

EMBRACING ISLAMIC VALUES IN MEDICAL IMAGING: A COMPREHENSIVE APPROACH

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Article history

Received date : 22-7-2024

Revised date : 23-7-2024

Accepted date : 15-8-2024

Published date : 30-8-2024

To cite this document:

Sharip, S., Ma'on, S. N., & Abdullah, M. Z. (2024).
Embracing Islamic values in medical imaging: A
comprehensive approach. *Journal of Islamic, Social,
Economics and Development (JISED)*, 9 (65), 229 -
239.

Abstract: *The integration of Islamic values into medical imaging signifies the incorporation of ethical and spiritual principles rooted in Islam into the field. This process aims to ensure that practice and knowledge within medical imaging align with Islamic ethics, values, and beliefs. Stemming from the historical context of addressing societal challenges in the Muslim community, the concept of "Islamization of Knowledge" emerged in the 1960s, emphasizing the amalgamation of Islamic principles with contemporary knowledge. While this concept has gained prominence in various fields, its application in medical imaging remains relatively unexplored. Despite the dominance of Western concepts in the field, efforts have been made to integrate Islamic perspectives into the medical imaging curriculum and patient-centered care, emphasizing the holistic development of professionals guided by Islamic teachings. The integration extends to radiation protection practice, where adherence to guidelines is perceived as a moral and virtuous act deeply rooted in Islamic ethics. Additionally, the concept of Islamic Personality (IP) provides a framework for personalizing radiation protection practice among Muslim professionals, emphasizing professional traits relevant to the field. This paper explores the integration of Islamic values in medical imaging through various approaches, highlighting the significance of aligning practice with Islamic principles for the welfare of patients and the broader community.*

Keywords: *Islamic Values, Medical Imaging, Integration.*

Introduction

The concept of secularism which separates religion from state affairs (Nor & Ibrahim, 2023) has led to significant impact on Muslim world, attributing to the decline of Islamic civilization (Aswar, 2021). The compatibility of Islam with secularism has been a subject of debate among Muslim scholars, with discussions revolving around whether Islam can coexist with secular principles (Iftikhar et al., 2020). This is due to distinct nature of Islamic as comprehensive worldview which integrates religion and life according to shariah law. The Holy Quran clearly captures this concept :

يَا أَيُّهَا الَّذِينَ آمَنُوا ادْخُلُوا فِي السِّلْمِ كَافَّةً وَلَا تَتَّبِعُوا خُطُوَاتِ الشَّيْطَانِ إِنَّهُ لَكُمْ عَدُوٌّ مُبِينٌ

"O you who have believed, enter into Islam completely [and perfectly] and do not follow the footsteps of Satan. Indeed, he is to you a clear enemy."

(Quran, 2:208)

This verse clearly urges for Muslims to embrace Islam in its entirety, highlighting its all-encompassing nature and the importance of adhering fully to its teaching. The holistic nature of Islam goes beyond religious belief and serves as a complete way of life, offering guidance on personal, social, economic, and political affairs (Khan et al. , 2010). The adherence to Islamic principles may lead to a harmonious and sustainable life (Salamun et al., 2021); bring individuals closer to God through worship, philosophy, and moral values (Abdullah et al., 2022).

The conflict between these two concepts is further exemplified by the experiences of Muslim women engage with and move through secular public environments, where religious practices such as the hijab and ritual prayer are viewed as technologies of self-expression within secular contexts (Topal, 2017). In respond to this situation, there emerged a movement known as Islamization of Knowledge (IOK) which has been characterised by efforts to integrate Islamic beliefs and values into educational activities (Seedat, 2021; Solih & Faizuddin, 2021). Two major scholars, Ismail Raji Al-Faruqi and Syed Muhammad Naquib al-Attas, were at the forefront of conceptualizing and promoting the idea of IOK in the 1960s and 1970s (Hashim & Rossidy, 2000). The IOK movement then gained momentum in the 1980s, because of the global consciousness for the "resurgence of Islam" in the 1970s and the momentous gathering of prominent scholars in the First World Conference on Muslim Education in Makkah in 1977. IOK concept is in well articulates with Quranic verse:

اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ، خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ، اقْرَأْ وَرَبُّكَ الْأَكْرَمُ، الَّذِي عَلَّمَ بِالْقَلَمِ، عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ

"Read in the name of your Lord who created, created man from a clinging substance; read, and your Lord is the most Generous—who taught by the pen, taught man that which he knew not."

(Quran, 96: 1-5)

These verses highlight that knowledge comes from Allah and should be acquired with His guidance, emphasizing that true knowledge deepens ones understanding of His creation and aligns with the IOK by integrating Islamic values into all areas of study. While this concept has gained prominence in various fields, its application in medical imaging remains insufficiently explored (Zainuddin, 2013; Zainuddin, 2015). The dominance of Western secular knowledge

systems in medical imaging has led to a pronounced influence that often separates professional knowledge and practice from spiritual elements (Zainuddin, 2013). Integrating Islamic perspectives helps bridge this gap, ensuring that medical imaging practices are not only scientifically sound but also ethically aligned with Islamic teachings (Zainul, 2015). Expanding upon this foundation, this paper aims to explore the integration of Islamic values in medical imaging through a comprehensive approach, highlighting the significance of aligning medical imaging practices with Islamic principles to enhance patient care, as well as benefit the public.

The Role of Medical Imaging in Healthcare

Medical imaging is a critical field in modern medicine that involves creating visual representations of the interior of a body for clinical analysis and medical intervention (Hussain et al., 2022). This field encompasses a variety of imaging modalities, including X-rays, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, and nuclear medicine techniques such as positron emission tomography (PET) and single-photon emission computed tomography (SPECT) (Lalitha et al., 2022). These technologies are essential for diagnosing, monitoring, and treating a wide range of medical conditions, including myocardial diseases, cancers, neurological disorders, congenital heart diseases, and complex bone fractures (Hussain et al., 2022).

The use of ionizing radiation in medicine began with the discovery of x-rays by Roentgen in 1895 (Miller et al., 2019). Since its recovery, ionizing radiation has transformed diagnostic and interventional aspects of medicine, allowing the creation and visualization of specific body part images (Ribeiro et al., 2020). However, it is significant to recognize that the utilization of ionizing radiation in medical imaging field also carries certain risks. Even at low doses of exposure, there is possibility that leads to an increased risk of cancer (Hong et al., 2019; Omata et al., 2021; De Mauri et al., 2022).

Radiographers are healthcare professionals who specialize in diagnostic imaging. They operate various imaging equipment, including X-ray machines, CT scanners, MRI scanners, and ultrasound devices, to produce high-quality diagnostic images that aid in the diagnosis and treatment of medical conditions. To achieve the best images while ensuring patient safety and minimizing radiation exposure, radiographers must adjust their practices accordingly, particularly when specific situations demand such safety and accuracy measures (Stogiannos et al., 2020).

Radiographers are responsible for preparing patients for procedures, ensuring proper positioning, and maintaining imaging equipment. They also play a critical role in patient care by providing reassurance and information top patients. Radiographers must possess a combination of technical skills and soft skills, such as effective communication and patient management, especially when dealing with anxious or claustrophobic patients.

Integration of Islamic Perspective Into Medical Imaging Curriculum

Realizing the limited integration of Islamic perspectives within the field, a foundational conceptual approach was established by evaluating medical imaging curriculum using established standards and identifying relevant Islamic perspectives suitable for integration (Zainuddin, 2015). This approach provides a direction in integration of Islamic perspectives in the curriculum with the intention to enrich the Muslim character in the graduates. In light of this foundational approach, humans are seen as stewards or vicegerents of Allah (God) on Earth responsible for taking care of the Earth and its resources for the well-being of humanity,

creatures, and the entire universe (Djamdjuri & Kamilah, 2021). As mentioned in the Holy Quran:

وَإِذْ قَالَ رَبُّكَ لِلْمَلَائِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً قَالُوا أَتَجْعَلُ فِيهَا مَنْ يُفْسِدُ فِيهَا وَيَسْفِكُ الدِّمَاءَ وَنَحْنُ نُسَبِّحُ بِحَمْدِكَ وَنُقَدِّسُ لَكَ قَالَ إِنِّي أَعْلَمُ مَا لَا تَعْلَمُونَ

“And [mention, O Muhammad], when your Lord said to the angels, 'Indeed, I will make upon the earth a successive authority.' They said, 'Will You place upon it one who causes corruption therein and sheds blood, while we declare Your praise and sanctify You?' Allah said, 'Indeed, I know that which you do not know.'”

(Quran, 2:30)

The concept of *khalifah fil ardh* (stewardship on Earth) insists that people should be able to act with *ihsan* (excellence and righteousness), ensuring that their actions reflect the highest moral and ethical standards as prescribed by Islamic teachings (Wahid, 2016). In the Islamic tradition, *ihsan* is not a stand-alone concept but is fundamentally linked to and forms a trilogy of *islam*, *iman* and *ihsan* (Armayanto & Suntoro, 2023). This refers to the Hadith of (The angel) Gabriel narrated by al-Bukhari and Muslims. In this Hadith, the Prophet Muhammad explained that faith consists of (1) testifying that no deity worthy of worship except Allah and Muhammad is His Messenger; (2) performing the salah prayers; (3) paying zakat; (4) fasting during Ramadan; and (5) making the pilgrimage to the *Baytullah* (Kaaba) if able. While six pillars of faith (*iman*) are believing in the existence of Allah, His angels, His books, His messengers, the Day of Judgement, and believing in *Qada'and Qadr* (fate and divine decree). *Ihsan* is to worship Allah as though you see Him, and even if you do not see Him, to know that He sees you.

Embracing the roles of *Khalifah*, medical imaging professionals must integrate elements of Islam, *iman* (faith), and *ihsan* (excellence) into their practice. They are expected to make ethical decisions rooted in Islamic principles, drawing guidance from the Quran, Sunnah, and Islamic jurisprudence. This approach is aimed at not only safeguarding their own well-being but also ensuring the welfare of patients and the public. All these actions should be conducted in harmony with the concept of *Maqasid Shariah* (Zainuddin, 2015), which emphasizes the preservation of fundamental objectives and values within Islamic law.

Maqasid Shariah, derived from the Arabic words *Maqasid* and *Shariah*, translates to the objectives of Islamic divine law. It encompasses the fundamental goals and purposes of *Shariah*, the Islamic legal system. These objectives are aimed at safeguarding and promoting various aspects of human well-being, including faith (*din*), life (*nafs*), intellect ('*aql*), lineage (*nasl*), and property (*mal*) (Abdul Hamid et al., 2019). This concept is not limited to individual well-being but extends to broader societal interests such as education, justice, public interest, and sustainable development (Wardiwiyo, 2020). Scholars have classified human needs into three main hierarchy levels within *Maqasid Shariah*, namely, *Al-daruriyyat*, *Al-hajjiyyat*, and *Al-tahsiniyyat*, reflecting the essential, complementary, and embellishing needs of individuals and society (Alwi et al., 2021).

As khalifah is entrusted with Allah's resources and bears the responsibility to utilize these resources to their fullest potential (Arsad et al., 2015), the role extends to addressing *Al-daruriyyat*, *Al-hajjiyyat*, and *Al-tahsiniyyat*. The concept of *Al-daruriyyat* which encompasses the protection of essential necessities in *Maqasid Shariah* concept of faith (*din*), life (*nafs*), intellect (*'aql*), lineage (*nasl*), and property (*mal*); is integral to ensure the welfare and order of society (Deuraseh, 2012). The concept of *Al-daruriyyat* in term of preserving life is emphasized in the Holy Quran:

مِنْ أَجْلِ ذَلِكَ كَتَبْنَا عَلَى بَنِي إِسْرَائِيلَ أَنَّهُ مَنْ قَتَلَ نَفْسًا بِغَيْرِ نَفْسٍ أَوْ فَسَادٍ فِي الْأَرْضِ فَكَأَنَّمَا قَتَلَ النَّاسَ جَمِيعًا وَمَنْ أَحْيَاهَا فَكَأَنَّمَا أَحْيَا النَّاسَ جَمِيعًا وَلَقَدْ جَاءَتْهُمْ رُسُلُنَا بِالْبَيِّنَاتِ ثُمَّ إِنَّ كَثِيرًا مِنْهُمْ بَعْدَ ذَلِكَ فِي الْأَرْضِ لَمُسْرِفُونَ

"Because of that, We decreed upon the Children of Israel that whoever kills a soul unless for a soul or for corruption [done] in the land - it is as if he had slain mankind entirely. And whoever saves one - it is as if he had saved mankind entirely."

(Quran, 5:32)

Within the framework of *Hajjiyat*, Khalifah is responsible in ensuring that human needs are adequately addressed to facilitate ease and prevent hardship, thus allowing individuals to perform their responsibilities and duties effectively (Zailani et al., 2022). The Holy Quran supports this concept of making things easier for people and preventing undue hardship:

يُرِيدُ اللَّهُ بِكُمُ الْيُسْرَ وَلَا يُرِيدُ بِكُمُ الْعُسْرَ

"Allah intends for you ease and does not intend for you hardship."

(Quran, 2:185)

The concept of *Al-tahsiniyyat* (embellishments) in *Maqasid al-Shari'ah* supports the Khalifah's role by promoting ethical and moral excellence, ensuring that governance and socio-economic development meet basic needs and improve quality of life according to Islamic principles. The Holy Quran encourages moderation and excellence, reflecting the ethical and moral standards promoted by *Al-tahsiniyyat*:

يَا بَنِي آدَمَ خُذُوا زِينَتَكُمْ عِنْدَ كُلِّ مَسْجِدٍ وَكُلُوا وَاشْرَبُوا وَلَا تُسْرِفُوا إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ

"O children of Adam, take your adornment at every masjid, and eat and drink, but be not excessive. Indeed, He likes not those who commit excess."

(Quran, 7:31)

These concepts of *Al-daruriyyat*, *Al-hajjiyyat*, and *Al-tahsiniyyat* help integrate Islamic values into medical imaging by ensuring that the practice not only safeguards essential needs and facilitates necessary ease but also promotes ethical excellence and quality of care in alignment with Islamic principles.

Rooted in the integral concept of Khalifah, integration of Islamic values is accomplished through medical imaging curriculum by employing an outcome-based education (OBE) approach (Zainuddin, 2018). This approach goes beyond merely aligning Islamic teaching with the perspective of medical imaging, it emphasizes the effective integration of these viewpoints.

OBE is an educational approach that focuses on defining specific learning outcomes or objectives that students are expected to achieve by the end of a course or program (Kaliannan & Chandran, 2012). The highlighted outcome is that graduates of the program should integrate holistic Islamic values into their professionalism, effectively managing contemporary issues in their discipline while promoting Islamic perspectives within various healthcare settings (Zainuddin, 2018).

A Quranic verse that highly highlights the importance of outcomes, specifically in terms of actions and their consequences is:

فَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ خَيْرًا يَرَهُ, وَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ شَرًّا يَرَهُ

"So whoever does an atom's weight of good will see it, and whoever does an atom's weight of evil will see it."

(Quran, 99:7-8)

This verse emphasizes that every action, no matter how small, will have an outcome that will be accounted for. It underscores the importance of being mindful of the outcomes of one's actions, which aligns well with the principles of outcome-based education. The successfulness of this OBE approach depends on the curriculum and trainers (teachers) (Kaliannan & Chandran, 2012). Zainuddin (2018) stressed out that all practicality of integration in the curriculum eventually relates to Allah, the God; and the involvement of relevant and understanding teacher, known as *Murabbi* could further enhance the success of integration.

The term *murabbi* encompasses various roles such as educator, guide, and role model (Makbul, 2020). The responsibilities of a *murabbi* extend beyond imparting knowledge; they are entrusted with instilling discipline, spiritual purity, and religious values in their students (Abdullah et al., 2020). The relationship between a *murabbi* and their students is characterized by the integration of Islamic values into every interaction, fostering the development of a strong moral character (Irma et al., 2023). The role of a knowledgeable and spiritually grounded *murabbi*, who comprehends the objectives and principles of Islamic education, is crucial (Zainuddin, 2018). Islamic education emphasizes the comprehensive development of individuals, encompassing spiritual, moral, and intellectual growth (Halstead, 2004). This aligns with the perspective that Islamic education aims to cultivate individuals who not only possess a profound understanding of Allah and His teachings but also reach their maximum potential as individuals and genuinely embody the knowledge they acquire (Sidek et al., 2023). Having a qualified *murabbi* who can effectively convey these principles is vital to ensuring the successful integration of Islamic perspectives into the medical imaging curriculum.

Integration of Islamic Perspective Into Patient-Centred Care

An attempt of Islamic integration in patient-centred care is evident by the exploration of Islamic spirituality within medical imaging field, focusing on both its humanistic and technical aspects (Zainuddin, 2017). It commences by laying the groundwork for comprehending spirituality and emphasizing it as an integral part of patient-centred care. Islamic spirituality can be described as the pursuit of a virtuous life guided by faith in God, characterized by moral excellence, and aligned with Islamic teachings (Amiruddin, 2021). As Muslim patients require different approach from the Western context for spiritual support (Zainuddin, 2017); radiographers can enhance Islamic spirituality by acknowledging patients' emotional, psychological, and spiritual aspects in addition to their physical condition. By addressing their spiritual needs during

interactions in any medical imaging procedure, radiographers provide more inclusive and patient-centered care aligned with Islamic principles, promoting overall well-being and Islamic spirituality in medical imaging.

Integration of Islamic Perspective Into Radiation Protection Practice

Following the integration of the Islamic perspective into the medical imaging curriculum, the emphasis extends towards enhanced practical application in radiation protection aspect. Zainuddin (2018b) points out that existing guidelines for radiation protection lack punitive measures and fail to adequately address non-compliance with radiation protection practices, highlighting the necessity for stronger enforcement and compliance mechanisms. In this essence, the Islamic worldview offers a framework for shaping the mindset of Muslim medical imaging practitioners, encouraging them to perceive radiation protection not merely as a professional duty but as a deeply personal and ethical commitment (Zainuddin, 2018).

The concept of worship in Islam goes beyond traditional religious rituals, encompassing a wide range of actions across all aspects of human life, aligning with its comprehensive nature as a way of life (*Ad-Deen*) (Edet, 2019). Islam is not solely defined by acts of worship and a set of beliefs, but rather encompasses responding to all that Allah has decreed, which involves doing good and refraining from evil (Sani & Ekowati, 2021). This holistic view aligns with the Quran's emphasis that human existence is primarily for worshipping God (Az-Zariyat 51:56); and applicable to be applied in medical imaging practice. As the current radiation protection guidelines which benefit patients and others are aligned with the Islamic principle (Ahmad Radzi, 2018), following these guidelines with the intention of doing good as commanded by Allah is considered an act of worship (Zainuddin, 2018).

The concept of justice in Islam which is putting things to their proper places (Orman, 2018); is realized when radiographers adhere to radiation protection guidelines, ensuring that procedures are conducted correctly and in accordance with established standards (Ahmad Radzi, 2018), thus safeguarding the well-being and rights of patients. Furthermore, this adherence aligns with the concept of "itqan," which seeks excellence in radiation protection (Zainuddin, 2018), utilizing appropriate technical consideration to optimizing patient safety and minimizing unnecessary radiation exposure (Ahmad Radzi, 2018). These actions are also in line with the broader objectives of "maqasid syariah" (Shariah objectives), which prioritize the preservation of human well-being and health (Bohang and Sohaimi, 2023). Engaging in these virtuous actions in radiation protection, even when unobserved, reflects the concept of "ihsan," wherein practitioners are mindful of the presence of God (Zainuddin, 2018b) and striving to become excellent and better (Ismail & Budiningsih, 2021). This is particularly significant in light of the concept of retribution in Islam, where all virtuous and undesirable deeds are justly rewarded by Allah (Bucar, 2018), underscoring the importance of ethical conduct in radiation protection.

The integration of Islamic principles within the field of radiation protection results in the personalization of this responsibility as a virtue for Muslim professionals (Zainuddin, 2018). When radiation protection practice becomes a virtue deeply rooted in personal and ethical commitment, guided by Islamic faith, it naturally leads to a heightened sense of responsibility in adhering to the prescribed safety measures. This alignment with Islamic values serves as a powerful motivator, encouraging Muslim professionals to go above and beyond in ensuring strict compliance with radiation protection guidelines. In this context, adherence to guidelines is not just a professional obligation; it is a moral and virtuous act firmly grounded in Islamic

ethics. Therefore, the integration of Islamic principles enhances both the personalization and compliance aspects of radiation protection practices among Muslim professionals.

Integration Of Islamic Perspective Through The Aspect Of Islamic Personality (IP)

Efforts to personalize radiation protection practice as a virtue for Muslim professionals in the medical imaging field are further extended through the concept of Islamic Personality (IP). As discussed previously, IP refers to personal attributes that conform to Islamic teachings and values; grounded in the teachings of the Quran and Hadith (Nuriman et al., 2023; Wahab & Masron, 2020). In addressing diverse ethical issues within medical imaging practice, including patient rights violations, equipment misuse, and examination procedure misconduct; internalizing the Islamic personality among Medical Imaging practitioners themselves may provide a potential solution (Ruzlan and Zainuddin, 2018).

Recognizing the absence of well-defined and specific aspects of an Islamic personality in the field of medical imaging, Ruzlan and Zainuddin (2018) identified professional attributes relevant to Muslim professionals within the Medical Imaging profession by extracting information from professional guidelines. Their findings encompassed seven domains and nineteen dimensions of professional traits applicable to Medical Imaging professionals. These traits, referred as Professional Personality traits, encompass characteristics such as respect, safe practice, equality, trustworthiness, honesty, accountability, compassion, wisdom, up-to-date knowledge, competence, teamwork, self-reflection, dignity, ethical behaviour, adherence to laws and regulations, effective communication, and the continuity of knowledge and skills development. These traits are categorized into seven domains within the field of Medical Imaging, which include professionalism, patient care, technology utilization, technical skills and procedures, safety and security, research, and resource management. Utilizing these traits may be beneficial in the creation of a Medical Imaging Islamic Personality Inventory as part of the endeavour to incorporate Islamic ethics into the practice of radiation protection.

Recommendation

To effectively integrate Islamic perspectives into medical imaging curriculum, patient-centered care, and radiation protection practices, it is recommended to adopt a holistic educational framework that emphasizes the role of healthcare professionals as *Khalifah* (vicegerent) on earth by integrating Islamic personality traits into their character development. This framework should incorporate Islamic principles into all aspects of healthcare training and practice, highlighting the responsibility to protect faith, life, intellect, lineage, and property as outlined in *Maqasid Shariah*. By viewing their roles through the lens of stewardship, healthcare providers can be trained to uphold ethical standards, ensure patient safety, and address the cultural and religious needs of Muslim patients.

Conclusion

In conclusion, integrating Islamic values into medical imaging through a comprehensive approach is vital for aligning healthcare practices with Islamic ethics. Emphasizing the role of healthcare professionals as *Khalifah* (vicegerent) on earth, this comprehensive approach incorporates Islamic personality traits into character development and embeds principles such as *Iman*, *Islam*, and *Ihsan* into the curriculum through OBE, focusing on achieving specific outcomes to ensure that graduates possess the knowledge, skills, and ethical grounding needed to provide high-quality, culturally sensitive care. By integrating the *Maqasid Shariah* and addressing *Al-daruriyyat*, *Al-hajjiyyat*, and *Al-tahsiniyyat*, the framework aims to preserve faith, life, intellect, lineage, and property. The involvement of knowledgeable and

understanding teachers, or *Murabbi*, further enhances this integration, ensuring radiographers provide inclusive, patient-centered care that meets both medical and spiritual needs. Adhering to radiation protection guidelines in alignment with Islamic principles transforms these practices into acts of worship, promoting ethical excellence (*itqan*) and compassionate care (*ihsan*). This comprehensive approach fosters a healthcare environment that holistically benefits patients and the broader community while steadfastly adhering to Islamic values.

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