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Aligning Qur'ānic, Ḥadīth and Sharīʿah paradigms into The Medical Imaging Practice

موائمة بين النماذج القرآنية والحديثية والشرعية في تطبيق التصوير الطبي

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Abstract: Medical Imaging or Radiography practice has been dictated by the Western Worldview. Various professional guidelines are available to guide Medical Imaging professionals in terms of the professional and ethical aspects in the field. However, they are devoid of any references to the Divine Creator or spiritual associations. This effective secularisation of spiritual values and practices could result in distancing Muslim practitioners from the ideals that Islam champions. This paper examined selected professional guidelines identifying some of the common professional and ethical themes that they represent. Seven common themes or constructs were discussed alongside *Qur'ānic* verses (الآيات القرآنية), *Ḥadīth* (الحديث) and the *Maqāsid* and *Qawā'id Al-Sharʿiyyah* (مقاصد وقواعد الشرعية). Aligning these paradigms to the professional expectations was done with the intention of reinforcing and enhancing further the spiritual mindedness and practice of the Muslim practitioners. It is hoped that the discussions could promote the formulation of the Code of Professional Practice for Muslim Medical Imaging Practitioners.

Keywords: Medical Imaging, Radiography, Islamic perspectives, Professional Standards, Professionalism

Abstrak: Bidang Pengimejan Perubatan atau Radiografi telah dipengaruhi oleh pandangan alam Barat. Terdapat beberapa garis panduan untuk memberi bimbingan kepada pengamalan pengimejan perubatan dalam beberapa perkara yang melibatkan profesion dan etika di dalam bidang ini. Walaubagaimanapun, mereka menjauh daripada merujuksumber-sumber wayu Maha Pencipta dan aspek-aspek kerohanian di dalam garis panduan tersebut. Nilai-nilai kerohanian yang sekular dan amalan professional boleh menjauhkan pengamal Muslim daripada aspirasi yang di dokong oleh sarjana Islam. Manuskrip ini mengenalpasti beberapa tema profesional dan etika daripada beberapa garis panduan profesional. Tujuh tema atau konstruk telah dibincangkan bersama-sama dengan ayat-ayat Al- Qur'ān (الآيات القرآنية), Ḥadīth (الحديث) dan Maqāsid dan Qawā'id Al-Sharʿiyyah (الشعرية وقواعد مقاصد). Penjajaran paradigma dengan menggunakan tiga perspektif Islam itu bertujuan memantap dan meningkatkan lagi pendekatan kerohanian dan amalan para pengamal Muslim. Adalah diharapkan bahawa perbincangan-perbincangan yang dibuat boleh menggalakkan pembentukan kod amalan profesional bagi pengamal pengimejan perubatan Muslim.

Kata Kunci: Pengimejan Perubatan, Radiografi, Ciri-ciri Islam, Piawaian Profesional, Profesionalisma.

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Introduction

The field of Medical Imaging, a sub-specialisation in Medicine, has its contributions in healthcare. It has to accommodate itself to the changing healthcare scenario, in order to remain relevant alongside the other disciplines in Medicine. The concepts of Evidence Based Practice (EBP) and Patient-Centred care has somewhat been addressed by the Medical Imaging practitioners within their scope of practice and individual capabilities. The advancements in Medical Imaging technology and technical changes to the practice that result from research put the practitioners in a state of continuous vigilance for continuing professional development. Coupled with changing patient expectations, as a consequence to their accessibility to information, it is imperative that practitioners now need to constantly orientate themselves to the professionalism associated with their profession and changing expectations.

The presence of professional guidelines, drawn up by particular authorities or professional bodies help to define and outline aspects of professionalism for a given profession. In Medical Imaging alone, documents from different countries that come in different names; Code of Practice, Code of Conduct, Code of Ethics and Standards of Practice, serve to provide the necessary directions on how the practitioners should display the appropriate conduct, behaviours, values and practices. A certain amount of overlapping in the characteristics within these different documents can be expected. This is attributed to the fact that the different bodies that were responsible for formulating these documents have different perceptions on the title and contents of their documents. While these documents address areas that are usually classified as components in professionalism, there is no consensus as to the definition of the term professionalism. Amidst the broad definitions that the term carries, a working definition is essential to provide the impetus to facilitate further discourses in this particular sense.

The inception and advancements in Medical Imaging has long been associated to the Western World. It can safely be concluded that the discipline is heavily influenced by Western beliefs, thoughts, values and practices. The same influence is also evident in the professional guidelines for Medical Imaging practitioners. With a heavy dependence on these documents, Muslim Medical Imaging practitioners, even in Muslim countries, could effectively distance themselves from practicing their vocation along Islamic principles. The segregation of religious perspectives from their practice is also a manifestation of extending the secular agenda.

Although it can be argued that the contents in those documents do not necessarily suggest transgression of Islamic faith (العقيدة), proper alignment of the contents of these documents to Islamic beliefs, values and practice should be made. This reinforces the assertion by Rayan (2012) that harmony and integration are important in developing logical thinking in Islam. The author recognises that there is no dichotomy between religion and science for which the science, in this case can be equated to Medical Imaging. The author also states that there is no separation of the religion from the mind and sense, soul and body. A profound concern as expressed by Mary Parker Follett that "the divorce of our so-called spiritual life from our daily activities is a fatal dualism" (Ratnakar and Nair, 2012) should be concrete enough for practitioners to ascertain that their practices are in harmony with the aspirations of the religion.

This paper examined the contents of various professional guidelines documents that reflect professionalism, conduct, ethics and standards for Medical Imaging practitioners from professional organisations from different countries. The examination derived a working definition of the term "professionalism" that is used in this paper. The main domains or constructs that were addressed in these documents were identified and classified into various sub-domains or sub-constructs. Relevant Islamic perspectives were then used to equate those professional aspects, establishing the much needed harmonisation between Islamic Revealed knowledge and human thoughts. The guiding questions in this research are (i) how does the available professional guideline posit themselves in terms of being "Islamic"? (ii) What are the areas in these guidelines that can be classified as non- Islamic friendly? (iii) What are the traits or characteristics of the Medical Imaging professionalism and ethics that can be equated to the three domains of Islam; *Aqīdah* (العقيدة)*, Sharīʿah* (الشريعة) and *Akhlāq* (الاخلاق)?

In order to ensure universality, as Islam by itself is universal, the use of professional guidelines from various countries facilitated a meaningful undertaking towards answering the above questions. The ensuing discussions were tailored towards presenting the "Islamic professionalism" or the "Professional Code for Muslim Medical Imaging practitioners". The term Medical Imaging practitioners used in this paper is directed to the group of professionals more commonly known as Radiographers, Radiologic Technologists, Medical Radiation Technologists or those of similar professional roles and responsibilities. This is to differentiate from another group of professionals in the Medical Imaging service known as Radiologists who are essential clinicians with specialised training in Radiology.

Profession, Professional and Professionalism.

Larkin, Binder, Houry and Adams (2002) recognised three essential characteristics in describing a profession. They are: expert knowledge, self-regulation, and the obligation to place client needs above self-interest. Coupled to the features of a profession described by Kinsinger (2005) and Hughes and Hughes (2013), a brief description of the Medical Imaging profession is hereby outlined.

Medical imaging is made up of a defined body of knowledge and skills that is responsible in the generation of images of the human anatomy for diagnostic purposes. Built upon accepted theories and facts, the core knowledge involves aspects related to patient care, use of Imaging modalities, the associated technicalities and outcomes in terms of quality, economic and safety considerations. The professional education at the foundation level culminates in qualifications that meet professional standards and the recognition to practice, determined by an authorised body. The mandate given to these professionals is formalised by written documents. These documents address the state or jurisdictional laws governing authority, licensure, continuing education and conduct with respect to the profession.

Professionals who have received the recognition to practice are to be autonomous within a certain framework of prescribed regulations. These individuals are expected to exhibit a standard of behaviour befitting the status of a professional. They commit themselves to serve in one's area of expertise and among others, participate in researching newer and safer practices. These practitioners have exclusive ownership of the knowledge and competencies, displaying decision making and problem solving

processes befitting of their qualifications. Dealing with other individuals (patients, other healthcare practitioners and the general public) they command their roles and responsibilities in public affairs, ensuring public trust, value performance and place public's interest above any self-interest. Swick (2000) opines that professions always reflect the particular social and cultural milieus in which they operate. Collectively, from what have been presented so far, the authors distinctly dissociate professions from the spiritual or religious component. However, on a positive note, Swick (2000) argues that with some moral values in place, a profession becomes a way of life.

While the terms profession and professional can be adequately understood from the above, a consensus on what is professionalism has yet to be reached. Professionalism is a complex and multifaceted element of health care but difficult to define (The Scottish Government 2011). While agreeing to that difficulty, Thomas, Biglatid, Burke & Howlett (2013) felt that professionalism is recognisable when observed. Professionalism is taken as a contract with society (Larkin et al 2002) and is reflected in values, behaviours, ideals, and obligations (Thomas et al 2013) advocated in a particular service utilising specialised knowledge, skills, and experience for good. Professionalism is also seen in upholding oneself to the highest standards of professional thought, word, and deed (Kinsinger 2005).

Kasule (2013) attributed the poor conceptualisation and understanding of the term in reaching a definition for professionalism. Birden, Glass, Wilson et al (2014) recognise the considerable difference of opinion as to what defines professionalism in the context of medicine. The authors agreed with Kasule (2013) where from the conceptual point of view there exist overlaps between professionalism, humanism, and personal and professional development. The Health and Care Professions Council (2013) attributed the complexity of the concept to the different perceptions by different people, in different contexts. The diversity of the sources and influences are responsible to individuals' perceptions of professionalism. This seems to be in congruent with Al-Eraky, Chandratilake, Wajid, et al (2013) who opine professionalism is a culture-sensitive construct. Therefore it is perceived and expressed with respect to local customs, beliefs, and cultures. The later authors feel that the situations used to measure its constructs or domains should reflect the cultural differences. Thus these descriptions sort of reinforce the complexity in understanding the term.

Professionalism, as outlined by The Scottish Government document (2011), is beyond appearance and is not restricted to external technical tasks. The importance of internal human qualities that include personal values, attributes and a sense of personal responsibility are considered core to professionalism. Casting an influence on how the practitioners behave to others, these qualities themselves can be influenced by organisational values, environmental and cultural influences.

Besides the features of professionalism above, there are two other important considerations when discussing professionalism. Professionalism has to be considered both at the individual and collective levels (Swick, 2000). This is seen within the context of professions where each practitioner has the professional obligations placed upon himself as well as his contribution towards his fellow practitioners.

Professionalism is also closely related to ethics (Kinsinger, 2005). Similar to professionalism, ethics is multifaceted. Al-Hasan, Faridahwati & Kamil (2013)

presented ethics from several works. Collectively, ethics represent the moral principles, rules of conduct or values; relationships with others; rules that govern human behavior and human interaction and the personal standard to distinguish the right from the wrong. Ethical issues arise in one's decision making from the various alternatives relating to moral principles.

Directed to the Medical imaging practitioners, Lewis, Heard, Robinson, White, & Poulos (2008) outline ethics is concerned with moral judgement and publicly displayed conduct. Ethics also entails the applications of the principles of ethics that reinforces the practitioner as an independent, autonomous and responsible in his decisions. The authors further described ethics as the inter-occupational determinants of behaviour and collective self-discipline. These are important considerations when matters of practical concerns including the nature and quality of daily interactions with others are involved. The importance of the practitioners to be well-versed in the application of basic ethical concepts, thought and appreciating the role of ethically sound practice in a clinical setting are also highlighted. Furthermore, being compliant with the various professional regulations, in ensuring the delivery of safe and equitable health care and a high standard of personal morality are among the ethical attributes. Being part of a healthcare setting that involves patients, the daily patient/radiographer interactions inevitably depict the components of human interaction, socialisation and professional behaviour. These are part of the specific moral obligations unique to these practitioners. Thus the multifaceted nature of the various domains or constructs in professionalism and ethics can be seen as overlapping. Hence, for the purpose of this paper those two terms are used interchangeably.

To help in appreciating their vocation in terms of roles and responsibilities, the practitioners are provided with professional guidelines that dictate professional conduct, ethics and practice. The professional guidelines, in the various aspects of professionalism that they address, are seen as mechanisms to guide and direct practitioners to the do's and don'ts within the profession. Generally, they describe the expected practitioner behaviours towards patients, colleagues and service users in the practice of their profession. Kasule (2013) outlines while the primary objective of professional organisations is to defend, promote and advocate the interest of practitioners, these organisations also outline professional standards in training and practice. These outlines are codified in the various codes or standards. Establishing and enforcing professionalism are now usually shared with governmental or semi-governmental organizations. The outline of ethics requirements by the American Registry of Radiologic Technologists (2014) serves to provide the internalisation of professional values by qualified practitioners in their obligation to act in the best interest of the patients. Furthermore, the guide serves as a motivational tool as well as promoting a culture of ethical behaviour within the profession. Some of these guidelines carry legal standings that serve to prevent unlicensed and uncontrolled exercises of practice (Hughes & Hughes, 2013) with the objective to preserve and safeguard the interest and well-being of the service users. These standards and codes are also seen as drivers of service excellence. Practitioners who fail to act in line with those guidelines may put patients and others at risk. This could necessitate disciplinary action to be taken on them by their employer or sanctioned by their stake holders. In certain situations, legal proceedings can be taken (The Scottish Government, 2011).

Historical Perspective of Islamic Professionalism and ethics.

The contributions of two prominent Muslim scholars in the formulation of professional guidelines can be appreciated. The works of Ishāq bin ʿAlī Al-Ruhāwī (اسحاق بن علي الرهاوي) and Abū Bakr Muḥammad ibn Zakariyyā Al-Rāzī (ابوبكر محمد ابن زكريا) (الرازي), both 9th century Physicians, in professional ethics are still referred to till today (Iqbal, 2011; Padela, 2007; Chamsi-Pasha and Albar, 2013). Though there were contentions that al-Ruhawi was not a Muslim, Aksoy (2004) presented arguments to defend the religious attributions of the noted Muslim Physician. Other Muslim scholars who had contributed towards the establishment of code of conduct of physicians and surgeons include ʿAbd Ḥabīb ibn Ḥabīb Al-Andalūsī and Ibn Al-Qayyim (Chamsi-Pasha &Albar, 2013). One notable observation concerns the adoption of the thoughts of Aristotle, Socrates, Galen and Hippocrates by Al-Ruhāwī to support the ideals that he presented (Padela, 2007; Chamsi-Pasha & Albar, 2013). An Islamic paradigm as presented by Al-Ruhāwī is the intellectual tolerance within the religion towards knowledge. Knowledge, irrespective of its sources; from the Abrahamic traditions, philosophers or from the different ideologies in Europe is acceptable as long as it does not contradict the teachings of Islam (Padela, 2007). It is within this framework that the present Muslim Medical imaging practitioners should not discard knowledge or professional guidance from the Western world, provided the alignment or parallelism to the teachings of the religion is established. Collectively, the works of these early Muslim medical scholars in coming up with professional guidelines, led to further deliberations within the present context.

The development of the code of medical ethics by the American Medical Association Medical in 1847, to the renowned "Principles of Biomedical Ethics" by Beauchamp and Childress in the 1970s, could have influenced an examination of those components from the Islamic point of view. A conclusion by Aksoy and Elmai (2002) that the particular set of principles "formulated" in the 1970s are not something new but are already being applied in Islamic traditional and cultural societies. Another notable effort by Aksoy and Tenik (2002) managed to align the thoughts of Mawlanā Jalāl al-dīn Rūmī (1207–1253) to the individual principles presented by Beauchamp and Childress. Meanwhile, the World Health Organisation (WHO) came up with a document "Islamic code of medical and health ethics" that actually highlights five principles of Islamic ethics that are relevant to the healthcare sector. The five principles are: (1) Man is honoured, (2) Right to live, (3) equity (justice) (4) doing well (best) (5) no harm and no causing harm. The document acknowledges the important role of Islamic Organisation of Medical Sciences in organising conferences that touched on daily-life selected problems (World Health Organisation, 2005).

Discussion

Medical Imaging professional guidelines from different countries were sourced online. They include from United States (American Society of Radiologic Technologists, 2003, 2011; American Registry of Radiologic Technologists, 2014), United Kingdom (Society of Radiographers, 2013; Health & care Professionals Council, 2013), Australia (Australian Institute of Radiography, 2002; 2013), Ireland (The Irish Institute of Radiography and Radiation Therapy, 2010) and Canada (Canadian Association of Medical radiation Technologists, 2008). These documents were identified by various names; Code of Ethics, Code of Practice, Code of

Professional Conduct or other terms that reflect those mentioned codes in terms of essence.

The justification of using the said documents was two folds. Firstly, without having to re-invent the wheel, content analyses revealed the common elements in terms of the professional and ethical attributes outlined in these documents. Secondly, the common features that these documents depict suggest the acceptance of those elements by some of the more prominent Medical imaging professional bodies worldwide.

Examining the above professional guidelines reveals a major similarity. There is no effective reference to elements involving spiritual or religious matters, in particular in relation to the existence of the Creator. The special acknowledgement of Allah, the All-Knowledgeable overseeing all things could have a tremendous positive effect on the practitioner. Ever wary that the All-Mighty is aware of his doings, the depicted professionalism and ethical behaviour would be optimised. The closest mention of religious aspects is directed to practitioner's obligation to provide an unbiased or unprejudiced to all irrespective of their religious affiliation. The void in matters that relates to God in relation to the professionalism or ethical domains shows the discerning stance by the various professional bodies. The formulation of these guidelines could be influenced by cultural values, beliefs, attitudes, customs, and behaviours that evolve with time, reflecting upon historic factors, the current environmental and educational requirements (Verhovsek, Byington & Deshkulkarni 2009). Spiritual or religious affiliations are seen as subjective and personal. Thus, it can be argued that these guidelines are philosophy-based and their formulations are directed by human reason and experience (Shehu 2009; Abd al-Sattar 2013). Islam as revealed by Allah the Al-Mighty, and propagated by Prophet Muhammad (pbuh) is a religion that provides the necessary guidance for a system of life that encompasses spiritual alongside worldly matters. Any segregation between the two is seen within the framework of the "fatal dualism" as proposed by Mary Parker Follett, earlier.

For the purpose of this paper, the professional and ethical attributes are discussed under eight domains or constructs. They are (i) practitioner (ii) patient care (iii) technical and technological (iv) quality (v) economic (vi) safety (vii) personal traits. Space constrains do not permit an in-depth presentation of all professionalism and ethical elements to be made. Therefore, only the main elements within each domain will be summarised, followed by aligning them to relevant Islamic perspectives based on the foundations as lain down by the *Holy Qur'ān*, the Ḥadīths of Prophet Muhammad (pbuh) as well as the thoughts of Muslim scholars.

The practitioner

The Medical imaging practitioner is a member of the healthcare fraternity. He is recognised as one with the specialised body of core knowledge in Medical imaging as well as those in health and healthcare disciplines. With the acquired knowledge, skills and competencies, he is expected to practice within accepted practice and guidelines and within his capabilities. He promotes, integrates, disseminates existing knowledge while continuously acquires new knowledge through the various educational platforms. Exemplary traits include the various capacities as facilitator, mentor and role model to students and colleagues, conducive to establish and sustaining team working for the common good in patient outcome while maintaining a sense of autonomy in the conduct of most examinations. He possess a strong commitment

towards good patient / client centred care and ensures his practice is current with an affinity to recognise, respond and act decisively to any types of clinical emergencies. This consolidates one's understanding of the overall role of the practitioner within the health and social care services as well as in health promotion and education.

A tradition from the Muslim educational background is the concept of 'al-*Ijāzah*" (الإِجازَة). The use of this term is rather common in Malaysia, especially to denote those who have completed their undergraduate studies. Though it is originally directed to the doctorate, the Arabic term "*ijazat al-tadrīs*" (اجازة التدريس) carries the important meaning "license to teach" and later to include "license to issue legal opinions" (Makdisi, 1989). The significance of this "license to teach" in Islamic pedagogy is closely related to a recognition placed upon a graduate as qualified to transmit a given subject to his own students (Idriz, 2007). In other words, the term "*Ijāzah*" is seen within the context of a permission or indication that one has been authorised by an authority to teach a certain subject. The spirit that it conveys in the term "authorised" is synonymous with certified, sanctioned or approved to practice. Perhaps the term recognition will be more appropriate to describe the overall burden of trust that follows with the authorisation to practice. To teach may invoke one to contemplate on the following synonyms, among others, impart, explain, demonstrate, communicate and show. These expectations can somehow dilute the selfishness that one might harbour with the personal glory that could be influenced by the personal glory behind the recognition bestowed earlier.

Some Islamic perspectives in Islam can be applied to the Muslim practitioner. Firstly, he should be aware of the concept of Vicegerency and the purpose of his existence on Earth. Among the purposes include using the resources that Allah has provided on earth to benefit mankind as well as to ensure justice is served as indicated in the *Holy Qur'aan* Chapter 2, Verse 30 and Chapter 38, verse 26. Next, he needs to align himself to the concept of the Islamic Worldview, the *Maqāsid al- Sharīʿah* (مقاصد الشريعة) (Objectives) and *Qawa'id* al-*Sharīʿah* (قواعد الشريعة) (Principles). These concepts address the Islamic stance on the sanctity of life, perceptions towards ill-health, prevention of further harm and to provide relief. The *Maqāsid* perhaps needs to be given serious considerations in relation to the service that the practitioner gives in relation to the preservation or protection of religion, life, progeny, mind and wealth. The Muslim practitioner is reminded that the intellect bestowed upon him by Allah is to be used to benefit Mankind. With the given intellect he is also reminded of the honour that has been bestowed upon him as outlined in the *Holy Qur'ān* Chapter 17 verse 70.

Patient care

This deals with the attention given to the patient, from the moment they arrive at the department to the time they leave. In other words it is the care given to a particular patient while under the jurisdiction of the practitioner. The type of care is individually tailored based on the clinical manifestations. A professional obligation of the practitioner is to provide unbiased service irrespective of the patient's demographic status. The practitioner is expected to pay attention to the rights of the patient, the associated safety considerations as well as to the psychological and physiological distresses that could emerge with time.

A moment of reflection by the practitioner could be benefitted from the fact that human beings, irrespective of their individual demographics, are Allah's creation. He justifies His creations through the verse,

> "*O Mankind! We created you from a single (pair) of a male and a female and made you into nations and tribes, that ye may know each other (not that ye may despise (each other). Verily, the most honoured of you in the sight of Allah is (he who is) the most righteous of you. And Allah has full knowledge and is well acquainted (with all things).*" (al-Qur'ān, 49:13) (Ali, 2009).

Furthermore, He exclaims that there is no advantage of one over the other but only in *Taqwa* (التقوى) (righteousness) in the verse 98:7, "*Those who have faith and do righteous deeds, - they are the best of creatures.*" (Ali 2009). The moral obligations in Islam as set by the *Holy Qur'ān* upon the Muslim practitioner will guide the individual as to not favour one patient over the other. Arawi (2010) refers the practitioners to treat all patients equally. The author quoted verse 5:42, "*(They are fond of) listening to falsehood, of devouring anything forbidden. If they do come to thee, either judge between them, or decline to interfere. If thou decline, they cannot hurt thee in the least. If thou judge, judge in equity between them. For Allah loved those who judge in equity.*" (Ali 2009).

Technical and Technological competencies

Medical Imaging involves a wide range of procedures or techniques to adequately image regions of interest within the anatomy. The practitioner has at his disposal a variety of Medical imaging modalities and supporting accessories. The correct integration of learned theories in both the technical as well as the technological components is important in ensuring the best outcomes in quality, cost, safety and customer satisfaction. With the different patients, critical mindedness is needed to individually tailor the procedures. He is aware of his own capabilities in handling the imaging modalities. The ability to prioritise between patients and procedures is expected. In order to fulfil the objectives of the examination a thorough understanding of the science of image generation, patient care and image appreciation and analysis is required. Clinical decisions are also made based on the appreciation of existing information of the patient.

It is important that the practitioner to constantly examine his practice. New technologies within the same type of imaging modality might render practices of the older models obsolete. New optimisation approaches in order to balance the imaging parameters to image quality may need to be formulated. New techniques may surface through Continuous Professional Education avenues or journal articles that may require serious considerations towards adopting and adapting them to the local setting.

Islam facilitates for self-assessment and critical thinking through the *Holy Qur'ān*. Allah the Almighty challenges while encouraging man to contemplate, observe, understand, reflect and think (COURT) in more than 200 verses in the *Holy Qur'ān*. Self-assessment concerning one's knowledge, skills and confidence in undertaking the technical and technological responsibilities need to be dealt with constructively. Not admitting those limitations would have disastrous results, not only in terms of safety but also quality and cost.

Quality

Ensuring quality in healthcare delivery is one of the accepted concepts in general healthcare. This is translated to the Medical imaging practice as well. A holistic examination of the Medical imaging services shows aspects involving quality starts with the patient interaction progressing to the conduct of the procedure, image quality and the various Quality Assurance activities involving the imaging modalities. Quality in patient interactions including patient education before, during and after the procedures can enhance the diagnostic value of the outcome and avert post procedure complications. The concepts of Quality Control, Quality Assurance and Quality Standards are now common features for the imaging equipment and the department. This includes the continuous efforts to promote, plan, implement, sustain and evaluate all quality aspects within the service. Trouble shooting skills and the ability to resolve quality issues are desirable characteristics in the practitioner.

The concept of quality in Islam is seen within the term "*al-Itqān*" (الاتقان). Shuriye & Adam (2009) presented that *al-Itqān* has a close meaning to the English word perfection. Allah Himself is perfect and He has challenged man to look for flaws in his creation, verse 67: 3, "*He Who created the seven heavens one above another: No want of proportion wilt thou see in the Creation of (Allah) Most Gracious. So turn thy vision again: seest thou any flaw*?"(Ali 2009).That verse alone could be a driver for practitioners to strive for excellence, if perfection is not achievable under the circumstances. The commitment to excel, coupled with continuous self-assessment within self and the surroundings and with the knowledge on how to overcome deficiencies would be valuable characteristics. Using those Qur'ānic approaches as mentioned in the previous section could facilitate for the development of the critical mindedness in overcoming shortcomings in an organised manner.

Economic

With the present rise in healthcare costs, practitioners should be wary on the effects of their practice. Efforts should be taken to contain those situations to the best of their ability. Items that include consumables such as contrast media, films (where applicable) and gloves are some of the most used items in the department. Efficient prioritisation, distribution and utilisation of resources (including human resources) will demand some constructive discussions within the department. A thorough examination of all operations and processes within the department can identify areas where cost-saving initiatives can be executed. In today's standards a cost-effective service is among the primary objectives of the department.

Islam champions cost saving and avoiding wastages. While acknowledging that to indulge in excesses is frowned upon, likewise, to refrain excessively such that it creates difficulties is not desirable. The *Holy Qur'ān* states in the verse 7:31, "*O Children of Adam! Wear your beautiful apparel at every time and place of prayer: eat and drink: But waste not by excess, for Allah loveth not the wasters*." (Ali 2009). Cost savings should be seen in the opportunity to divert the saved expenses to be used to improve the infrastructure or having extra resources for personnel professional advancement.

Safety

There is amultitude of safety considerations associated with Medical imaging. The physics of image generation presents those concerns in the use of ionising radiation, ultrasound waves, strong magnetic fields and radio waves. The use of contrast media, the possibility of cross infection, individual procedural risks (such as in Angiography) and handling non-ambulant patients are the other common safety concerns. The safety of patients and other staff are to be ascertained. The identification of all the risks and how to properly manage them have to be understood and implemented.

The concept of safety is best discussed within the context of the *Maqāsid* and *Qawā'id* of the *Sharī'ah*. The *Sharī'ah* is loosely translated into the Islamic way of life. Encompassing all walks and situations of life the Muslim practitioner should view his profession along the *Sharī'ah*. Thus elements involving safety should be aligned to these two concepts. The objectives of the *Sharī'ah* deal with the preservation or protection of five elements, namely, religion / faith, life, intellect / mind, progeny / lineage and wealth / property. While there are contentions to the order as well as whether there should be more in view of contemporary times, suffice to say that the Muslim practitioner can benefit by aligning his role to those objectives, especially in terms of safety. How will those risks be appreciated in relation to the preservation or protection of those elements can be further studied in order for a comprehensive picture be formulated to guide the practitioner. While the principles of the *Sharī'ah* refer to maxims of *Fiqh* (الفقه) (Islamic Jurisprudence) and consist of abstract rules derived from the study of *Fiqh* (Islamic Banking and Finance Institute Malaysia, n.d). Two of the five notable maxims and their applications in Medical imaging are given below:

    (i)   Acts are judged by the intention behind them. Medical imaging is not dealing with certainties. Different patients require different imaging parameters which tend to end in different probability of risks. The practitioner has only his knowledge and experience to rely on in the determination of the imaging parameters that would give a diagnostic image quality and the risks associated with it. He contents himself with the prime intention that his act / decision is with the intention of balancing the two entities; quality and risks.

    (ii)   Harm may neither be inflicted nor be reciprocated. This particular maxim is conflicting in its application with respect with Medical imaging with its known risks. However, all efforts must be taken to repel, remove or limit those risks using any acceptable or feasible means.

Personal traits

There are a number of personal traits that can be identified from the professional guidelines. Being responsible, accountable, respectful, trustworthy, humble and righteous are among some of the virtues that aptly will be among the personal traits for the Medical Imaging practitioner. Examples of the applications of these virtues within the context of his professionalism and ethics are depicted below.

The practitioner is responsible for the wellbeing of the patient and others in the department. He is also responsible to take good care of all equipment and report any malfunctions accordingly. He is accountable for all his decisions, clinical or otherwise and bears full responsibility over the outcomes. He respects his fellow practitioners by conducting himself in a behaviour that befits a Medical Imaging practitioner. He does

not bring the profession into disrepute by restraining and curtailing his desires if they go contrary to reason or morality (Arawi 2010). He acknowledges the professional skills and jurisdictions of his peers and other healthcare workers. Kueneman & Hunter (2010) reminded that failure to understand and value the roles and responsibilities of other practitioners can have negative implications on inter-professional relation. This has been identified as a contributing factor in terms of medical errors and patient outcomes. Trustworthiness relates to the practitioner rendering the trust given to him in his best capabilities. He displays honesty by admitting his technical and technological limitations. Seeking assistance from others to overcome those limitations is a humble virtue. Righteousness can be seen in his action is towards to achieve full benefit to the patient and his employers.

The demonstrations of the above virtues are associated with the term "*akhlāq*". There are numerous verses in the *Holy Qur'ān* that highlights those qualities. Those verses include 5:2, 5:55, 11:23, 16:23, 17:34, 23:2, 23:8, 27:53, 29:9 and 96;12. Besides the verses in the *Holy Qur'ān* that highlight the above virtues, there are also various hadiths that narrate the character of Prophet Muhammad (pbuh) upon whom was bestowed the best character in any human being. In Riyāḍ al-Ṣāliḥīn (Yusuf 1999), the compilation of ḥadīths by Imām al-Nawawī (Abū Zakariyyā Yaḥya) (ابو زكريا يحيى), there are more than 100 chapters that are dedicated to the various hadiths on virtues. Sincerity, patience, truthfulness obedience, enjoining good and forbidding evil, discharging the trusts, righteousness, modesty, observing rights of neighbours and a host of other virtues that are applicable to the Medical Imaging practitioner for his professional and non-professional environment. Assimilating the teachings from these two Islamic revealed sources should prepare the practitioner for a directed code of conduct in all aspects of his life.

Other notable virtues include the inculcation of team working spirit. In certain procedures, such as Cardiac studies, the practitioner will work with other practitioners. Team working is essential in these situations to ensure the best procedural outcomes in terms of reduced procedural time, image quality and patient safety and comfort. Hammoudeh (n.d) highlighted a verse in the *Holy Qur'ān* that values the virtue of team working in the verse 3:103, "*And hold fast, all together, by the rope which Allah (stretches out for you), and be not divided among yourselves; and remember with gratitude Allah's favour on you; for ye were enemies and He joined your hearts in love, …..*" (Ali 2009). Together practitioners from the different disciplines should value the main objective to benefit the patient that they should enjoin in what is good as outlined in the *Holy Qur'ān* verse 3:114, "*They believe in Allah and the Last Day; they enjoin what is right, and forbid what is wrong; and they hasten (in emulation) in (all) good works: They are in the ranks of the righteous.*" (Ali 2009). There are at least five other similar verses that carry the same message.

There are two types of human interactions in the Medical Imaging department. The more prominent in all professional interactions is the interaction with patients. Depending on the type of procedure, the interaction with patients in medical imaging is relative limited. They include interactions in patient education, before, during and after procedure and informed consent. Depicting altruism, a virtue that places the well-being and interest of others can be manifested in these situations. Showering the necessary attention to the patient that includes identifying their needs would be features of a concerned practitioner. Murphy (2001) highlighted the value of

information and the quality in patient interaction to overcome patient anxieties before and during the procedures.

It would be justified to denote the virtues above and those not mentioned can be easily be guided by the *Holy Qur'ān* and the Ḥadīth. Perhaps it would be worthwhile to be reminded that Allah, the Al-Mighty has reinforced those virtues in the person of Prophet Muhammad (pbuh) when He exclaims in the *Holy Qur'ān* verse 68:4, *"And verily, you (O Muhammad) (stand) on an exalted standard of character"*. (Ali 2009). The virtues that the Prophet have shown could relate to the following ḥadīth narrated by Muslim; Nawwās bin Samʿān (نواس بن سمعان) reported: I asked Messenger of Allah (pbuh) about virtue and sin, and he said, "Virtue is noble behaviour, and sin is that which creates doubt and you do not like people to know about it" (Yusuf , 1999pg 542).

Areas of concern

Besides the void in the association with spiritual matters mentioned earlier, two other areas of concern that need clarification and need to be highlighted in the professional guidelines, at least from the Islamic perspective. They are the concept of "'*awrah*" and "inter-gender patient-practitioner interactions". Loosely translated, "*awrah*" has been linked to dignity. However, the Islamic stance on "'*awrah*" must be clearly outlined as there are differences between the levels of patient's bodily exposure permissible under a given circumstance. This carries both the professional and ethical implications.

Inter-gender patient-practitioner interactions should also be given close scrutiny. Some quarters within the Medical imaging service will, out of convenience, resort to the concept of "*al-ḍarūrah*" (الضرورة) (outmost necessity or state of exceptionality). Simply resorting to that concept will erase the need to examine situations based on actual needs. The presence of a chaperone (preferably a female) in these situations is one way to reduce the negative intensity of these interactions. Practitioners too are advised to limit the bodily exposure of the patient during the conduct of the examinations. The objective thus is going for the lesser harm. All these need to be documented in the guidelines.

Future work

It can be argued that the paper has provided a superficial coverage in addressing professionalism in Medical imaging from Islamic perspectives. It has paved the way for more rigorous efforts for in-depth examinations of the professional guidelines to be made. This can facilitate for more Islamic perspectives to be individually aligned to the elements that can be extracted in those initiatives. Those efforts can also be complemented with studies that explore the methodologies to integrate Islamic inputs into the professionalism and ethics in the field. The use of role modelling and values education could be among the means to assist in the inculcation and internalisation of Islamic values into the elements. Documenting all these can help towards the formulation of the Muslim code of Professionalism and Ethics for Muslim Medical Imaging practitioners.

Conclusion

It can be concluded that besides the void in the mention of spiritual matters especially in matters that dictates relationship to the Creator, the concept of ʿawrah and inter-gender interactions, the elements in the guidelines are relatively aligned to Islamic principles. This work has shown that professional roles and expectations can be aligned to Islamic essences in the *Qurʾānic* verses, ḥadīths, *Maqāsid* and *Qawāʾid Al-Sharīʿah.* It is hoped that Muslim Medical imaging practitioners can re-orientate their professional approaches based on these Islamic paradigms. With the clear guidance, it is anticipated that a Muslim Medical Imaging practitioner will be able to display the true Muslim Human character. Broadly, the professional and ethical attributes presented will call for an in-depth examination that can pave the way for the formulation of the Islamic Code of Professionalism and Ethics for Medical Imaging practitioners.

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