikely that he or she will consider you when a new position opens up. Overall, we all want to work with people we're on good terms with. We also need good working relationships with others in our professional circle. Customers, suppliers, and key stakeholders are all essential to our success. So, it's important to build and maintain good relations with these people.

5.1.3 Defining a Good Relationship

There are several characteristics that make up good, healthy working relationships:

Trust – This is the foundation of every good relationship. When you trust your team and colleagues, you form a powerful bond that helps you work and communicate more effectively. If you trust the people you work with, you can be open and honest in your thoughts and actions, and you don't have to waste time and energy "watching your back."

Mutual Respect – When you respect the people that you work with, you value their input and ideas, and they value yours. Working together, you can develop solutions based on your collective insight, wisdom and creativity.

Mindfulness – This means taking responsibility for your words and actions. Those who are mindful are careful and attend to what they say, and they don't let their own negative emotions impact the people around them.

Welcoming Diversity – People with good relationships not only accept diverse people and opinions, but they welcome them. For instance, when your friends and colleagues offer different opinions from yours, you take the time to consider what they have to say, and factor their insights into your decision-making.

Open Communication – We communicate all day, whether we're sending emails and IMs, or meeting face-to-face. The better and more effectively you communicate with those around you, the richer your relationships will be. All good relationships depend on open, honest communication.

5.1.4 Where to Build Good Relationships

Although we should try to build and maintain good working relationships with everyone,

there are certain relationships that deserve extra attention. For instance, you'll likely benefit from developing good relationships with key stakeholders in your organization. These are the people who have a stake in your success or failure. Forming a bond with these people will help you ensure that your projects, and career, stay on track.

To find out who these people are, do a Stakeholder Analysis ⊕. Once you've created a list of colleagues who have an interest in your projects and career, you can devote time to building and managing these relationships.

Clients and customers are another group who deserve extra attention. Think of the last time you had to deal with an unhappy customer; it was probably challenging and draining. Although you may not be able to keep everyone happy 100 percent of the time, maintaining honest, trusting relationships with your customers can help you ensure that if things do go wrong, damage is kept to a minimum. Good relationships with clients and customers can also lead to extra sales, career advancement, and a more rewarding life.

5.1.5 How to Build Good Work Relationships

So, what can you do to build better relationships at work?

5.1.5.1 Develop Your People Skills

Good relationships start with good people skills. Take our How Good Are Your People Skills? Quiz to find out how well you score with "soft skills" such as collaboration, communication and conflict resolution. This self-test will point you to tools that will help you deal with any weaknesses that you have.

5.1.5.2 Identify Your Relationship Needs

Look at your own relationship needs. Do you know what you need from others? And do you know what they need from you?

Understanding these needs can be instrumental in building better relationships.

5.1.5.3 Schedule Time to Build Relationships

Devote a portion of your day toward relationship building, even if it's just 20 minutes, perhaps broken up into five-minute segments. For example, you could pop into someone's office during lunch, reply to people's postings on Twitter or LinkedIn, or ask a colleague out for a quick

cup of coffee. These little interactions help build the foundation of a good relationship, especially if they're face-to-face.

5.1.5.4 Focus on Your EI

Also, spend time developing your emotional intelligence (EI). Among other things, this is your ability to recognize your own emotions, and clearly understand what they're telling you. High EI also helps you to understand the emotions and needs of others.

5.1.5.5 Appreciate Others

Show your appreciation whenever someone helps you. Everyone, from your boss to the office cleaner, wants to feel that their work is appreciated. So, genuinely compliment the people around you when they do something well. This will open the door to great work relationships.

5.1.5.6 Be Positive

Focus on being positive. Positivity is attractive and contagious, and it will help strengthen your relationships with your colleagues. No one wants to be around someone who's negative all the time.

5.1.5.7 Manage Your Boundaries

Make sure that you set and manage boundaries properly – all of us want to have friends at work, but, occasionally, a friendship can start to impact our jobs, especially when a friend or colleague begins to monopolize our time. If this happens, it's important that you're assertive about your boundaries, and that you know how much time you can devote during the work day for social interactions.

5.1.5.8 Avoid Gossiping

Don't gossip – office politics and "gossip" are major relationship killers at work. If you're experiencing conflict with someone in your group, talk to them directly about the problem. Gossiping about the situation with other colleagues will only exacerbate the situation, and will cause mistrust and animosity between you.

5.1.5.9 Listen Actively

Practice active listening when you talk to your customers and colleagues. People respond

to those who truly listen to what they have to say. Focus on listening more than you talk, and you'll quickly become known as someone who can be trusted.

5.1.5.10 Difficult Relationships

Occasionally, you'll have to work with someone you don't like ⊕, or someone that you simply can't relate to. But, for the sake of your work, it's essential you maintain a professional relationship with them.

When this happens, make an effort to get to know the person. It's likely that they know full well that the two of you aren't on the best terms, so make the first move to improve the relationship by engaging them in a genuine conversation, or by inviting them out to lunch.

While you're talking, try not to be too guarded. Ask them about their background, interests and past successes. Instead of putting energy into your differences, focus on finding things that you have in common.

Just remember – not all relationships will be great; but you can make sure that they are, at least, workable!

5.1.5.11 Key Points

Building and maintaining good working relationships will not only make you more engaged and committed to your organization; it can also open doors to key projects, career advancement, and raises. Start by identifying the key stakeholders in your organization. These people, as well as your clients and customers, deserve extra time and attention.

Then, devote a portion of your day to laying the foundation of good relationships. Even five minutes a day, if it's genuine, can help to build a bond between you and a colleague. Be honest, avoid gossip, and try to compliment people on a job well done. After all, the more you give in your relationships, the more you'll get back from those around you! (www.mindtools.com).

CHAPTER THREE

3. Research Methodology

In qualitative research, a researcher takes into account the phenomenon as a whole and describes it "as it exists". This method of research describes the experiences of people in depth and permits the researcher to study and understand people in depth in their own perceptions. Qualitative research also helps us examine the nature of human behavior and experience and social conditions.

3.1 Study Design

This study measures psychological concepts. The results to be obtained, also reflects 'professional relationship', which is a psychological concept. Hence it is a qualitative research. In the case of human relations several intrinsic factors, events and processes keep on influencing each other constantly. Therefore, it is not possible to identify one-to-one cause and effect relationships in this case of qualitative studies. To naturalists, causality in social sciences cannot be demonstrated in the hard sense as it is done in the case of physical sciences. Rather, only patterns of plausible influences can be inferred from social and behavioral studies (research methods in social work, IGNOU, 2008). However, in studying the relationship between radiographers/rts and radiologists factors like job satisfaction, work stress, and anxiety & depression keep on influencing one another.

The procedure employed in this study is referred to as *insightful inquiry*. In insightful inquiry humans are treated as the sole means of data collection. The researcher collects responses from human respondents in the various hospitals. Qualitative methods like participant observation, informal interviews and discussions, reading of relevant literature, and daily observation notes and dairy writing are very often used for fieldwork. However, the use of quantitative techniques like test administration and survey are not totally ruled out in the process of data collection under this approach (research methods in social work, IGNOU, 2002).

The method adopted was descriptive research. Descriptive research is used to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. Rather it addresses the "what" question (what are the characteristics of the population or situation being studied?). The characteristics used to describe the situation or population is usually some kind of categorical scheme also known as 'descriptive categories'. For example, the periodic table categorizes the elements. Scientists use knowledge about the nature of electrons, protons and neutrons to devise this categorical scheme. We now take for granted the periodic table, yet it took descriptive research to devise it. Descriptive research generally precedes explanatory research.

For example, over time the periodic table's description of the elements allowed scientists to explain chemical reaction and make sound prediction when elements were combined. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984).Percentages, central tendencies, frequencies or deviances from the mean are appropriate measurement tools in this type of research. In other words, descriptive research can be said to have a low requirement for internal validity. The descriptive categories used here are work stress, job satisfaction and anxiety & depression.

3.2 Universe of the study

Most health professionals widely held a view that all Radiographers and Radiologic technologists (rts) in Ethiopia face similar problems of roughened relationship with Radiologists. The same situation persists despite variations in geographical locations within the country. Their communication with individual radiologists, their stress, job satisfaction, career development options, and even their territorial dispute continued to be a "bone of contention" (Esayas Tiruneh head of ERRTA). So, all Radiographers and Radiologic Technologists make up the universe of the study.

3.3 Participants and size

Sixty five radiologic technicians in seven hospitals and department of radiologic technology at Addis Ababa University have taken part in filling up the scales and tests. Sixty five standard scales/tests handed out for respondents, and only 64 responses are retrieved for Anxiety & depression test. But 63 responses were retrieved from work stress scale, when job

satisfaction got all 65 responses. The hospitals engaged in the study are Zewditu Memorial, Tikur Anbassa, Yekatit 12, St. Paul Memorial, Alert, Menelik Memorial, and Ras Desta Damtew Memorial hospitals.

3.4 Participant Selection Methods and Procedures

Qualitative descriptive research allows a researcher to study a real life situation in which subjects have experienced what he aspires to investigate: *current professional relationship*. Non-probability purposive samples have been drawn based on the availability of the units. Radiographers or radiologic technologists (rts) working in seven government-owned hospitals in Addis Ababa and department of radiologic technology at A.A.U. reflect the existing relationship sufficiently. The dependent variables do not vary among those radiographers/technologists working in private health facilities or in various regions of the country.

Respondents of the anxiety & depression test comprise of 23 diplomas and 41 Bachelor of Science graduates. Sixteen of them are female when the rest 48 are male. Seventeen of the respondents have practiced radiography for over 10 years, when 18 of them practiced it 5-10 years. The remaining 29 respondents have got experiences of 5 years or less.

Work stress respondents are 63; 16 female and 47 male. Twenty three of the 63 are diploma graduates, when 40 of them have Bachelor degrees. Seventeen of them have over 10 years experience. Another 18 have served between 5 and 10 years, when the rest 28 practiced for 5 years or less.

Job satisfaction retrieved 65 responses. Sixteen responses are from female, when 49 are from male respondents. The diploma graduates are 23. But the degree graduates are 42. Eighteen respondents belonged to the work experience category of 10 years and above. Another 18 belonged to 5-10 years work experience category. The remaining 29 have served for 5 years or less. All the participants of the group discussion are male, with Bachelor of Science degree in Radiography.

3.5 Data Collection Methods and Procedures
To obtain information concerning the current status of professional relationship five different data collection tools have been implemented. Specifically speaking standard scales, a

psychological test, group discussion, observation and document analysis techniques are the ones used in this research.

Rating scales pose definite and concrete questions to respondents. Similarly, a standardized psychological test for "anxiety & depression" assessment presented questions of emotional feelings respondents felt in the last four weeks.

The researcher goes to each hospital to administer the scales. Professional radiographers in each hospital filled up the scale randomly. Respondents do not get informed on the questions prior to administering the scales. Any question from respondents was tackled by the researcher on the spot, to avoid confusion. Finally, The Microsoft office Excel 2007 spread sheet is used to analyze the responses gathered from respondents.

Besides group discussion, Systematic naturalistic observation has been used to observe real life situations regarding career development options and more. Document analysis depicts the occurrence of territorial disputes and rough communication between radiologists and radiographers/rts.

The group discussion however, is to be held among four radiologic technologists. It is a two hours discussion on the results obtained from the scales and test and on various issues pertinent to the research. All the participants of the group are male, with Bachelor of Science degree in Radiography.

Rating scale refers to a "scale" with a set of points which describe varying degree of an attribute under investigation. Questions & responses, within the job satisfaction scale are arranged in a Likert model.

3.6 Tools for Data Collection
Standard scales, systematic naturalistic observation, group discussion, document analysis, and a standard psychological test are employed for data collection. These tools show the various facets of the problem pertinent to relationships between radiologists and radiographers/technologists besides describing the general mental states of radiologic technicians.

The psychological test known as "k10 test for psychological distress" is developed at Australia's clinical Research unit for Anxiety and depression (CRUfAD), a facility jointly owned by the University of New South Wales and St Vincent's hospital in Sydney. The workplace stress scale was prepared by The Marlin Company, North Haven, CT, and the American Institute of stress, Yonkers, NY. But the generic Job satisfaction scale: Scale development & its correlates is a Likert type scale prepared by Scott Macdonald and Peter Macintyre.

The group discussion however was held among four radiologic technologists. It is a two hours discussion on the results obtained from the scales and test and on various issues pertinent to the research. All the participants of the group are male, with Bachelor of Science degree in Radiography.

In the document analysis section, three articles and one research paper got analyzed. The statements, phrases, and vocabularies used in the texts depict the relationship between the two professional groups in Radiology.

3.7 Data Analysis Method

Microsoft Excel 2007 spread sheet made additions of individual responses and group responses a possibility. Side way additions show the categories, in which the individual respondent falls compared to the standard scale. These categories are put re-categorized in a table for easy reference. Following re-categorization, frequency table of all responses will be drawn to show the trend of the situation in radiology. Mean, median, and mode are calculated for re-affirmation. Adding a variable down ward and comparing its sum with the sum of other variables helps us gauge out the impact of each and every variable on the result obtained. Thus content analysis, frequencies, averages and percentage calculations are used for analysis of patterns.

In qualitative studies data are analyzed descriptively. The synoptic views of descriptive data are referred as interpretation. More specifically, the frequency data are presented in two or three-way contingency tables indicating the patterns of behavior (Social work research, IGNOU, 2012). Qualitative research often has the aim of *description* and researchers may follow-up with examinations of why the observations exist and what the implications of the findings are, in another research later on.

Descriptive research however, determines the nature of relationship as it exists at the time of the study (Social work research, IGNOU, 2012). In this particular research, it aims at describing "relationship" with respect to variables such as occupational stress or a degree of job satisfaction and anxiety & depression. This research method is appropriate in behavioral sciences (Social work research, IGNOU, 2012). The idea behind this type of research is study frequencies, averages, content analysis, and percentages. Descriptive studies report summary data such as measures of central tendency including the mean, median, mode, deviance from the mean, variation, percentage and correlation between variables (the association for educational communications and technology/AECT, 2001).

3.8 Ethical Considerations

Discussants and respondents who contributed a lot to the success of this research have not been mentioned by name for the sake of confidentiality, however all of them have understood the objective of the study and were willing to participate.

No client in the hospital has been engaged, only technologists and radiographers did. Anonymous sources have remained anonymous as per their request. Head of the Ethiopian radiographers and radiological technologists association (ERRTA) agreed verbally to be mentioned by name. Scales and test are standardized, and requested relevant demographic data except name. Rarity of locally studied researches or reference materials on the topic posed a huge challenge and has limited the scope of the study on international researches.

Participants, who are professional technologists/radiographers, felt elated to see somebody grope with their problem. They rejoiced to see somebody standing with the feeble and the vulnerable. These are a group of vulnerable, neglected, and powerless professionals whose situation has been studied rarely. This research involved neither the public or service users, nor radiologists.

 Medical records have not been incorporated in the document analysis section, only published articles and a research has been used.

CHAPTER FOUR

4. Data Analysis and Presentation

4.1 Anxiety and Depression

Respondents (64) of the anxiety and depression test comprised of 23 diplomas and 41 Bachelor of Science graduates. 16 of them are female when the rest 48 are male. 17 of the respondents have practiced radiography for over 10 years, when 18 of them practiced it 5-10 years. The remaining 29 respondents have got experiences of 5 years or less.

Table 1: Re-categorization

	No. of respondents	Percentage	
<15	5	7.8%	
16-30	51	79.68%	
Over 30	8	12.5%	92.18%
Total	64	100.00%	

From among the 64 respondents, 5 respondents scored less than 15. These comprise 7.81% of the total. Scores of 15 and less belonged to the low anxiety and depression range. Thus, only 7.81% or only 5 respondents are free from anxiety and depression.

The rest 59 respondents or 92.18% of the total scored in the range 16-30 and over 30. Scores in the 16-30 range mark moderate anxiety and depression. But scores over 30 mark high anxiety and depression. Hence, 92.18% of the respondents suffer from anxiety and depression, even though it is in various ranges.

4.1.1 Frequency Distribution

Low scoring 5 respondents registered 12 score three times, 14 score one time, and another 13 score one time. This is a low anxiety and depression range pertinent only to the 5

respondents. In percentage terms, 7.81% of the respondents are considered as having low anxiety and depression.

Scores of 51 respondents lay in between 16-30. The scores in the range 16-30 mark moderate anxiety and depression. Six respondents registered 17 scores, another six respondents registered 18 scores, and another six respondents registered 22. These are the most frequently reported scores in the category.

Five respondents scored 20, another five respondents registered 21, and another five respondents scored 24 points. These are the second most repeated scores in the category.

Three respondents registered 19 score, another three registered 25 point, and another three respondents scored 26. These are the third most repeated scores in the moderate category.

Two respondents scored 16, another two respondents scored 27 points, another two respondents scored 28 points, and another two respondents scored 29 point. These are the fourth most repeated scores in the moderate distress category. 79.68% of the respondents fell in the 16-30 range. This percentage of professionals lives with moderate anxiety and depression.

Eight respondents fell in the over 30 range. Among the 8, three respondents scored 33 points. The remaining five respondents scored 31, 32, 34, 36 and 41 points each. 12.5% of the respondents lay in the over 30 category. Over 30 category marks high anxiety and depression. The most repeated score in the high anxiety and depression category is 33. Hence, 12.5% of the respondents live with high anxiety and depression.

4.1.2 Mean, Media, Mode

Mean= 22.43

Median =21.5

Mode= 17, 18, 22

Table 2: Frequency Distribution

	Individual responses (scores)	Frequency	Percentage	Percentage total	Categories
<15	12	3	4.68%	7.81%	Low anxiety and depression
	14	1	1.56%		
	13	1	1.56%		
16-30	16	2	3.12%	79.68%	Moderate anxiety and depression
	17	6	9.37%		
	18	6	9.37%		
	19	3	4.68%		
	20	5	7.81%		
	21	5	7.81%		
	22	6	9.37%		
	23	1	1.56%		
	24	5	7.81%		
	25	3	4.68%		
	26	3	4.68%		
	27	2	3.12%		
	28	2	3.12%		
	29	2	3.12%		
>30	31	1	1.56%	12.50%	High anxiety and depression
	32	1	1.56%		
	33	3	4.68%		
	34	1	1.56%		
	36	1	1.56%		
	41	1	1.56%		
	Total	64			

4.1.3 Anxiety and Depression Manifestation

92.18% of radiographers/RTs lead anxious and depressed a life. Their professional life has not been immune from the above. Their mental status is far from stable. Radiographers/RTs feel that everything was an effort, in their professional engagement. They feel tired out for no good reason. Most often, they feel nervous.

They felt restless or fidgety and very sad that nothing could cheer them up. They felt very restless, to the point they could not sit still. Depression is also common. Feelings of hopelessness and worthlessness pervaded.

10 Distressful Feelings in Order of Importance

1. Feeling everything was an effort.

2. Feeling tired out for no good reason.

3. Feeling nervous.

4. Feeling restless or fidgety.

5. Feeling very sad that nothing could cheer them up.

6. Feeling very restless, you could not sit still.

7. Feeling depressed.

8. Feeling hopeless.

9. Feeling worthless.

10. Feeling very nervous that nothing could calm you down.

4.2 Work Stress

Work stress respondents are 63; 16 female and 47 male. 23 of the 63 are diploma graduates, when 40 of them have Bachelor degrees. 17 of them have over 10 years experience. Another 18 have served between 5 and 10 years, when the rest 28 practiced for 5 years or less.

Table 3: Re-categorization

	No. of responses	Percentage	Categories
15 or lower	04	6.34%	No stress
16-20	17	26.98%	Fairly low stress
21-25	21	33.33%	Moderate stress
26-30	12	19.04%	Severe stress
31-40	09	14.28%	Dangerous level stress
Total	63	100.00%	

Work place stress scores are divided into five ranges to show the stress level. 4 respondents scored 15 or lower points. That is a no stress range. 6.34% of the respondents have no stress at all. 17 respondents lay between the range 16-20 points. A 16-20 range is a fairly low stress level. 26.98% of the respondents have a fairly low level of stress: a stress easy to cope with.

21 respondents scored points in the range of 21-25. This is the range for moderately stressed respondents. 33.33% of the respondents, according to the study, are moderately stressed.

Another 12 respondents fell in the range 26-30. This range marks sever stress. 19.04% of the respondents have severe stress.

The remaining 9 respondents scored in between 31-40. This range marks a dangerously high level of stress. 14.28% of the respondents have dangerously high level of stress. All in all, the responses can be summarized into a 6.34% no stress response and a 93.65% stress response.

4.2.1 Frequency Distribution

Respondents, who scored 15 or lower are four, two of them scored 12 points, when the other two scored 11 and 15 points each. The four respondents account for 6.34% of the total. 15 or lower category is a no stress category. Hence, 6.34% respondents showed no stress at all.

17 respondents scored points in the 16-20 range. 16-20 is a low stress range. Five respondents scored 19 points, when four respondents scored 20 points each. Three respondents scored 18 points. Another three respondents reported 17 points. Two respondents however, scored 16 points each. Thus, 26.98% of the respondents have low work stress.

21 respondents fell under the moderate work stress category. Moderate work stress category lay between 21 and 25 score points. 5 respondents of the 21 scored 22 points. Another 5 respondents scored 25 points each. 4 respondents reported 23 points, when another 4 reported 24 points. 3 respondents however, scored 21 points each. 21 respondents account for 33.33%. Meaning, 33.33% of the respondents have moderate work stress.

12 respondents scored points in the range of 26-30. 4 respondents scored 28 points, when another 4 scored 30 points. Two respondents reported 26 scores. One respondent scored 27 points when another one scored 29. The range 26-30 marks a severe work stress. 19.04% of the respondents live under severe work stress.

09 respondents scored points in the range of 31-40. 3 respondents of the 9 registered 33 points. 2 respondents scored 31 points, when another 2 scored 38 points. A respondent reported 34 points as another one registered 36 points. 31-40 category marks a dangerous level work stress. Therefore, 14.28% of the respondents suffered from potentially dangerous level of work stress.

Table 4: Frequency Distribution

	Individual responses (scores)	Frequency	Percentage	Percentage total	Categories
15 or lower	11	1	1.58%	6.34%	No stress
	12	2	3.17%		
	15	1	1.58%		
16-20	16	2	3.17%	26.98%	Low stress
	17	3	4.76%		
	18	3	4.76%		
	19	5	7.93%		
	20	4	6.34%		
21-25	21	3	4.76%	33.33%	Moderate stress
	22	5	7.93%		
	23	4	6.34%		
	24	4	6.34%		
	25	5	7.93%		
26-30	26	2	3.17%	19.04%	Severe stress
	27	1	1.58%		
	28	4	6.34%		
	29	1	1.58%		
	30	4	6.34%		
31-40	31	2	3.17%	14.28%	Potentially dangerous stress
	33	3	4.76%		
	34	1	1.58%		
	36	1	1.58%		
	38	2	3.17%		

4.2.2 Mean, Median, Mode

Mean= 23.73

Median= 23

Mode= 19, 22, 25

4.2.3 Stressors

According to the responses, 93.65% of radiographers/RTs have work stress. Their work stress comes from various situations. The number one stressor is found to be "receiving no appropriate recognition or reward for good performance." Having to receive no appropriate recognition or reward remained to be a major stressor for radiographers/RTs in Ethiopia. The second most serious stressor is the fact that conditions at work are unpleasant or unsafe. Given the radiation peril the professionals are well aware of; and the poor occupational safety standards, they find the working conditions unpleasant. Radiographers/RTs are paid only 1/3 radiation risk allowance of what is paid to radiologists (Ethiopian radiographers and radiologic technologists Association/ERRTA). A radiologist receives radiation risk allowance three times higher than a radiographer.

Doing too much work or facing too many unreasonable deadlines; tends to rank 3rd among the major stressors. Radiological over reliance in an overcrowded hospital facility over burdened radiological technologists and radiographers. There is also the issue of using public facility as private business venture, by few corrupt physicians indicated hospital sources. The 4th major stressor is the feelings that the job negatively affects physical and emotional well being. Radiation has serious health hazard. It is radiographer's duty to balance between the hazard and safe practice of course.

The 5th major stressor relates to communication. Radiographers find it difficult to express opinion or feelings about job conditions to supervisors. Radiologists, the supervisors, have high regard to themselves and to fellow doctors. Their pride posed a stumbling block to a smooth communication in the department of radiology.

A research entitled "perceptions of inter-professional communication –causes and effect" done by Stacey Q. Deshkulkarni (2009) stated that approximately 92% respondents agreed (strongly or otherwise) that poor inter-professional communication is a source of stress.

Inability to utilize radiographers' skills and talents to the fullest extent at work posed a 6th stressor. Radiographers/RTs are denied education and yet are treated as imbecile. Theirs' is the only profession without post graduate education and advance standing program now. Even for the graduates, the hard-earned skills and talents are subdued in territorial disputes over Ultrasound, and X-ray film reading.

4.3 Job Satisfaction

65 responses have been retrieved from the job satisfaction scale. 16 responses are from female, when 49 are from male respondents. The diploma graduates are 23. But the degree graduates are 42. 18 respondents belong to the work experience category of 10 years and above. Another 18 belonged to 5-10 years work experience category. The remaining 29 have served for 5 years or less.

Table 5: Re-categorization

	No. of respondents	Percentage	Category	
10-26	13	20%	Very low	
27-31	13	20%	Low	40%
32-35	27	41.53%	Average	
39-41	02	3.07%	High	60%
42-50	10	15.38%	Very high	
Total	65	100.00%		

4.3.1 Job Satisfaction

65 responses were retrieved from respondents. 13 of them scored between 10-26 points. These comprise 20% of the total. The range 10-26 in the job satisfaction scale marks very low job satisfaction. Hence, 20% or 13 respondents have shown very low job satisfaction.

Another 13 respondents scored between 27-31 points. These also comprise 20% of the total respondents. 27-31 category marks low job satisfaction. Thus, other 20% or 13 respondents have low job satisfaction. A total of 26 respondents or 40% of respondents gripped low and very low job satisfaction.

27 respondents fell under the 32-38 categories; the category for average job satisfaction. 27 comprise 41.53% of the total. Hence, 41.53% of respondents showed average job satisfaction.

Only 2 respondents fell under the category 39-41. Two respondents comprise 3.07% of the whole respondents. The range 39-41 marks a high job satisfaction. Thus, 3.07% of respondents enjoyed high job satisfaction.

10 respondents scored points in the range 42-50. These respondents are 15.38% of the whole respondents. The range 42-50 marks very high job satisfaction. Thus, 15.38% of the respondents enjoyed very high job satisfaction. In summary, 39 respondents or 60% of the respondents enjoyed average, high and very high job satisfaction, in contrast to the 40% low and very low satisfaction.

4.3.2 Frequency Distribution

Of the 13 respondents who scored points in the range 10-26, 2 registered 16 points. Another 2 scored 21 points. 2 respondents scored 24 points when another 2 scored 26 points. And 3 respondents reported 22 points. The remaining two respondent registered 18 and 20 points each. 13 account for 20% of the total. 20% of the respondents are having very low job satisfaction.

In the low category, another 13 respondents scored points in between 27-31. 4 of these respondents registered 28 points, when 3 respondents scored 27 points. Another 3 respondents scored 31 points, when 2 of them reported 29 points. 1 respondent however registered 30 points. 13 respondents account for 20% of the whole. Again 20% respondents have low job satisfaction.

In the average job satisfaction category there are 27 respondents in the range of 32-38. 5 respondents registered 33 points, when another 5 reported 34 and 38 points each. 4 respondents reported 35 points when another 4 registered 36. 3 respondents scored 37 points when another 1 respondent scored 32 points. 27 account for 41.53% of the whole. Thus, 41.53% of respondents have average job satisfaction.

Only 2 respondents fell in the high job satisfaction category. Both respondents scored 40 points each. 42-50 however, is a very high job satisfaction category. 10 respondents fell under this category. 3 of them scored 42 points, when another 3 scored 43. Other 3 respondents registered 46 points when another 1 reported 47 points. 02 respondents account for 3.07%. Meaning, only 3.07% respondents showed high job satisfaction. 10 respondents however account for 15.38%. This implies 15.38% respondents have very high job satisfaction.

All in all, the largest proportion of respondents (41.53%) showed average job satisfaction. Small proportion of respondents (3.078%) however, showed high job satisfaction. 20% respondents showed low and another 20% very low job satisfaction when 15.38% entertained very high job satisfaction.

4.3.3 Mean, Median, Mode

Mean= 32.67

Median = 34

Mode= 33, 34, 38

Table 6: Frequency Distribution

Scores	Frequency	Percentage
16	2	3.07%
18	1	1.53%
20	1	1.53%
21	2	3.07%
22	3	4.61%
24	2	3.07%
26	2	3.07%
27	3	4.61%
28	4	6.15%
29	2	3.07%
30	1	1.53%
31	3	4.61%
32	1	1.53%
33	5	7.69%
34	5	7.69%
35	4	6.15%
36	4	6.15%
37	3	4.61%
38	5	7.69%
40	2	3.07%
42	3	4.61%
43	3	4.61%
46	3	4.61%
47	1	1.53%
Total	65	

4.3.4 Job Satisfaction Manifestations

40% respondents have low and very low job satisfaction. 20% have very low satisfaction when the other 20% have only low job satisfaction. 60% respondents, however, showed average, high and very high job satisfaction. Brian D. Love in his research entitled "*Education: A tool for job satisfaction and retention of radiologic technologists*" (n.d.) indicated that overall technologists are satisfied with their employment.

Of the 60%, 41.53% reported average job satisfaction. 3.07% respondents have high job satisfaction. But 15.38% respondents reported very high job satisfaction. Radiographers believe that work is good for their physical health. The sum of this particular variable added up to be 257, the largest, to mark its significance in creating job satisfaction among radiographers/RTs. The second largest variable sum (238) goes to "feel close to the people at work". Radiographers feel close to the people at work. Feeling close to the people at work was essential to boost job satisfaction. 233, the third largest variable sum, mark the essence of "all my talents and skills are used at work" in creating job satisfaction. Radiographers/RTs perceive that all their talents and skills are used at work. As a result their job satisfaction is enhanced. A research entitled "*Education: A tool for job satisfaction and retention of radiologic technologists*" (n.d.) done at Thomas Jefferson University, by Brain D. Love indicated that 73% of the 26 participants reported that management recognizes and makes use of technologists' abilities and skills.

Radiographers feel good about their job. This variable registered a variable sum of 229, 4th largest, marking the variable "feel good about my job" as the 4th significant in job satisfaction. The 5th largest variable sum, 221, makes the variable 'feel good about working at this company' the 5th significant in heightening job satisfaction. The list goes down to the least variable sum which ranks 10th.

Table 7: Variables that boost job satisfaction

No	Variable	Min	Max	Variable sum
1	A believe work is good for my physical health	1	5	257
2	I feel close to the people at work	1	5	238
3	All my talents and skills are used at work	1	5	233
4	I feel good about my job	1	5	229
5	I feel good about working at this company	1	5	221

4.3.5 Variables that Compromised Job Satisfaction

From the least variable sum up to the 6th largest sum, one finds variables with negative influence on job satisfaction. The smallest variable sum, i.e. 165, comes from the variable 'my wages are good". Wage compromised radiographers'/technologists' job satisfaction, seriously. It is the number one variable that would counteract satisfaction.

The second least variable sum, 188, implicates "recognition for a job well done" as the second serious variable that would impair radiographers' job satisfaction. Lacking in recognition for a job well done, radiographer's job satisfaction downgraded. Brain D. Love, however reported 8% appreciation of radiologic technologists' work by their employers in his study at Thomas Jefferson University.

Radiographers feel less secured about their job. The variable sum, 191, shows the potential, this particular variable has to compromise job satisfaction. It is the 3rd least variable sum. Job insecurity among radiographers/RTs ransacked job satisfaction. Believing management is concerned about radiographers is naïve. According to the findings of this scale, Management doesn't care much about radiographers and hence could impede job satisfaction. Getting along with supervisors also impedes job satisfaction, as the variable has the 5th least variable sum-210.

Table 8: Variables that Compromise Job Satisfaction

No.	Variables	Min.	Max	Variable sum
6	I get along with my supervisors	1	5	210
7	Management is concerned about me	1	5	192
8	I feel secured about my job	1	5	192
9	I receive recognition for a job well done	1	5	188
10	My wages are good	1	5	165

4.4 Group Discussion

Four radiologic technologists took part in the group discussion. The standard test on anxiety and depression indicated that radiographers/RTs live with worry-ness and sadness. In the group discussion, 75% participants mentioned the worries of radiographers/technologies. There are environmental and professional causes to worry-ness. Profession wise, technologists/radiographers were accorded meager benefits or no commensurate benefit at all. The professionals have no goals. They are hopeless and their job has become routine. Life remains to be static for them.

Hopelessness with regards future education opportunity has been a major concern for all (100%) participants. Even 1st year students get worried about the lacking education opportunity. In his research on job satisfaction however, Brian D. Love affirmed that earning an advanced degree or additional certification had improved radiologic technologists perception of job satisfaction.

As a radiation worker, radiographers/RTs feel that they must have gotten better pay. However; they receive 1/3 radiation allowance of what radiologists get (Ethiopian Radiographers and Radiologic Technologists Association/ERRTA). They are paid meager wages. Bad relationship and confrontation are rampant in the department.

Radiologists do not want to coach radiographers Ultrasound or Film interpretation. They look down on technologists/radiographers. However, 25% participants asserted that there is wide

gap, in terms of cooperation, between radiologists and technologists. Although medicine is a team work, radiologists maintain dominance over radiographers. 50% asserted bad relationship is pervasive causing sadness among technologists. Meager wages has also increased life insecurity and hence sadness among professionals.

25% participants assert "work stress" registered a high percentage stress. Teachers at school of radiography teach in a lacking, deficient set up. They teach a Course they did not take. Insufficient staff and scarce supply of educational materials has remained stressful. Besides, no one recognized the burden the professionals bear.

25% however declared patients over-crowd the radiology department beyond the capacity of the facilities. Risk comes from radiation and contamination. Doing X-ray in the ICU causes stress in some hospitals for instance. All these situations coupled with 'no recognition' worsened stress. Besides, as per the 25% participants, work load and other administrative challenges put technologists into stress. According to a research entitled "Perceptions of inter-professional communication: Causes and effects on Patient care, occupational stress and job satisfaction" written by Stacey Q. Deshkulkarni (2009), the second most perceived barrier to inter-professional communication was job stress. In a nut shell, technologists/RTs got stressed by all the above sick situations.

The result obtained from job satisfaction contradicts, a little bit, with work stress and anxiety/depression. 60% technologists/radiographers showed average job satisfaction and over. 25% participants in the group discussion however said 'they are not surprised!' They claimed the fact that radiographers/RTs have scientific fitness (knowledge wise) and also the fresh introduction of imaging modalities such as MRI, CT and Digital radiography into the Ethiopian radiology enhanced job satisfaction. Contrary to this, 25% participants highlighted the satisfaction emanated from caring for the sick and from teaching. Also "A professional who do not expect benefits can easily get satisfied in radiology" said a participant.

Another 25% participants listed out possible causes of job satisfaction. Working under deficient set up and getting a good result from it, is satisfying. According to the participants of the discussion, Majority of graduates now perform Ultrasound and film reading satisfactorily despite pressures. Breaking through closed doors into professional independence engulfed

professionals with joy and satisfaction. Helping the sick in such a deficient set up also is a miracle most technologists and radiographers rejoiced. Nonetheless, 75% participants asserted that knowledge gap, lack of confidence and lack of approval from all the concerned bodies highly compromised their job satisfaction.

25% participants described the radiologist-radiographer/RT relationship indicating the superior-inferior dichotomy common in the department of radiology. The relationship is so bad that a participant described it as if there is no relation at all! For another 25%, few positive individuals are there among radiologists. And some progress has been seen in the relation but still "we remained to be class enemy to each other", said one other participant. They take radiographers/RTs for one who trespassed into radiologists' territory affirmed 25% participants. Another 25% participants indicated that the change in the relationship is not that much improved. One cannot see progress on institutional level but only on personal level.

100% participants unanimously agreed on the fact that doing ultrasound and film reading roughened relationship between radiologists and technologist. Doing Ultrasound and film reading, added fuel to the fire. If technologists' curriculum is striped of Ultrasound and film reading Courses, radiologist-technologist relationship would improve. Radiologists are disheartened and became irritable after the inclusion, in the curriculum, of film reading and Ultrasound. However, technologists' moral got enhanced by the inclusion (in the curriculum) of film reading and Ultrasound. The two are fighting a territorial dispute over Ultrasound and film reading.

50% participants also asserted 'disrespectful radiologists' roughened relationship between radiologists and technologists. Radiologists treat technologists or radiographers contemptuously. They do not uphold teamwork. Another 50% participants declared "they established hierarchical relationship among the team". Doctor-hood has put them on an omniscient position as if they are God. Pride goes before a fall!

100% partaker asserted communication between the two groups has been characterized by rumor, pout and gesture. Radiologists spread rumor about technologists' inability to perform Ultrasound and film reading. They have no communication with some of the technologists at all, because they pout those who practically proved the opposite. They are biased, and make bad

gestures. 'No communication' is a sign of bad communication. Radiographers'/RTs' incessant thirst to knowledge have rotten communications between the two interest groups. Stacey Q. Deshkulkarni (2009) in the research on Perception of inter-professional communication… confirmed increased level of inter-professional communication improves patient care. However, 75% participants have reported improvement, to some degree, in communication lately.

4.5 Document Analysis

4.5.1 Document type: Article

Published on: *The Reporter*: Vol. XIV, No. 690, page 12&18, Nov. 28'2009.

Title: "Can diagnostic radiology exist without diagnostic radiography?"

Author: Tesfaye Ejigu

To start with the title of the article, the title shows the mutual co-existence inescapable between radiology and radiography. But the title put in a question form, indicates one is trying to mutually walk out from the other or one is trying to outshine the other…. as if trying to build castles in the air!

4.5.1.1 Vocabularies taken from the article

Adjectives	Verb	Noun	Adverb
Dominate	bungle	detriment	unjustly
Implicate	blame	predicament	worse
Complicate	watch	confrontation	
Selfish	compromise	de-motivation	
Inferior	aggravate	incompatibility	
Bossy		irresponsibility	
		arrogance	

The adjectives verify the prevalence of dominance, bossiness and selfishness besides the relegation to inferior position of one profession by the other. The verbs, however, indicated the presence of incompetently handled situation in Ethiopian radiology which tends to compromise the very existence of radiography.

Nouns used herald incompatibility between the interests of the two professional groups with confrontation and detriment as an aftereffect. Arrogance and irresponsibility are pervasive among the superiors. But unfairness in the whole situation is pinpointed by the adverb 'unjustly'.

4.5.1.2 Phrases Taken from the Article

- ✓ Negative impact
- ✓ Slave work
- ✓ Lion's share
- ✓ Rich and few at the cost of radiographers
- ✓ Which precedes which…?
- ✓ Which is dominant in Ethiopia…?
- ✓ Walk out mutually
- ✓ Bungle its co- existence with radiography

The last two phrases show the tension built between the two interest groups. Radiologists aspire to remain rich and few at the cost of radiographers. Radiographers/RTs do the slave work, but radiologists take the lion's share of the benefit.

4.5.1.3 Statements Taken from the Article

- ✓ Radiology, a general term for the whole range of complex professional decisions with in or without must not bungle its co- existence with radiography.
- ✓ Radiography, laying the foundation, proved it impossible for radiology to walk out mutually.
- ✓ The situation in Ethiopia is contrary, to the situation anywhere else in the world. The cart is before the horse in Ethiopia.
- ✓ Radiology went against global practice to dominate radiography and even compromise its very existence.

- ✓ Radiologists want to remain rich and few at the cost of radiographers.
- ✓ They take the lion's share after having radiographers do the slave work.
- ✓ This has deepened the already existing arrogance among the doctors, who further ignored incompatibility, within the department of radiology.
- ✓ Inefficiency, technical or otherwise, in the radiology department is blamed on the bossy radiologists.
- ✓ A.A.U has got implicated in the problem since its system is wrongly utilized to the detriment of radiography.
- ✓ Consequently total de-motivation has taken the upper hand complicating matters worse.
- ✓ No one profession is inferior to any other.
- ✓ Radiology in Ethiopia however, dominates radiography unjustly.
- ✓ All of us must put to rest this selfish, irresponsibility before it lay to rest radiography.
- ✓ Radiography is a since worth knowing but radiology in Ethiopia is a science worth watching.

The above statements speak for themselves!

4.5.2 Document type: Article

Published on: *The Reporter*: Vol. XIV, No. 692, page 12&18, Dec 12'2009.

Title: "The Politics of Ethiopian Diagnostic Radiology"

Author: Tesfaye Ejigu

The title of the article earmarked the unfairness of resource distribution in Ethiopian radiology; the politicized power relationship in the department and more. Politics in general connotes fumbling for scarce resources.

4.5.2.1 Vocabularies Taken from the Article

Adjective	Verb	Noun
Scarce	Stagnate	fight
Fierce	fail	
Used	deprive	
Exploitative		

Adjectives show the fierce fight for scarce resources in Ethiopian radiology. Also the fact that radiologists use the people and the radiographers/technologists for personal gains is evident. Moreover, the exploitative nature of relationship radiology established with the people and the radiographers is vivid.

Verbs, however, reveal how professional advancement stagnated, and how the people & radiographers/technologist were deprived of development by radiologists and their selfish motive. Radiologists failed to save the people. The relationship radiology established with the people is parasitic in nature. Hence, the fight has continued unabated!

4.5.3 Document Type: - Article

Title: "Radiological Interpretation"

Published on: *The Reporter* Vol.XIV No.703 Page 22 Feb 27'2010.

Author: Tesfaye Ejigu

4.5.3.1 Statements Taken from the Article

✓ Radiological technologists must make interpretation, even if their interpretation is not approved by radiologists.
✓ Radiologists believed radiological technologists are ill equipped with regards clinical knowledge.
✓ They assert the curriculum prepares technologists for non-clinical tasks.
✓ But, radiologists regard clinical knowledge as something ascribed, not achieved.

✓ Radiological services will be delivered fast and without delay, only if technologists interpret films and make Ultrasounds.

The above statements point out the territorial dispute the two professional groups engaged in for long. Radiologists don't want technologists to make film reading or do Ultrasound. They put lack of clinical knowledge as a pretext, when the real reason was threat to radiologists' financial benefit and superiority. Radiologists regarded clinical knowledge as something doctors are ascribed to; not as something acquired through education.

4.5.4 Document type: Research

Published on: Awramba Times Vol. II No.105 Page 20, Feb 2010.

Awramba Times Vol. III No.106 Page 20, March 2010.

Title: "Justification of X-ray and Ultrasound request forms in the hospitals under A.A Health Buearu"

Author: Tesfaye Ejigu

4.5.4.1 Statements Taken From the Research

- Radiographers are marginalized!
- Communication has lost the battle in medicine.

The above statements reveal the crucial fact that radiographers are marginalized. They make a vulnerable group which has suffered under the iron fist of the radiologists ever since the beginning. Even innocent patients' suffering alongside the vulnerable radiographers/RTs could not pity them. And also communication has lost battle in medicine in Ethiopia, despite its significance in health care. Stacey Q. Deshkulkarni affirmed Poor inter-professional communication was a source of occupational stress for radiologic technologists.

CHAPTER FIVE

5. Discussions

Though there was immediate linkage between the discovery of X-ray and its application to the medical profession, physicians' reaction was scornful. Many viewed the discovery with contempt. Doctors and technicians relationship has been spoiled since the discovery of X-ray. Doctors were contemptuous, disrespectful, and a huge source of stress for radiographers since then.

Northouse and Northouse (1998) identified three problem areas that hindered inter-professional communication. Role stress, the first of the problem areas refers to anxiety brought on by the basic nature of working in health care and by difficulty in carrying out professional roles. 92.18% radiographers in Addis Ababa lead anxious and depressed a life. Their professional life has been infected with anxiety and depression. They feel that everything was an effort in their professional engagement. They feel tired out for no good reason. Depression is also common among the technicians. 75% participants in the group discussion mentioned the worries of radiographers or technologists as emanating from environmental and professional grounds. Technologists or radiographers are accorded meager benefits or no commensurate benefit at all. They are vision-less, hopeless and their job has become routine. Life remains to be static for them. Hopelessness with regards future educational opportunity has been a major concern for all participants. Even 1st year students got worried about the lacking educational opportunity.

As radiation worker, technicians feel that they must have gotten better pay; however, they receive radiation allowance, a third of that of the radiologists. Bad relationship and confrontation are rampant in the radiology department.

Radiologists do not want to coach radiographers Ultrasound or film interpretation. They look down on technicians. Still, 25% participants in the group discussion asserted that there is a wide gap, in terms of cooperation, between radiologists and technologists.

Although medicine is teamwork, radiologists maintain dominance over radiographers. 50% participants asserted 'bad relationship' as pervasive and also as causing Sadness among technologists.

Lack of inter-professional understanding, Northouse and Northouse's second problematic area, has been linked to role confusion and territorial dispute. The major cause of this problem is the fact that professional education takes place in virtual isolation from other health care disciplines. All participants in the group discussion however, unanimously agreed on the fact that doing Ultrasound and film reading roughened relationship between radiologists and technologists. If technologists' curriculum is striped of Ultrasound and film reading courses relationship would improve. Whenever radiologists get disheartened and become irritable by the inclusion of film reading and Ultrasound in the curriculum, technologists' moral get enhanced by it. The two professional groups are fighting a territorial dispute over Ultrasound and film reading. Territorial dispute lay behind the bad professional relationship within the realm of Ethiopian diagnostic radiology.

The ability to communicate and function effectively as part of a team is, for most, a learned skill. " With the increasing prevalence of teamwork in health care setting, health professional students need to learn how to be effective and contributing team members"(Rodger, Mickan, Marinac, & Woodyatt, 2005, p.230). All discussants, however asserted communication to be characterized by rumor, pout and gesture, in between the two interest groups. Radiologists spread rumor about technologists' incompetence to perform Ultrasound and film reading. They have 'no communication' with some of the technologists at all, because they pout those who practically proved competent. They are biased and make bad gestures. 'No communication' is a sign of bad communication. Technicians' incessant thirst to knowledge has rotten communications between the two interest groups. Stacey Q. Deshkulkarni (2009) confirmed (in a research) increased level of inter-professional communication improves patient care. Nonetheless, 75% participants reported improvement, to some degree, in communication lately. "To provide quality patient care, all members of the health care team must communicate effectively and work together efficiently" (ASRT, 2007, p.27).

In an article published in 1987, Crowley and Wollner presented a plan for implementing collaborative practice and outlined the benefits of doing so. The benefits for nurses, physicians, and the institution included, among others, a more collegial atmosphere with greater job satisfaction and feeling of self-worth resulting in improved nurses/physician recruitment and retention.

In this research however, 60% respondents enjoyed average, high, and very high job satisfaction in contrast to the 40% low & very low satisfaction. Owing to a belief that work is good for their physical health; and feeling close to the people at work, technicians scored a high job satisfaction. Brian D. Love (n.d.) affirmed that earning an advanced degree or additional certification had improved radiologic technologists' perception of job satisfaction.

Group discussants claimed the fact that radiographers'/rts' scientific fitness and also fresh introduction of imaging modalities enhanced job satisfaction. "Teaching" and "caring for the sick", boosted job satisfaction. Working under deficient set up and getting a good result from it is satisfying.

Sechrist and Frazer's (2006) study reported "disrespectful physicians" as a number one source of stress among radiographers/rts. However, "receiving no appropriate recognition or reward for good performance" is found to be the number one stressor. "An occupational stressor may be defined as any demand, physical or psychological, encountered in the course of working….. Work stressors are influenced by such personal characteristics as personality, value system, health, educational background, goal orientation and perception of job situation" (Raj, 2006, p.1).

25% group discussants described radiologists-technicians relationship as dichotomous (superior-inferior dichotomy). The relationship is so bad that a participant described it as if there is 'no relation' at all! "We remained to be class enemy to each other!" said one participant.

Radiologists take technicians for one who trespassed into radiologists' territory affirmed another 25% participants. The two are fighting a territorial dispute over Ultrasound and film reading. But, Svensson (1996) and Allen (2001a, 2001b) maintained that boundaries between professions are not fixed; either by statute or by the professions involved, but are instead, a socially constructed phenomenon. From Weber, Sociologists have shown how professional groups seek to establish a privileged position for themselves, closed off from the rest of society, a phenomenon Weber termed "social closure". Parkin (1979) shows how social closure is not "once and for all", but is in fact a contested process.

Other groups will attempt to come along and usurp the privileges of the professional group in an attempt to gain some of the privileges of professional status, such as secure employment, higher wages, professional autonomy, and so on.

While legislators and the profession's governing bodies can influence where the boundaries might be found, they remain locally determined and are, at least in part, negotiated.

This thing could not have existed had we not built it; and we need not have built it at all, at least, not in its present form.

CHAPTER SIX

6. Summary, Conclusion and Recommendations

6.1 Anxiety and Depression

92.18% respondent technologists/radiographers live with anxiety and depression. 79.68% of them suffered from moderate anxiety and depression, when 12.5% suffered from high anxiety and depression. Anxiety and depression is a serious mental illness. This illness affected the social and professional life of radiographers/RTs. They did not, in any case, attain stable mental status essential for professional or social success. For radiographers/RTs everything in their professional endeavor was an effort. Eaten away by long standing anxiety/depression they most often feel nervous, and are tired out for no good reason. Restlessness (or fidgety), sadness, hopelessness and worthlessness are very common among victims.

There are environmental and professional dimensions to worry-ness and sadness. The environment being a public hospital in one of the least developed nations; it is always pervaded with suffocating smells either from the chemical disinfectant that they mop the hospital floor with or the wound of the sick. It is Very crowded because of the poor Living condition. It exhibits the most shocking traumas and illnesses that could take one into anxiety or least of all, into emotional involvement. Some corrupt hospital administrators and few corrupt physicians, whose primary goal is to run away from hand-to-mouth living, exacerbated exploitation and domination of technologists' /radiographers'. All the aforementioned incidents rendered the hospital environment the most depressive to technologists. A daily exposure to the inconvenient and provocative environment would place one under depression/anxiety in not more than 6 months.

Professionally, the illness gets triggered by the crude fact that technologists/radiographers were accorded no commensurate benefit to their job. As radiation workers they must have gotten paid much better than other professionals. But today their radiation allowance is only 1/3 of the radiologists. Technologists/radiographers have become hopeless lacking in educational opportunity for their professional growth. Even college students fresh in campus share the concern and frustration of their teachers. Radiologists are not willing to coach technologists/radiographers. Hence, technologists' job has become routine and life continued to

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be static. They could not find purpose in their professional Life. Bad relationship between the two professional groups prevailed. Even the fresh graduates acquired the diseases.

6.2 Occupational Stress

93.65% respondent technologists/radiographers have shown work stress of varying degrees. 26.98% have had fairly low stress. But 33.33% respondents showed moderate stress. 19.04% have got severe stress, when 14.28% have dangerously high level of stress.

The number one stressor was found to be "receiving no appropriate recognition or reward for good performance". Radiologists spread rumor about technologists'/radiographers' inefficiency and lobby for superiority. However, providing appropriate recognition or reward will position technologists/radiographers against the financial interests of radiologists, and hence is dangerous. The second major stressor is the environment. Conditions at work are unpleasant or unsafe for radiographers/technologists. Radiation risk, poor occupational safety standard and unjust inequality worsened the environment. A radiologist receives three times higher radiation risk allowance, when radiographers are the most exposed to radiation. It is unfair!

The third Major stressor came from doing too much work or from facing too many unreasonable deadlines. Hospitals are overcrowded as poor living standards and insufficient public facilities converge. But the situation in radiology worsens by few corrupt physicians who tend to use the public facility as a private business venture.

The feelings that job negatively affect physical and emotional well being tend to be the fourth major stressor. 'Physical well being' is affected through work load, contamination risk and radiation risk. 'Emotional well being' however, implies inequality, feeling of exploitation and the subdued nature of professional integrity. Biological health gets affected by the physical factors when the emotional factors affect the mental well being of the radiographers/technologists.

The fifth major stressor relates to communication. Radiographers/technologists find it difficult to express opinion or feeling about job condition to radiologists. Radiologists' pride hindered smooth communication. Inability to utilize radiographers' skills and talents to the fullest extent at work became 6th major stressor. The hard earned skills and talents are subdued in territorial disputes over Ultrasound and X-ray film reading.

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Work load, insufficient staff and scarce supply of educational materials in the school are mentioned as stressors. Contamination risks and radiation risks coupled with "absence of recognition" worsened the stress.

6.3 Job Satisfaction

60% of the respondents registered average, high and very high job satisfaction, when the rest 40% enjoyed low and very low job satisfaction. Overall radiographers/technologists are satisfied with their job, though this sounds a little bit contradictory. Of the 60%, 41.53% reported average job satisfaction. 3.07% respondents have high job satisfaction. But, 15.68% respondents reported very high job satisfaction.

The satisfaction among radiographers/technologists came from the fact that radiographers/technologists have sound scientific competence to carry out their professional duties. Given the fact that they are hindered from academic growth and are campaigned against as "clinically incompetent"; scientific competence means a lot. It is a source of job satisfaction and success. It has helped them disprove the rumor spread about by radiologists. Some clinicians are now approving the clinical competence of the technologists to the extent they turn back to them to do business with.

Fresh introduction of imaging modalities such as MRI, CT and digital radiography (DR) into the Ethiopian radiology enhanced job satisfaction. Technologists/radiographers have known these modalities in theories and pictures up until now. But lately few public and private facilities brought them in for the young technologist to use it. This has changed the thinking and definitely enhanced satisfaction.

The revised curriculum which honored radiographers/technologists into doing what radiologists hindered has immense contributions to job satisfaction. Though the fight for equality and pride still continuous; radiographers/technologists have snatched some part of their freedom already. They do Ultrasound and film reading on their own. Majority of graduates now perform Ultrasound and film reading satisfactorily despite pressures. Breaking through closed doors into professional autonomy engulfed them with job satisfaction. Helping the sick in such a lacking set up is a miracle most technologists/radiographers carried out in happiness and joy. Caring for the sick, teaching students and working under deficient set up to get good results is also satisfying.

Relationship between the two interest groups is characterized by superior-inferior dichotomy. Radiologists took radiographers/RTs for one who trespassed into radiologists' territory. Doing Ultrasound and film reading, added fuel to the fire. The two are now fighting territorial dispute over Ultrasound and film reading. Nonetheless, professional boundaries are a socially constructed phenomenon. They remained locally determined and are at least in part 'negotiated'. Poverty, hopelessness and failure to upgrade oneself to a higher level (on the part of the radiologists) are the local factors which precipitated territorial dispute.

"Disrespectful radiologists" also coarsened relationship. They established hierarchical relationship among the radiology team. They treated technologists/radiographers contemptuously. Doctor-hood has put them on an omniscient position. Radiographers'/RTs' incessant thirst to knowledge (uncommon among the nurses) have rotten communication between the two groups. Radiologists are biased. They make bad gestures, spread rumor and Pout.

The presence of incompetently handled situations in Ethiopian radiology, which tends to compromise the very existence of radiography, is vivid. The two professional groups went incompatible with confrontation and detriment as an after affect. Radiologists aspire to remain rich and few at the cost of radiographers. They take the lion's share of the profit, while radiographers/RTs do the slave work. They established a parasitic relationship with radiographers/RTs and the community. They use the community and radiographers/RTs for personal gains unfairly. The people and radiographers/RTs are deprived of professional advancement and development by radiologists and their selfish motives. They regard clinical knowledge as something doctors are ascribed to; not as something acquired through education.

Radiographers/RTs are marginalized. They make up the vulnerable group which long suffered under the iron fist of radiologists. Even innocent patients' suffering alongside the vulnerable radiographers does not pity the cruel radiologists. It is very unfortunate to have known the fact that the "omniscient" Ethiopian radiologists have made no contributions whatsoever to the technological or clinical advancement of the science of diagnostic radiology.

6.4 Recommendations

Ethiopia needs to proclaim medical law pertinent to diagnostic radiology. Medical diagnostic radiology law is needed to draw out distinct lines across professional responsibilities. Job descriptions should contain details of procedures to be performed by technologists as distinct from radiologists. Occupational safety standard codes have to be included in the proclamation. Also, compensation for occupational hazard or radiation hazard has to be legally quantified as per the extent to which an individual or a particular professional group risks own health. The proclamation will settle conflicts, besides rectifying the current random assignment of radiation risk allowances.

The conflicting professional groups will be legally bound to approve job descriptions of each other. Legislators and professional governing bodies can influence to mark the points where the professional boundaries might be placed.

Radiologists and technologists did not team up because of pride and omniscience on the radiologists' side. However, this is due to absence of inter-professional education in health care curricula. Inter-professional education (IPE) is fundamental for a better team work. So I recommend inclusion of Inter-professional education (IPE) in the radiology and technology curricula.

Radiologic technologists/radiographers will have to find a strong voice to fight the wrong perception and speak up: the perception that they are 'clinically incompetent'. They have to be reassured, guided and counseled, out of mental illness. Advance standing and post graduate study programs have to be opened for radiographers and technologists, if change of relationship is sought. Private Universities and international Universities can have a stake in the programs, if not government Universities. Only then are they able to secure a mature relationship with the physicians and radiologists.

Share interesting reading or research projects with the physicians; that show commitment to the field. Pass positive feedback from patients along to them. Radiologists ought to communicate with the technicians about their expectations for a study and also allow the technicians to figure out the best technique. They should listen to the technicians, if they have social media or technology tricks to share.

Radiographers/technologists must be paid as twice radiation allowance as radiologists. They are the ones risking their life high in the department compared to the radiologists. The policy framework formulated by the Ministry of health, to produce mid-level health professionals has to be accompanied by strict implementation. Stern implementation of the policy will go against a selfish interest that is disqualifying technologists/radiographers from performing film reading and Ultrasound.

A stress relieving mechanism, specific for radiographers/RTs must be designed and applied. The Health and Safety Executive (HSE) recommends that organizations have a stress policy as part of their approach to stress management (Jane Cranwell-Ward and Alyssa Abbey (2005) Organizational Stress, Page 112). Occupational safety standards need to be upgraded in Medicine. Occupational safety standard in radiology in particular deserves special attention as it has to coincide with the medical diagnostic radiology law.

Different technological innovations empower radiographers/technologists besides enhancing job satisfaction. Therefore, quick introduction of new advances in technology into Ethiopian radiology is a treatment tool recommended for the vulnerable technicians to remain satisfied and empowered. Technologists' professional autonomy will always be anchored on technological advancement.

With technological advancement, radiologists find some extra time and that extra time will be used to get to know the technologists/radiographers better.

All in all, radiologic facilities have to be tuned to where technologists feel empowered to offer opinions or to make comments. Making the relationship less hierarchical and, making it involve more teaching and partnership has a positive result.

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RADIOLOGIC TECHNOLOGISTS' STRESS, JOB SATISFACTION, ANXIETY&DEPRESSION, AND ITS IMPACT ON THEIR PROFESSIONAL RELATIONSHIP WITH RADIOLOGISTS: THE CASE OF 65 RADIOLOGIC TECHNICIANS IN PUBLIC FACILITIES IN ADDIS ABABA, ETHIOPIA.

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CHAPTER ONE

1. Introduction

The diagnostic radiology team comprises of radiologists and radiographers or radiologic technologists. The two had organized the diagnostic undertaking in such a way that radiographers do the image and radiologists do the interpretation and the ultrasound, until very recently. Radiologists have a graduate certificate but radiographers have not. Radiologists are paid higher than the radiographers and are bound to be the boss in the department.

Medical radiography is a broad term that covers several types of studies that require the visualization of the internal parts of the body using x-ray techniques. Radiography means a technique for generating and recording an x-ray pattern for the purpose of providing the user with a static image(s) after termination of the exposure (www.fda.gov).

Casual observation and informal discussions indicated that radiographers are not happy about their professional relationship with radiologists for a number of reasons. Radiologists are superior over radiographers. They gain financially at the expense of radiographers, who do the risky and daunting part of the duty. Radiographers are exploited systematically by radiologists and even others (Esayas Tiruneh, head of Ethiopian Radiographers & Radiologic Technologists Association/ERRTA). They enjoyed inferior professional position given the fact that their curriculum was outdated and interfered with negatively by radiologist. As teachers at the department of medical radiologic technology remarked the curriculum had been organized intentionally, to incapacitate radiographers academically until finally radiographers themselves engaged in curriculum development to change the situation.

Radiographers are denied equality. They are denied carrier development options and are singled out as worthless slaves in the health care profession. Their professional development efforts remained stunted. They don't have post graduate educational programs to look up to, till date. Also, they are hindered from doing ultrasound examinations says the Ethiopian Radiographers' and Radiologic technologists' Association (ERRTA).

Radiographers also feel that radiography does not give them career development options and seem to dislike it. For this reason as well, in 2007 G.C freshly assigned students boycotted

the department of radiography to shift to other departments (A.A.U. College of Health Science, Department of Medical Radiologic Technology). Taken aback University officials asked why they boycotted only to hear from the assignee that the infamous radiography has no carrier development options or has gloomy future. Most radiographers, this researcher has known, changed their profession lacking in hope and educational opportunities to grow.

In an informal discussion with professionals, this researcher found that the radiographers suffered from recurrent anxiety and depression. Radiologists, however, took the upper hand. They controlled the bureaucracy. "Doctor-hood" hypnotized all others out of wit. All of these resulted in a rough professional or social relationship. The two interest groups do not communicate well. Derision deeply rooted between radiologist and radiographers/technologists hindered progress. Standardized health care provisions, for clients, remained far-fetched. Patients suffered from unsatisfactory diagnostic results and poor communication as a result of rough relationship between radiologists and radiographers (Anonymous hospital sources). These differences may also be a result of different trainings and philosophical approaches underpinning the professions (Fitzsimmons & White, 1997).

Rough relationship persists not only in radiology, but also in other fields such as psychiatry and pharmacy. Psychiatrists and psychiatry MSC graduates, have similar battle to fight. Gynecologists and midwives suffer similar incompatibility. Pharmacists and druggists had to fight the territory battle all along the time in Ethiopia asserted hospital sources. Baxter and Brumfitt (2008) argued "Inter-professional working clearly presents considerable challenges to practices dominated by power and status considerations. Professional differences have been described as "tribalism" (Beattie, 1995), developed as a result of professions evolving separately, with deeply rooted boundaries between them".

Nonetheless, no efforts have so far been made to address the issue in a social actionist manner to the best knowledge of this researcher. Some formed professional associations to fight for their right, but professional associations got easily cracked down. In a personal interview with a couple of psychiatry MSC graduates this researcher found an impression that Psychiatry MSC graduates have not yet been able to form professional association because of infiltrations. Workers, experiencing job dissatisfaction may involve themselves into unionization. Attempts at unionization can spread an individual's perception into the perceptions of others compounding

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the effects of dissatisfaction (Robbins & Judge 2007). It had been noted that a major distinction between joint working practice in healthcare and in other contexts such as business and industry, is that workers in healthcare have professional groupings and different allegiances (Firth-Cozens, 2001).

Very recently few radiologic technologists managed to do ultrasound as a result of generation-old struggle to change the curriculum. That is only a quick fix to the hindrance though. Also, the department detached itself from radiology department (A.A.U. College of Health Science, Department of Medical Radiologic technologist). Graduates reported that the newly developed curriculum was updated to include the four major medical departments: *pediatrics, gynecology, surgery*, *and medicine*. Despite the effort much remains to be achieved in the direction of opening post- graduate programs for technologists. Sorting out territorial disputes by legally acknowledging radiographer's and technologists' contribution in benefitting the general public and also empowering the side-lined professional radiographers and technologists to a level of worth and confidence is the direction towards changes.

Existence of rough relationship between the two parties manifest in lack of effective communication, job dissatisfaction, occupational stress, lack of career development options, territorial dispute and many other variables (ERRTA). Communication is a challenge in all human endeavors. And poor communication occurs regularly in every day interactions from personal relationship to business transactions. Rarely, however, does faulty communication risk such grave consequences as when it occurs in the health care setting where the lives of vulnerable patients lie in the balance. (Dixion, Larison, & Zebari, 2006)

Lack of inter-professional understanding and effective communication leads to confusion, concerning the various roles of health care professionals; thus leading to increased occupational stress. "Stress has been identified as 'nonspecific response of the body to any demand made upon it' (Sechrist and Frazer, 1992, p. 97)". Employees in health care settings and technologists in particular, must deal with significant amounts of occupational stress. When stress levels reach uncontrollable amounts or when employees do not cope effectively with stress, burnout can occur. Burnout is characterized by negative emotional, psychological and physical reactions to work related stress (Raj, 2006, p. 2).

The major source of stress, for those employed in the health care fields, are as diverse as the fields themselves. Some of the general areas identified are: Work content, work organization, responsibility, role conflict/ambiguity, and career development (Sechrist & Frazer, 1992). Sechrist and Frazer identified 35 stressors in radiologic technology. Eight of the 35 were related to communication and interpersonal relations. 'Disrespectful physicians" was ranked as the number one cause of stress. Other stressors related to poor communication included 'lack of respect', which ranked 5th of the 35 stresses, followed by "uncooperative radiologists", "non supportive radiologists", and "demanding radiologists" ranking 7th, 8th, and 9th respectively. "Demanding physicians" ranked 14th, "uncooperative workers" 16th, "uncooperative hospital staff" 20th and finally "uncooperative nurses" ranked 35th.

In a 2006 study, Raj supported the findings of Sechrist and Frazer's 1992 study when he listed role ambiguity and role conflict as one of the six categories of stressors for radiologic technologists. He stated, "although stressors encountered at work are many and varied, they can be separated into the following categories: organizational stress, work overload, boundary extension, career developments, leadership style, and role ambiguity and role conflict" (Raj, 2006, p. 1). It seems that the issue of role ambiguity and role confusion would be the easiest to address and could have been resolved in the 14 years gap between the 1992 Sechrist and Frazer's study and the 2006 Raj's study; however, these issues continue to cause stress among allied health professionals.

The department of medical radiologic technology at Addis Ababa University (AAU) was first established in 1971G.C at Menelik II hospital along with laboratory, pharmacy and health assistants' training programs- collectively known as "Medical auxiliary training school (MATS)". In 1982G.C, the school of radiography was separately transferred to Tikur Anbessa hospital A.A.U. College of Health Science, Department of Medical Radiologic Technology. In over 40 years of service, the school has graduated around 350 diploma graduates!! That is to say, every year, for the last 40 years, it has graduated eight professionals. However, some of the graduates have now abandoned their profession and shifted to other walks of life. Radiography, as a field of health Care, is experiencing a successful leap along with the ever advancing medical imaging technology worldwide (Addis Ababa University (AAU) College of Health Science, Department of Medical Radiologic Technology).

2. Statement of the Problem

Diagnostic radiography or radiologic technology is a profession where patients are referred to take X-ray, Computerized Tomography (CT), Magnetic Resonance Imaging (MRI) and Ultrasound examinations. The profession, as any other in medicine works in a team to realize medical examinations. Patients benefit from the examinations as does the examiner, for imaging technologies provide infallible medical data.

Diagnosis realizes when a radiographer or radiologic technologist works in tandem with radiologist, in a team under the department of radiology. Radiologists are engaged in the interpretation of images, done by radiographers/rts. They are recruited to specialize in diagnostic radiology after serving as medical doctor. Radiographers & radiologic technologists however, are diploma or degree graduates, with 2-6 years University study. The two professionals have worked together ever since the introduction of diagnostic radiology in Ethiopia.

But the relationship between the two has not been assessed by any systematic study. Several radiographers openly state that the doctors have been dominant, domineering and oppressive against the technicians/technologists. They take the lion's share of the benefits earned. They took the upper hand in the management of the department undertakings. Keeping the technicians/rts relegated to servitude, they secured financial superiority and bureaucratic power. Lawlessness coupled with "doctor-hood" enabled them to take bureaucratic ascendancy to deny their teammates carrier development options. Technicians/RTs have not led a decent life because they did not get a decent payment. They risked their health and their life from radiation but have been underpaid. They have been denied education, which would have taken them up the ladder. Their professional development endeavors have met huge challenges till date. It has been subject to the direct and indirect influences of the radiologists. Technicians'/RT's professional carrier development has been conceived as a direct threat to the financial benefits of radiologists (Esayas Tiruneh, head of ERRTA).

This socially irresponsible move continued unabated despite government's policy to foster mid-level health professionals. Many professionals in the field feel that this resulted in hopelessness, sadness, anger and helplessness. Anxiety and depression has taken hold of the

victims. The fact that their colleagues (in other departments) comparatively succeeded in life and in professional development adds to the psychological trauma technologists suffered for so long. For instance, one of the teachers at the department of medical radiologic technology at Addis Ababa University; having no career development options shifted to study medicine, incurring all the costs on his own. One can cite numbers of such examples. Their relationship with radiologists deemed to remain rough throughout.

The youth in the radiologic technology profession say that they have a dark future now. Some have already left the profession behind and changed their field. In 2007 alone, a class full of assignees (55 students) boycotted radiologic technology on account of the fact that radiologic technology lacks in prospect and pride (A.A.U. College of Health Science, Department of Medical Radiologic Technology). Their complaint received attention from Addis Ababa University officials and hence, shifted to other fields after a lapse of one year. Even after the department separated from the department of radiology to stand on its feet, the challenge continued secretly. Radiologists continued to influence indirectly through the bureaucratic network "doctor-hood" instigated. School of radiography/RT still needs the support of the radiology department to run some of its programs at least until it train its own staves on post-graduate level. Post-graduate programs for technologists failed to kick off due to radiologists' ill will (former head of the department of the medical radiologic technology told this researcher that radiologists are eager to open post-graduate programs for technologists in a non-medical stream, against technologists' interest).

This is a serious social problem that has affected generations of youth who were unfortunate enough to be assigned to study radiography/ radiologic technology…. To this end this research attempts to look into the current professional relationship between the two interest groups in Ethiopian radiology.

3. Research Question

What is technologists' professional relationship with radiologists like; with respect to stress, job satisfaction and anxiety& depression?

4. Objective

Relationship, good or bad, exists between radiologists and radiographers/rts. The two professional groups work together under the department of medical diagnostic radiology. One cannot exist without the other, as the two professional groups are highly inter-related and one finds completeness in the other. This research attempts to make an assessment of the current relationship (professional) between the professional groups in relation to Work Stress, Job Satisfaction and Anxiety & Depression and examine its impact.

4.1 Specific Objectives

- Assess the professional relationship that exists between Radiologists & Radiographers/rts.
- Assess how the professional relationship manifests in day to day interactions.
- Assess Radiographers'/rts' Job Satisfaction.
- Assess Work Stress among Radiographers/rts.
- Assess Anxiety & Depression among Radiographers/rts.
- Assess the implications of the Current professional Relationship.
- Assess the impact of this on Radiographers/rts.
- Assess how the relationship can be improved to the benefit of the mass.

5. Significance of the study

This research will figure out the relationship between Radiographers/RT and Radiologists in terms of inter-professional communication, occupational stress, job Satisfaction, and anxiety & depression on the part of the former. Understanding current relationship between the two professional groups helps identify factors affecting their relations positively or negatively and promote the positive ones; curtailing the negative factors. This, in turn helps improve radiologic service provision to patients. It also paves the way to empower Radiographers/RTs in future endeavors. Tensions created as the aftermath of current relationship will be resolved if recommendations and suggestions of this study are heeded. Above all, the significance lays in the protection and saving of future generations from professional stagnation and frustration. Professional titles camouflaged the dire situation radiographers/technologist got stuck in. But this is a serious issue affecting the major social group in the country-*the youth*. Systematic deprivation of radiographers/RTs cannot continue like this for generations. It must be changed and updated to the level of international practices.

6. Scope of the Study

The research on radiology-radiography relationship and the anxiety/depression, work stress and job satisfaction among radiographers/ technologists observed the situation from the side of the vulnerable group.

For the reasons of unresponsiveness and un-cooperation, radiologists are not involved in the study or the situation from their side has not been included. Had it been included, it would have added a new dimension to the results to be obtained. Also, the bigger picture of the challenge would have been drawn.

However, this is a fundamental descriptive research done on the belief that it will pave the way for researchers to delve deep into the details of *radiological inter-professional relationship*. And hence makes a restricted contribution to understanding relationship.

CHAPTER THREE

3. Research Methodology

In qualitative research, a researcher takes into account the phenomenon as a whole and describes it "as it exists". This method of research describes the experiences of people in depth and permits the researcher to study and understand people in depth in their own perceptions. Qualitative research also helps us examine the nature of human behavior and experience and social conditions.

3.1 Study Design

This study measures psychological concepts. The results to be obtained, also reflects 'professional relationship', which is a psychological concept. Hence it is a qualitative research. In the case of human relations several intrinsic factors, events and processes keep on influencing each other constantly. Therefore, it is not possible to identify one-to-one cause and effect relationships in this case of qualitative studies. To naturalists, causality in social sciences cannot be demonstrated in the hard sense as it is done in the case of physical sciences. Rather, only patterns of plausible influences can be inferred from social and behavioral studies (research methods in social work, IGNOU, 2008). However, In studying the relationship between radiographers/rts and radiologists factors like job satisfaction, work stress, and anxiety & depression keep on influencing one another.

The procedure employed in this study is referred to as insightful inquiry. In insightful inquiry humans are treated as the sole means of data collection. The researcher collects responses from human respondents in the various hospitals. Qualitative methods like participant observation, informal interviews and discussions, reading of relevant literature, and daily observation notes and dairy writing are very often used for fieldwork. However, the use of quantitative techniques like test administration and survey are not totally ruled out in the process of data collection under this approach (research methods in social work IGNOU, 2002).

The method adopted was descriptive research. Descriptive research is used to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. Rather it addresses the "what" question (what are the characteristics of the population or situation being studied?). The characteristics used to describe

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the situation or population is usually some kind of categorical scheme also known as 'descriptive categories'. For example, the periodic table categorizes the elements. Scientists use knowledge about the nature of electrons, protons and neutrons to devise this categorical scheme. We now take for granted the periodic table, yet it took descriptive research to devise it. Descriptive research generally precedes explanatory research.

For example, over time the periodic table's description of the elements allowed scientists to explain chemical reaction and make sound prediction when elements were combined. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984).Percentages, central tendencies, frequencies or deviances from the mean are appropriate measurement tools in this type of research. In other words, descriptive research can be said to have a low requirement for internal validity. The descriptive categories used here are work stress, job satisfaction and anxiety & depression.

3.2 Universe of the Study

Most health professionals widely held a view that all Radiographers and Radiologic technologists (rts) in Ethiopia face similar problems of roughened relationship with Radiologists. The same situation persists despite variations in geographical locations within the country. Their communication with individual radiologists, their stress, job satisfaction, career development options, and even their territorial dispute continued to be a "bone of contention" (Esayas Tiruneh head of ERRTA). So, all Radiographers and Radiologic Technologists make up the universe of the study.

3.3 Participants and Size

Sixty five radiologic technicians in seven hospitals and department of radiologic technology at Addis Ababa University have taken part in filling up the scales and tests. Sixty five standard scales/tests handed out for respondents, and only 64 responses are retrieved for Anxiety & depression test. But 63 responses were retrieved from work stress scale, when job satisfaction got all 65 responses. The hospitals engaged in the study are Zewditu Memorial, Tikur Anbassa, Yekatit 12, St. Paul Memorial, Alert, Menelik Memorial, and Ras Desta Damtew Memorial hospitals.

3.4 Participant Selection Methods and Procedures

Qualitative descriptive research allows a researcher to study a real life situation in which subjects have experienced what he aspires to investigate: *current professional relationship*. Non-probability purposive samples have been drawn based on the availability of the units. Radiographers or radiologic technologists (rts) working in seven government-owned hospitals in Addis Ababa and department of radiologic technology at AAU reflect the existing relationship sufficiently. The dependent variables do not vary among those radiographers/technologists working in private health facilities or in various regions of the country.

Respondents of the anxiety and depression test comprise of 23 diplomas and 41 Bachelor of Science graduates. Sixteen of them are female when the rest 48 are male. Seventeen of the respondents have practiced radiography for over 10 years, when 18 of them practiced it 5-10 years. The remaining 29 respondents have got experiences of 5 years or less.

Work stress respondents are 63; 16 female and 47 male. Twenty three of the 63 are diploma graduates, when 40 of them have Bachelor degrees. Seventeen of them have over 10 years experience. Another 18 have served between 5 and 10 years, when the rest 28 practiced for 5 years or less.

Job satisfaction retrieved 65 responses. Sixteen responses are from female, when 49 are from male respondents. The diploma graduates are 23. But the degree graduates are 42. Eighteen respondents belong to the work experience category of 10 years and above. Another 18 belonged to 5-10 years work experience category. The remaining 29 have served for 5 years or less. All the participants of the group discussion are male, with Bachelor of Science degree in Radiography.

3.5 Data Collection Methods and Procedures

To obtain information concerning the current status of professional relationship five different data collection tools have been implemented. Specifically speaking standard scales, a psychological test, group discussion, observation and document analysis techniques are the ones used in this research.

Rating scales pose definite and concrete questions to respondents. Similarly, a standardized psychological test for "anxiety & depression" assessment presented questions of emotional feelings respondents felt in the last four weeks.

The researcher goes to each hospital to administer the scales. Professional radiographers in each hospital will fill up the scale randomly. Respondents do not get informed on the questions prior to administering the scales. Any questions from respondents will be tackled by the researcher on the spot, to avoid confusion. Finally, The Microsoft office Excel 2007 spread sheet will be used to analyze the responses gathered from respondents.

Besides group discussion, Systematic naturalistic observation has been used to observe real life situations regarding career development options and more. Document analysis will depict the occurrence of territorial disputes and rough communication between radiologists and radiographers/rts.

The group discussion however is to be held among four radiologic technologists. It is going to be a two hours discussion on the results obtained from the scales and test and on various issues pertinent to the research. All the participants of the group are male, with Bachelor of Science degree in Radiography.

Rating scale refers to a "scale" with a set of points which describe varying degree of an attribute under investigation. Questions & responses, within the job satisfaction scale are arranged in a Likert model.

3.6 Tools for Data Collection

Standard scales, systematic naturalistic observation, group discussion, document analysis, and a standard psychological test are employed for data collection. These tools show the various facets of the problem pertinent to relationships between radiologists and radiographers/technologists besides describing the general mental states of radiologic technicians.

The psychological test known as "k10 test for psychological distress" is developed at Australia's clinical Research unit for Anxiety and depression (CRUfAD), a facility jointly owned by the University of New South Wales and St Vincent's hospital in Sydney. The workplace

stress scale was prepared by The Marlin Company, North Haven, CT, and the American Institute of stress, Yonkers, NY. But the generic Job satisfaction scale: Scale development & its correlates is a Likert type scale prepared by Scott Macdonald and Peter Macintyre.

The group discussion however will be held among four radiologic technologists. It is a two hours discussion on the results obtained from the scales and test and on various issues pertinent to the research. All the participants of the group are male, with Bachelor of Science degree in Radiography.

In the document analysis section, three articles and one research paper will be analyzed. The statements, phrases, and vocabularies used in the texts depict the relationship between the two professional groups in Radiology.

3.7 Data Analysis Method

Microsoft Excel 2007 spread sheet made additions of individual responses and group responses a possibility. Side way additions show the categories, in which the individual respondent falls compared to the standard scale. These categories are put re-categorized in a table for easy reference. Following re-categorization, frequency table of all responses will be drawn to show the trend of the situation in radiology. Mean, median, and mode are calculated for re-affirmation. Adding a variable down ward and comparing its sum with the sum of other variables helps us gauge out the impact of each and every variable on the result obtained. Thus content analysis, frequencies, averages and percentage calculations are used for analysis of patterns.

In qualitative studies data are analyzed descriptively. The synoptic views of descriptive data are referred as interpretation. More specifically, the frequency data are presented in two or three-way contingency tables indicating the patterns of behavior (Social work research, IGNOU, 2012). Qualitative research often has the aim of *description* and researchers may follow-up with examinations of why the observations exist and what the implications of the findings are, in another research later on.

Descriptive research however, determines the nature of relationship as it exists at the time of the study (Social work research, IGNOU, 2012). In this particular research, it aims at describing "relationship" with respect to variables such as occupational stress or a degree of job satisfaction and anxiety & depression. This research method is appropriate in behavioral sciences (Social

work research, IGNOU, 2012). The idea behind this type of research is study frequencies, averages, content analysis, and percentages. Descriptive studies report summary data such as measures of central tendency including the mean, median, mode, deviance from the mean, variation, percentage and correlation between variables (the association for educational communications and technology/AECT, 2001).

3.8 Ethical Considerations

Discussants and respondents who contributed a lot to the success of this research have not been mentioned by name for the sake of confidentiality, however all of them have understood the objective of the study and are willing to participate.

No client in the hospital has been engaged, only technologists and radiographers do. Anonymous sources have remained anonymous as per their request. Head of the Ethiopian radiographers and radiological technologists association (ERRTA) agreed verbally to be mentioned by name. Scales and test are standardized, and requested relevant demographic data except name. Rarity of locally studied researches or reference materials on the topic posed a huge challenge and has limited the scope of the study on international researches.

Participants, who are professional technologists/radiographers, felt elated to see somebody fumble with their problem. They rejoiced to see somebody standing with the feeble and the vulnerable. These are a group of vulnerable, neglected, and powerless professionals whose situation has been studied rarely. This research involved neither the public or service users, nor radiologists.

Medical records has not been incorporated in the document analysis section, only published articles and a research been used.