



The Maqasid-Based Medical Decision Making: Its Philosophy And Framework

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Abstract

The investigation on decision theory, over the course of last few decades, has afforded constructive findings, profound insights, and practical prescriptions on this topic. The discussion on the matter has posted fundamental questions about the rational bases, standards, and effective techniques for optimal choice that influence the decision making in various fields of the practical life, ranging from public administration, law and economic, to medicine. This paper aims to investigate contribution of Maqasid theory in medical decision making. It presupposes that Maqasid al-Shariah, i.e., the terminal goals of Islamic law, can play an important role in optimizing the medical decision, at both medical research and clinical practice. To investigate this central presupposition the paper analyzes, in three basic sections, fundamentals of the general theory of decision making, tools and techniques for optimal decision making, and the framework of Maqasid-based medical decision. The paper has concluded that although the Maqasid theory was designed and developed for the legal decision making, nevertheless its principles are applicable to all modes of decision making. Through analyzing modes of human needs and hierarchies of interest (*Maslaha*), Maqasid theory provides the ethico-legal framework for optimum medical decision.

Keywords: Decision theory, maqasid al-shariah, techniques of optimum decision, needs theory, al-Shatibi.

Abstrak

Penyiasatan mengenai teori keputusan, sepanjang beberapa dekad yang lalu, telah memberikan penemuan yang membina, pandangan mendalam dan preskripsi praktikal mengenai topik ini. Perbincangan ini menyentuh soalan tentang asas rasional, piawaian, dan teknik yang berkesan untuk pilihan optimum yang mempengaruhi keputusan dalam pelbagai bidang kehidupan praktikal, seperti pentadbiran awam, undang-undang dan ekonomi, kepada perubatan. Kertas kerja ini bertujuan untuk mengkaji sumbangan teori Maqasid dalam membuat keputusan perubatan. Ia mengandaikan bahawa Maqasid al-Shariah, matlamat akhir undang-undang Islam, memainkan peranan penting dalam mengoptimumkan keputusan perubatan. Untuk menyiasat praandaian ini, kertas ini menganalisis, tiga bahagian asas, asas teori umum membuat keputusan, alat dan teknik untuk membuat keputusan yang optimum, dan rangka kerja keputusan perubatan berasaskan Maqasid. Kajian ini telah membuat kesimpulan bahawa walaupun teori Maqasid direka dan dibangunkan untuk membuat keputusan undang-undang, namun prinsipnya boleh digunakan untuk semua cara membuat keputusan. Melalui analisis mod keperluan manusia dan hierarki kepentingan (*Maslaha*), teori Maqasid menyediakan rangka kerja etika-perundangan untuk keputusan perubatan yang optimum.

Kata Kunci: Teori keputusan, maqasid al-shariah, teknik keputusan optimum, teori keperluan, al-Shatibi

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1. Introduction

In the course of the real life and in the process of scientific inquiry, human talent is frequently challenged by practical problems with different scales of complexity and constraints, whereby the need for decision making arises. Using the mental capacity, assisted by advanced technologies and sophisticated techniques to find the optimal solution in that case is essential. This process of *optimization*ⁱ, i.e., searching for a suitable choice or the best solution to the problem, encompasses the various fields of human life, either personal or public, especially the management, economy, healthcare, and scientific research. The optimization process aims to minimize the hardship, to reduce the harm, the risk, the cost, or to uncover the unknown. It also, simultaneously, aiming at maximizing the value, the product, the benefit, the profit, the safety, or to attain the certainty in searching the truth. Decision making is a matter of optimum choice between the alternative courses of action, in various fields of real life. The medical decision, as a specific mode of the general theory of decision making, aims to establish principles and rational bases of an effective decision making in this filed.

The need for optimization or searching for reasonable standardsⁱⁱ to manage the natural and human phenomena is, in fact, the main goal of scientific inquiryⁱⁱⁱ. F. W. Taylor holds that the fundamental principles of scientific management^{iv} are applicable to all kinds of human activities^v, from our simplest individual acts to the work of our great corporations. Of course, discovery of such objective principles is the major challenge to the scientific management, especially discovery of patterns and the systematic orders which govern the purposive acts and the motive behaviours of mankind, i.e., social and human activities. Taylor, also, emphasizes that the scientific method is only

the ideal approach to make decisions^{vi}. Accordingly, the central question that arises in this context is: what are the rational bases, standards, and the key determinants of decision making in any specific situation?^{vii} These are the basic questions that the general theory of decision-making aims to investigate. The other related questions are about the effective techniques for the optimal decision making, especially in complex situations such as the clinical decision.

It is the purpose of this paper to investigate these fundamental questions. It highlights the underpinnings of general theory of decision making and its role in understanding the rational bases of medical decision. The paper outlines the systematic approach to the medical decision making and briefly explain techniques and modes of knowledge that are essential for optimal decision in complex medical situations, such as clinical and outbreaks control, e.g., COVID-19 pandemic. Finally, the paper investigates its key question, which is how *Maqasid* theory can contribute in all this? The important role that can be played by *Maqasid* theory on the process of medical decision will be outlined.

2. Fundamentals of the decision theory

Application of the scientific principles to solve problems of real life is necessary to avoid random interpretation of any act or process. Thus, the investigation for rational standards which assist the scientific management of human acts and activities, including decision making, is necessary. Decision making, in simple terms, is a matter of making choice from a set of available alternatives, either on reflex^{viii} or with reflection. According to W. Fox and Ivan H. Meyer^{ix}, decisions in real life situations are often made on reflex, without much

conscious thought^x. However, the optimal decision, according to the theory of scientific management, must be based on objective standards derived from thoughtful judgments. Thus, searching for fundamental principles and standards for optimal choice constitutes the core subject matter and objective of the general theory of decision making^{xi}. Formation of such standards provides the reasonable bases for optimal decision in all human activities, either organizational, economic or medical.

Fundamentals of the general theory of decision making, i.e., the rational bases and standards for choice, and techniques for optimal decision making, were investigated and discussed by the contemporary decision theorists, with focus on organizational and administrative decision. In this context, Herbert A. Simon (1948), defines decision making as “*the optimum rational choice between alternative courses of action*”^{xii}. There are various perspectives about what constitutes the ‘*optimum rational*’, but it is no doubt that the optimum decision must be based on some standards of rational judgement, either simple or technical. Decisions made based on simple judgments, or derived from the intuitive sources of knowledge, such as personal experience, are known as ‘*heuristic decision*’^{xiii} or ‘*contingency model of decision making*’. On the other hand, decisions made based on technical analysis or derived from empirical evidence and objective sources of knowledge are known as ‘*optimal decision / choice / solution*’. Optimization is a complex process that needs adequate information and technical analysis such as mathematical programming / modeling^{xiv} and intelligent decision support systems.

The general theory of decision making is mainly concerned with analysing the process of optimization, through clarification of the concepts, establishing the reliable bases for decision making, modes of judgment, the

distinction between normative and descriptive decisions, examining the effective techniques for optimal decision, and so on. Decision theorists observe that, since human elements are unavoidably affect most decision problems, the study of psychology might be essential to solve such problems^{xv}. This is especially applicable to the medical decision, which is associated mainly with human elements and characterized by complexity, pragmatism, and uncertainty.

2.1. Modes of decision making

The basic modes of decision can be divided into various types, based on different factors. For instance, based on final goals, decisions can be divided into operational and strategic; and based on standards it can be divided into normative and descriptive decisions; and based on the field of application, can be divided into organizational and medical (theoretical or clinical). One of the most essential classifications of decision making, however, is the division based on modes of knowledge, which includes various types: (i) decision under objective or subjective knowledge, (ii) decision under certainty (deterministic knowledge), or probabilistic knowledge, or under uncertainty, (iii) decision under explicit and tacit knowledge, (iv) the evidence-based decision and value-based decision; and (v) decision under quantifiable and unquantifiable (qualitative) knowledge. Each of these types has its own implications on decision making.

2.1.1. The administrative and medical decisions

One of the basic classifications of decision making, in general context, is the division into organizational and medical. The main objective of the organizational decision is administrative, i.e., management to minimize the cost and maximize the output. The organizational system, in this case, represents a primary unit for analysis to achieve the

goal. The objective of medical decision, on the other hand, is both administrative and medical^{xvi}. It aims not only to reduce the economic cost, but also and more importantly to minimize the risk of complication, morbidity or mortality^{xvii}. The medical decision as guided by medical goals, therefore, must be professional and evidence-based.

Models and the general principles of the organizational decision making were proposed by the decision theorists, especially by Herbert A. Simon in his eminent work '*Administrative Behavior*' which published in 1947. The central point of the work was that decision making is the heart of administration^{xviii}. Besides formulating the theoretical principles, the distinctive aspect of Simon's approach was the emphasis on the '*scientific*' nature of the decision making. Nevertheless, some authors have noted that many administrators make decisions with only partial information, due to various factors, such as the complex situation, lack of information and time press. Decision, in such cases is unoptimized and randomly made with little mental consciousness (Hoy, W. 2019)^{xix}. Attempting to optimize the process of decision making, Simon emphasizes that "A general theory of administration must include principles that will insure both correct decision making and effective action". He also observes that before a science can develop principles, it must possess concepts^{xx}. The reflective insights of Simon's approach inspired the contemporary administrative thought to search for relevant concepts and principles for optimal decision, and motivated discussion on the general theory of decision making. Various models of organizational, administrative and institutional decision have been discussed, developed and practiced.

2.1.2. The basic characteristics of medical decision

The medical decision, as a distinctive mode of the general decision theory is governed by the similar principles, such as the rational choice, but it more concerned with reducing the harm rather than economic cost. It also characterized by other features, such as complexity, professionalism, and uncertainty due to the complex sources of information^{xxi}. Although the general decision theory, as proposed by administration theorists, focuses on organizational behavior and administrative decision, nevertheless its principles are relevant to the medical field in both aspects: medicine as a professional organization characterized by specific systems, and medicine as research and clinical practice^{xxii}. These two dimensions of medical decision need further discussion, clarification and development in the context of the general theory of decision making.

Analysis of medical decision, according to the patient centered and evidence-based medicine, is valuable not only to the medical professionals, i.e., physicians, clinicians and other healthcare providers, but also to the individual patients and health policy makers. Thus, medical decision making now cannot be restricted in the traditional topics, such as riskless and risky choices, but also extended to the influence of social^{xxiii}, emotional, and cultural factors^{xxiv}. This holistic approach has influenced the medical decision making and turned it to a complex process, especially clinical practices and decision making during the spread of contagious diseases^{xxv}. The analytical study of medical decision in the framework of general theory would enable, not only to establish the bases, but also to discuss the epistemological problems of medical decision, such as the problem of uncertainty, knowledge reliability and sources of information.

2.2. Tools and techniques for optimum decision

Decision problems involving complex situations, multiple choices or independent variables are frequently arise in science and in practical life. Tools and techniques used to solve such problems depend largely on complexity of the situation, i.e., mode of system behaviour or the dynamic processes / operators, which can be divided into three basic types / scales: deterministic, probabilistic, or chaotic^{xxxvi}. Processes of physical, biological, and social phenomena may roughly represent the three types, respectively^{xxxvii}. Searching for relevant tools and effective techniques^{xxxviii} to understand and manage the various types of system behavior (optimization) is necessary for both the scientific advancement and practical purposes.

Techniques of optimum decision are various, according to the complexity of the situation or the system process, starting from simple analysis, such as graphs^{xxxix}, charts, histograms^{xxx}, and causal loop diagrams, up to mathematical modeling^{xxxi} and computer assisted intelligent. Modelling or mathematical programming is one of the most effective techniques for optimum solution / decision in complex situations, i.e., to understand, predict, and manage the case. Means of optimization can be divided mainly into tools (programs) and techniques (applications). Although they are indispensably related, tools are such as formal logic, probability theory, operations research (OR), and dynamic system programming^{xxxii}; while techniques are methods of application to solve the problem or to make an optimum solution. Both types, i.e., tools and techniques, constitute the basic subject matter of quantitative research and statistics. The advanced techniques are often characterized by high abstraction, especially mathematical programming, such as linear and non-linear modeling^{xxxiii}. In fact, some

mathematical models are too complex to be solved by any means of optimization algorithms. In such case, it might be necessary to search only for a good solution, by using heuristics or rules of thumb^{xxxiv}. However, the real value of mathematical model is in its possibility for application, i.e., if it can be simulated to systems of real world. (Taha, Hamdy A. 2017)

The important question, now, is how Maqasid theory can play role in process of optimization through all aspects of general theory of decision, especially in making an effective medical decision?

3. The Maqasid-based medical decision

What is '*Maqasid*', how it is different from '*Shari`ah*'<sup>xxxv</sup>, and how it can play role in the process of medical decision making? These are the key questions that may arise in this section. Maqasid theory, that is the terminal goals of Islamic law (*Shari`ah*), was proposed by early Muslim scholars to provide the rational (philosophical) bases of legal decision (*al-hukum al-sharaie*). The theoretical principles of Maqasid, however, were formulated by Abu Ishaq al-Shatibi (d.790H / 1388C) in his prominent work "*al-Muwafaqat fi Usul al-Shari`ah*).

The term '*maqasid*' is plural of the Arabic word '*maqsad*' which literally means the objective, goal, purpose, or the motive of an act or intention behind doing something. For the purpose of legal decision, the Muslim jurists divide the objective of making law into two basic types: (i) the objective of God in legislating the law, e.g., obligating certain acts or forbidding certain foods, and (ii) the objective of man behind his acts, i.e., his motive or purpose of doing something (the intention). They also concluded that the objective of man is valid only if it is consistent with the objective of God, otherwise it is ethically invalid and not considerable. This is due to the fact that objectives of man are naturally motivated by

his personal needs, desires and selfish interests (maslaha), while the objective of God is to protect the human interest generally in an absolute sense, either individual or public. Investigating these two types and their relationship constitutes the core idea and basic part of the Maqasid theory.

3.1. The core idea of Maqasid al-Shari`ah,

The word '*al-Shari`ah*' is a key term in Islamic juridical tradition used for both the legislation '*tasharie*' and its application, that is deriving the legal rule '*al-hukum al-sharie*' (the decision) from its original sources, revealed texts, which are Qur`an and Sunnah. The legislation, i.e., making law by allowing or disallowing, is attributed only to God (Allah SWT) Who assign the law through His revelation. Due to the fact that not all legal decisions are mentioned in the revealed texts or directly understandable from it, man (al-mujtahid) needs to use his mental capacity for judgment to deduce the suitable decision. The process of deriving such decisions, i.e., method of judgment to arrive at legal rules, is known as '*Fiqh*'. The principles which guide the judgment process (Fiqh) are known as '*Usul al-Fiq*'.

The core idea of Maqasid theory is based on the philosophy that the final goal of the Legislator, i.e., the law maker who is Almighty Allah (SWT), is to preserve human interest (Maslaha)^{xxxvi}; thus, observing that goal is necessary in the process of judgment for legal decision. Now, the Maqasid theory needs to investigate two basic problems: (i) firstly, how we understand the aim of the Legislator (Almighty Allah), and (ii) secondly, what are the different modes of human interest (Maslaha) which need to be protected and preserved? The third issue that is logically associated with the two problems is the question of application, that is the process of making the decision. Shari`ah here is the decision (hukum), whereas Maqasid is the mechanism or the guideline for optimum

decision, either legal, administrative or medical. It is true that Allah (SWT) discloses His ethico-legal decisions (rules) through commands, direct or indirect injunctions, known as (*Amr* and *Nahie*), but majority of cases are without clear decision, therefore Maqasid theory can be used as a mechanism and guideline to arrive at correct decision which satisfies the potential objective of the Legislator.

The attempt to answer the first question has formulated the science which concerned with investigating the objectives of legislation, known in Islamic tradition as '*mabahith al-`illah*', and this was undertaken mainly by Muslim jurists, especially theorists, under the science of '*Usul al-Fiqh*' (Principles of Islamic Law). In an attempt to answer the second question, Muslim scholars divided the human interest (Maslaha) into three major types, hierarchically based on human needs, as individual and as society, which are: (a) *Daruri* needs (necessities), (b) *Haji* needs, and (c) *Tahsini* needs (supplementary). Although protection and preservation of the three types is the purpose of the Legislator (Almighty Allah), however, the priority goes to the first type, that is the *Daruri* needs which are defined in five major things, that are essentially needed by every human community, which are: (i) protection of the religion, (ii) of human life, (iii) of mind, (iv) of progeny, and (v) protection of ownership (property). These five forms of human needs have formed the central idea of Maqasid theory. Accordingly, protection and preservation of these essential needs, according to Muslim scholars, is the main objective of legislation in Islamic legal theory.

The five essentials of Maqasid theory (necessities), in this context, can be related to the five hierarchies of human needs in the conventional perspective, as formulated by Abraham Maslow^{xxxvii}. Human acts, according to the needs theory, are motivated

by five modes of needs which ranked as following: (i) physiological needs^{xxxviii}; (ii) security needs; (iii) social needs; (iv) esteem needs; and (v) self-actualization needs.

Although the two theories, i.e., Maqasid and needs theory, are aiming to understand and manage the same phenomenon but from two different perspectives^{xxxix}. Maqasid theory is philosophical based in a religious framework, while needs theory is psychological based in a scientific framework. However, both theories provide rational bases to predict how a person should act in certain ways in specific cases. For instance, the patient who in dire need for physiological needs (necessities) is expected to be less answerable to social needs (haji). The maqasid theory predicts occurrence of the act based on religious values, while need theory predicts based on human nature. Therefore, both theories can contribute in the process of effective medical decision making.

3.2. Maqasid and the medical decision

The key question, now, is how Maqasid theory which was designed for legal decision making can contribute in medical decision, especially in clinical practices? To investigate this central question scientifically, it is necessary to identify the basic components of medical decision making, which are centered around two elements: (i) sources of knowledge, and (ii) methods of judgement for decision making.

In fact, relating ‘Maqasid’ to medicine is technically important and strategically constructive for effective / optimum decision making from Islamic perspective. Nevertheless, Maqasid theory addresses the five essential human needs^{xl}, which are preservation of human life, faith, mind, progeny, and property. Even faith and the property are now closely related to medicine because the patient-centered medicine takes in consideration the personal preferences,

choices, values and beliefs in medical intervention; while economic ramifications are the major concern of every patient today. So, the optimum medical decision should be based on knowledge that derived from all these sources.

3.2.1 Maqasid and sources of medical knowledge

Although medical decision, research or clinical, is mainly evidence-based, however it depends on various sources of knowledge, some of which are objective and measurable while others are intuitive. Beside the objective knowledge that can be derived based on technology, the patient centred medical decision also incorporates other sources of information, such as personal preferences, beliefs, and social and cultural values. Accordingly, medical decision is a complex process combines between both mode of knowledge. In other words, it is knowledge-based and value-based as well^{xli}. The complex nature of medical decision provides a valuable chance for Maqasid theory to play an important role with both modes of medical knowledge for an optimum medical decision.

3.2.2. Maqasid and the objective medical knowledge

Based on principles of modern science, which emphasize on objective knowledge, medical decision is theoretically evidence-based, in the sense that the optimum medical decision is made based on measurable information derived from biophysiological factors of human body with no consideration to implication of other intangible factors which may influence the case, such as personal beliefs and values. The decision derived from objective sources of knowledge can be optimized by tools and techniques of optimization as explained above, such as mathematical modelling. Maqasid theory can play an important role with objective sources

of medical knowledge for optimal decision in two ways: first, by identifying the final goals of decision making, as defined by the five essential needs of a human being (*daruriyat*); and secondly, it provides means which support to derive knowledge as well as the effective application of the tools and techniques for optimum medical decision.

3.2.3. Maqasid and the intuitive medical knowledge

Clinical decisions, based on patient centered medicine, are mainly based on this mode of information. Subjective knowledge, in this context, is defined as information derived from intuitive or immeasurable sources, such as the personal experience of the physician, patient's personal beliefs and values, and other external factors which may influence the case. In fact, Maqasid theory can play a major role in this case for effective clinical decision. This is due to the fact that the question of values is central in clinical decision, that is based on discussion between the physician and the patient.

Besides the objective standards that can be measured by above techniques, Maqasid theory manages all human acts (activities) based on ethical norms and legal rules (Shari'ah) which divides human acts, based on the hierarchy order, into five scales / levels: obligatory acts, recommended acts, optional acts, in addition to acts that recommended to be avoided, and acts that obligatory to be avoided. These categories, which based on human interest (Maslaha), benefits and harms, can provide a useful mechanism for effective medical decision, especially the clinical decision. The standard for the optimal act here is internal and personal. This means, both the physician and the patient are guided by their values to act in specific ways as determined by the above five prescriptions.

The maqasid theory, in this case helps to identify three applications: *first*, to be aware

of what determines your values, actions, and decision-making processes; *second*, to recognize what can potentially assist to achieve your goals; and *third*, it helps to making choice among the overwhelmingly diverse alternative courses of action. These determinants can be divided into goals and means. Maqasid theory can help performing this task, as well as hierarchy of determinants as identified by needs theory.

3.3. Maqasid and the process of medical judgment

Judgment is the most important part in the process of medical decision making, especially in clinical practice. Seeking to improve medical decision making, Maqasid theory defines judgment as set of evaluative and inferential steps that can be adopted in the processes of decision making, either based logical inferences or technical methods. It is the rational process that helps achieving the goal of the best choice between the alternative courses of the action, as related to medical matters. As explained above, medical judgment can be made based on both modes of knowledge, i.e., objective and intuitive. In other words, clinical judgment employs different modes of reasoning, both for quantifiable and non-quantifiable knowledge. However, Tonelli, Mark R. (1998) observes that the quantifiable reasoning, that is based on evidence-based knowledge, is explicitly preferred by modern medicine, while other types of reasoning, whether intuitive, experiential, or physiologic are considered inferior (Tonelli, Mark R., 1998). As elucidated above, Maqasid theory can play an important role in both modes of knowledge for effective clinical decision, which is the core of medical decision.

It is observed by literature that, medical doctors, unlike administrators, know what they need to achieve, that is a healthy condition of the patient. They neither engage

all their resources on the basis of an initial diagnosis nor wait for every conceivable bit of personal history and scientific data before beginning treatment. Instead, they survey the symptoms of a patient, analyze the difficulty, initiate a tentative treatment, and, if it fails, try something else (Etzioni, 1989)^{xlii}. However, the major challenges faced by physicians are complexity, uncertainty and the changing nature of medical knowledge, in the sense that methods of the past may not be appropriate for the future (Eddy, David M., 1986). The major objective of medical decision, in all cases, is to develop methods that reduce the uncertainty faced by physicians to a manageable size of information that enables to derive relevant choices and correct answers from vast and complex sources of knowledge. Clinical decisions are choices which, through judgment, convert information into action. These acts help to determine how prevention programs are promoted, how diagnoses are made, what tests are ordered, and what treatments are performed (Eddy, David M., 1986). The complex process of medical decision can be assisted by clinical decision support systems to achieve its goals^{xliii}.

4. Conclusion

Generally speaking, decision making is closely related to human needs in which the Maqasid theory provides useful mechanisms to identify and determine the hierarchy of needs (*masaleh*) based on which the effective decision can be made. Although Maqasid theory was designed and developed to deal with optimal decision making in legal context, nevertheless its principles are applicable to all kinds of decision making, especially the clinical decision. This is based on the fact that the Maqasid theory incorporates the two basic components of medical decision, in addition to benefiting from conventional tools and techniques for optimal decision. It is also, provides the

ethico-legal framework of medical decision making in Islamic perspective. Being aware of the important contribution of Maqasid theory, the Islamic tradition can play a constructive role to enhance methods of decision making in various fields of modern science. A comparative study on Maqasid and needs theories is essential in any future investigation of Maqasid theory as related to the process of decision making.

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