

Prophetic Medicine: Building an Epistemological Framework to Overcome the Conflict between Religion and Evidence-Based Medicine

Khalid Orayj

BPharm, PharmD, PhD, School of Pharmacy, King Khalid University, Saudi Arabia

Abstract

Prophetic medicine (PM) is the body of medical advice given by the Prophet Muhammad (the Prophet of Islam). Although various theories have been advanced to explain the articulation of PM in Islamic history, the most coherent theory is that PM was articulated by Islamic scholars to reconcile the Prophet's medical advice with Greek medicine. In a similar fashion, faced with the current-era domination of the medical scene by Evidence-Based Medicine (EBM), some Muslim researchers have hastened to attempt combining EBM with PM by using EBM tools to validate PM. A literature review revealed four features shared by most of the current PM studies. First, they were conducted in Islamic countries. Second, their main purpose was to confirm the validity of PM. Third, they lacked a consistent epistemological framework. Fourth, they used deductive reasoning that treated PM as absolute truth in their introductory sections, restricting their purpose to proving the validity of PM and leaving no room for refutation. To draw more effectively on the PM heritage without contradicting current scientific method, it is instructive to extract and adapt the methods used by earlier Islamic scholars to combine PM with Greek medicine. After an extensive textual analysis of the books of the Prophet's sayings (Hadiths) and scholars' commentaries, the methods by which scholars combined PM and Greek medicine were extracted. The study concludes by proposing several models that combine PM with EBM. The closest model found to acknowledge the holiness of the Prophet's Hadiths without contradicting the scientific nature of EBM is to limit the divine validity of the Prophet's medical Hadiths to those to whom the Prophet prescribed the medicine, without including those who came after them in later times. This approach opens the door to benefiting from these Hadiths as indicating possible directions for modern scientific research without calling the Prophet's prophecies or the validity of his words into question.

Keywords: Prophetic Medicine, Epistemological Framework, Conflict between Religion and Evidence-Based Medicine

Introduction

Background

In the view of its proponents, prophetic medicine (PM) is defined as the collection of sayings and advice (i.e., Hadiths) given by the Prophet Muhammad, peace be upon him (PBUH), regarding sickness, treatment, nutrition, and hygiene (Perho, 1995). The phrase “Islamic medicine” is sometimes used interchangeably with “prophetic medicine”; however, it is widely accepted in the literature that the former embraces all kinds of medical practice consistent with Islamic law throughout Islamic history, whereas the latter deals only with medicine originating with the Prophet (Hussein, 2019). The formation of PM had its roots in the definition of Islam and the value among Muslims of the Prophet’s Hadiths (Grenon, 2018). Muslims believe that their religion has two main sources: the Qur’an, which contains the words of God, and the Hadiths, which contain the words of the Prophet (Al-dhahabi, 2004). This means that all Hadiths are by default instances of divine revelation unless additional evidence shows otherwise, as when the Prophet explicitly attributed a Hadith to himself and not to God (Al-Qarafi, 1995). Chronologically, the evolution of PM can be separated into four periods, as suggested by Grenon (Grenon, 2018). The first period took place between the 8th and 9th centuries CE, when the original collections of Hadiths were assembled by Hadith scholars such as Al-Bukhari, who devoted a special chapter in his book (Sahih Al-Bukhari) to the Prophet’s medicine (Grenon, 2018). The second period took place between the 10th and 12th centuries, when some scholars started using the term “prophetic medicine” and authored specialized books devoted exclusively to PM Hadiths (Grenon, 2018). In this period, there was no discussion or implementation of medical theory; rather, there was a narrative list of Hadiths organized by topic in the order followed by contemporary Greek medical books with some brief commentary (Grenon, 2018). The authors of PM texts in this period were Hadith scholars such as Ibn-Sunni and Abu-Nuaim (Grenon, 2018). A possible reason that the books in this period followed the organization of Greek medical texts was the intention to make PM more attractive to physicians who were not interested in Hadith texts (Perho, 1995). Indeed, by the end of this period, PM was an interest shared by Islamic scholars and physicians (Grenon, 2018). The third period in the evolution of PM was seen when Islamic scholars gradually began to include Greek medical theory (i.e., Galenic medicine) in their books in such a way that its consistency with PM was evident (Grenon, 2018). This period took place between the 12th and 13th centuries and continued until the 14th century, when the fourth period emerged with the most extensive efforts yet to define PM and affirm that PM had become a medical system in itself (Grenon, 2018). In this period, scholars such as Ibn al-Qayyim and Al-Dhahabi wrote books on PM showing that PM could stand alone in terms of its comprehensiveness and divine source. However, Greek medical theory was merged

with PM in a way that respected both the observable value of Greek theory and the divine source of PM (Ragab,2012).

The reason Islamic scholars developed PM and devoted such efforts to defending its validity is not mentioned in early Islamic books (between the 8th and 19th centuries) (Ragab,2012). This omission was due to the view of most Islamic scholars that PM is sacred and a part of divine revelation, which means that no one—other than God—has created it (Ibn al-Qayyim,1994). There is another underrecognized Islamic view, which sees PM as a worldly affair that was taken from traditional Arabic medicine of the Prophet's period with no divine source; according to this view, the Prophet's mission was to preach Islam, not medicine (Ibn Khaldun,2004). This view was adopted by some scholars, such as Ibn Khaldun and Al-Qadhi Ayad; however, reverence for the holiness of the Prophet caused this view to remain unrecognized in the Islamic world until the present (Grenon,2018).

Among orientalist, the reason for the development of PM was a matter of controversy in the last two centuries (the 19th and 20th) (Fujii,2011). Some claimed that the purpose of articulating PM was to oppose the reason-based Greek medical tradition and prevent its intrusion into the Islamic world, and since PM was not reason-based, magic-based and religious superstitions were introduced into PM books (Bürgel,1976; Ullmann,1978; Savage-Smith,1997). This extreme view was refuted by Fazlur Rahman and Irmeli Perho, who believed that the perceived urgency among Islamic scholars of defending PM and showing its compatibility with Greek medicine came after PM was attacked by some Christian physicians who argued that it contradicted Greek medicine and thereby attempted to discredit the prophecies of Muhammad (PBUH) (Perho ,1995). Rahman and Perho argued that PM did not oppose Greek medicine; rather, it combined the Prophet's Hadiths with Greek medicine with the purpose of spiritualizing medicine and showing that no conflict existed between PM and Greek medicine (Perho ,1995; Rahman,1987). The view of Rahman and Perho is supported by the fact that most PM books contain sayings and quotations from Greek physicians such as Galen and Hippocrates with no sign of rejection (Ibn al-Qayyim,1994).

This norm of combining PM and Greek medicine continued until the 20th century, when positivist philosophy revolutionized and invigorated the field of medicine with its insistence that medical knowledge can be derived only from experiments and observations (Bradley, 2006). Although other types of medicine make use of other reasoning styles, as for instance Chinese medicine reasons deductively from an established theory to explain single observations, inductive reasoning (which moves from observations to developing a theory), in the eyes of positivism, is the most appropriate way to reach the truth (Wieringa, 2018; Serdar, 2011). This movement resulted—by the end of the 20th century—in the establishment of what is called “Evidence-Based Medicine (EBM)” (Sackett,1996). EBM's main goal is to combine clinicians' experience with medical research to arrive at correct, well-formed

decisions that improve patient health (Sackett,1996). EBM relies on all types of medical research, from basic medical research (e.g., molecular biology, immunology, and pharmacology) to clinical experiments applied to humans (i.e., clinical trials) (Sackett,1996). From the point of view of EBM, any medical practice not based on scientific evidence is pseudoscience and should be avoided (Lee, 2015). Nowadays, it is widely accepted that in order for any treatment to be trusted as effective, safe, and reliable, its justification must follow the scientific method, from basic medical research to clinical trials (Lee, 2015). However, reliance on EBM does not mean that other sources of medicine (e.g., Chinese Medicine, Energy Therapy, Acupuncture, or PM) are not effective or safe. Rather, EBM requires that these types of therapies be validated by means of the scientific method in order to be incorporated into EBM (Tonelli, 2001). What gives EBM its strong stance in relation to other types of medicine is its pragmatic approach, tangible clinical benefits, and common acceptance around the world (Lambert, 2006). It can be assumed that EBM stands alone in this regard and is the benchmark against which all other medical approaches are judged, not vice versa (Sackett,1996).

As EBM has dominated the medical arena since the last century, the practice of Greek medicine has faded away, with the exception of its ethical guidance (such as the Hippocratic oath) and philosophical foundations, which deprived magic of the role it had played in medicine and encouraged the use of logic and experience instead (Cosans,1998).

In the wake of EBM's rise to dominance, the task of Islamic scholars and thinkers has shifted from reconciling PM with Greek medicine to reconciling it with EBM (Ragab, 2012). This new reconciliation effort coincided with the Islamic revival of the 1970s and 80s, and one feature of this revival was the wide reach of television programs introduced by Islamic scholars and thinkers emphasizing the claim that there is no contradiction between Islam and modern science (Ragab, 2012). This discourse, with its promotion of Islam, has led to the establishment of a new movement "among some Muslim physicians and researchers" to use EBM techniques (i.e., basic medical research and clinical trials) to confirm the validity of PM (Ragab, 2012). However, there is a contradiction at the heart of this approach. For, in the view of its proponents, PM is of divine origin, and its authority is absolute. To validate it by means of EBM techniques is indirectly to contradict the presumption of its divine authority since if it is indeed authoritative because of its origin, there should be no reason to look to EBM or any other source for validation (Serdar,2011). This epistemological contradiction seems not to have been recognized by current PM proponents; instead, hundreds of so-called scientific articles using EBM to validate PM have been published in the last 30 years (Azizah,2018; Ijaz,2017; Ahmed, 2013). In addition, scientific committees, postgraduate programs, and national conferences have been established in some Islamic countries with the aim of establishing the validity of PM in a scientifically sound manner so as to give it scientific credibility alongside its divine authenticity (Hussein, 2019).

Illustrating this epistemological contradiction within PM research does not mean that the PM research should stop, since PM is a valuable source of medical information used in the Arabian Peninsula during the Prophet's time. Rather, it means that there is a need to establish an epistemological framework that both preserves the value of EBM as the only authoritative resource for medical information and respects the sanctity of the Prophet's and God's revelations by not claiming sanctity and authenticity for something whose divine origin has not been proven.

This paper, therefore, proposes a new epistemological framework that aims to overcome the conflict between PM and EBM. To achieve this goal, the paper is divided into three parts. The first part is a mini literature review that examines the medical articles seeking to use EBM to validate or establish the correctness of PM. The second part is a textual analysis of opinions written by Islamic scholars seeking to resolve the conflict between PM Hadiths and some aspects of Greek medicine. Finally, the third part applies the information extracted from the previous two sections to construct an epistemological framework that accommodates the most useful logical reasoning in EBM (i.e., inductive reasoning).

Methods

The methods section is divided into three parts: mini literature review, textual analysis, and establishment of an epistemological framework.

Mini literature review

The purpose of this review is to describe the current status of PM in medical literature and to characterize the way this literature has conceptualized PM and determined its role in reaching particular conclusions. The studies included in this review are those that mentioned or expressed approval of PM and used EBM techniques such as basic medical research, clinical trials, or clinical reviews in their methodology.

Search strategy

A rapid mini-review using PubMed and Google Scholar with no time restriction was conducted on December 5, 2021, to identify all studies using EBM to validate or defend PM. The only keyword used for this review was “prophetic medicine”; this was done deliberately so that all related articles would show up (Figure 1).

Inclusion and exclusion criteria. This review included all studies that used EBM techniques to validate or defend PM. The EBM techniques searched for were: cell and tissue studies, animal experiments, clinical trials, case studies, observational studies, and systematic reviews or review articles. All studies that were included mentioned PM in at least one section of the study (a particular focus was placed on the introduction and discussion sections). The exclusion criteria included not being in the English language and not having an abstract.

Data extraction and data analysis. Where available, the following information was extracted from each study: article type, country where the study was conducted,

country where the publishing journal was published, funding source, where PM was mentioned in the article, what treatment was mentioned, and whether the treatment was beneficial according to the study. No appraisal tool was used since the review design was exploratory in nature and not systematically structured.

Textual analysis

The main goals of this textual analysis were (1) to identify all PM Hadiths recounted in well-known Islamic Hadith collections and in scholars' commentaries on these collections and (2) to describe the way Islamic scholars handled conflicts between some PM narrations and some aspects of Greek medicine.

Identifying major Islamic Hadith collections that included PM Hadiths

It is widely accepted among Muslims (especially within the Sunni school of thought, which comprises approximately 85% of all Muslims) that there are six collections of Hadiths generally recognized as the main sources of the Prophet's sayings and quotes (Almazri,1988). These collections are: Sahih al-Bukhari, Sahih Muslim, Jami al-Tirmidhi, Sunan Abu Dawood, Sunan an-Nasa'I, and Sunan ibn Majah (Almazri,1988). These collections were used to identify the PM Hadiths in this study (Table 2).

Identifying books that included scholars' commentaries on PM Hadiths plus additional sources

Given the importance of the six collections of Hadiths just mentioned, Muslim scholars devoted tremendous effort to interpreting these collections and confirming the authenticity of the Hadiths recounted in them (Karimov,2019). These efforts resulted in many long commentaries on the six collections. Given this abundance, only 16 famous commentaries were chosen for reference in this section of the study. During the reading of these commentaries, nine additional commentaries were added as references because they included instructive discourse about PM and its relationship with Greek medicine. All the Hadith collections and commentaries are listed in Table 2.

Extracting all PM treatments mentioned in Hadith collections

The reading of the Hadiths was followed by extraction of all the PM treatments and targeted diseases mentioned there. These treatments and diseases were then used as keywords to locate the related information in the commentaries. The list of PM treatments and diseases included the following: Ajwa date, Aloe Vera, Antimony, Armenian cucumber, Ascites, Ash, Barley flour, Black seed, Camel milk, Camel urine, Cassia Angustifolia, Cauterization, Cow's milk, Ceylon cornel, Cold water, Costus spicatus, Cucumis, Cupping, Diet, Dill, Ethmid, Fennel flower, Fever, Fly wing, Hair shaving, Head band, Headache, Henna, Honey, Insect, Itchiness, Kuhl, Leprosy, Lice, Migraine, Phoenix dactylifera, Plague, Pleurisy, Salvadora persica, Sciatica, Senna, Silk, Talbina, Truffle, and Zamzam water.

Extracting and analyzing the techniques used by Islamic scholars to resolve apparent contradictions between PM and Greek medicine

All scholars' comments relating to PM Hadiths were extracted. The comments that did not illustrate and resolve a conflict between PM and Greek medicine were excluded from the analysis. This resulted in a set of scholarly comments exclusively devoted to resolving this conflict. The techniques used by the scholars to resolve the conflict were analyzed. In some commentaries, the comments were compared or referred to previous commentaries written by other scholars; if these comments were redundant or similar to what had already been found in the previous commentaries, the original comments were retained, and the redundant ones were excluded.

Establishing an epistemological framework

Several epistemological frameworks arising from the results of the first two stages were discussed, and two were singled out as the most appropriate for resolving the conflict between EBM and PM. Epistemology as a branch of philosophy addresses questions regarding the definition, source, and scope of knowledge (Wenning,2009). Although epistemology is complicated and rich in styles of reasoning, such as deductive reasoning, it is currently held in the medical field that inductive reasoning guided by positivist philosophy is the most efficient and practical way to approximate clinical truth (Djulbegovic,2009). The original Aristotelian (syllogistic) style of deductive reasoning used two or more propositions (assumed to be true) to reach a conclusion or decision (Khemlani,2012). In contrast, the deductive reasoning used in medicine nowadays deviates from the original syllogistic style by assuming that it is possible to start with only one proposition, and this proposition is not assumed to be true (Shin,2019; Bolton, 2015). Rather, the proposition is a theory or hypothesis to be accepted or refuted based on the collected data. This is the use of deductive reasoning as a hypothesis-testing strategy (the hypothetico-deductive method). In contrast, inductive reasoning aims to generate a hypothesis by collecting data first and letting patterns in the data guide the generation of a theory (Shin,2019; Bolton, 2015). The hypothesis-testing use of deductive reasoning, therefore, relies on data in a way that makes the data the only source of validation for the theory. This makes this application of deductive reasoning analogous to inductive reasoning in that both rely on data to lead to the truth and neither asserts the theory as fact in advance—in contrast to PM, where the Prophet's Hadiths are assumed to be factual by PM proponents (Shin,2019; Bolton, 2015). Accordingly, and since it is EBM procedures that are being used to test the assumptions of PM, the original Aristotelian (syllogistic) style of deductive reasoning was not included in this section. Rather, the inductive and current medical deductive (hypothetico-deductive) reasoning frameworks were used. These two styles of reasoning were selected and combined with the techniques used by Islamic scholars to resolve conflicts between EBM and PM. Then, possible frameworks were discussed, and the most appropriate one was

chosen to be the proposed framework. Figure 2 conceptualizes the steps followed by inductive and deductive reasoning in this section.

Results and Discussion

Mini literature review

The initial search of PubMed and Google Scholar resulted in the retrieval of 2,340 studies (Figure 1). After the removal of studies that were duplicates, unrelated, not in English, or missing an abstract, 538 studies remained. Screening the abstracts of these 538 studies resulted in the removal of 413 more because they did not use EBM techniques to defend PM. A total of 125 studies therefore remained for the final assessment (Figure 1). These studies were conducted in 18 countries and covered a period between 1999 and 2020. Of the 125 studies, 86.4% (n = 108) were undertaken in Asia (Saudi Arabia (n = 52), India (n = 21), Pakistan (n = 9), other (n = 26)); 12.8% (n = 16) were undertaken in Africa (Egypt (n = 12), Algeria (n = 3), Nigeria (n = 1)); and 0.8% (n = 1) were undertaken in other countries (Australia (n = 1)) (Figure 1).

Regarding the study types, 48.8% were review articles, followed by tissue or cell experiments (21.6 %) and animal experiments (13.6%) (Table 1). Clinical trials with no phase mentioned comprised 12.8 % of the studies; there was no clinical trial whose phase (such as 1 or 2 or 3) was mentioned. The funding sources of the studies were highly varied; however, four universities located in Saudi Arabia accounted for the funding of 33.6% of the studies, with King Abdulaziz University responsible for more than any other (13.6%) (Table 1).

As specified in the inclusion criteria, all studies mentioned PM. Most (92.8%) mentioned it in their introductory section.

Regarding the PM treatment types examined in the studies, black seed (alone or in combination with other ingredients) accounted for 53.6% of the studies, followed by cupping therapy (19.2%) and other treatment types (27.2%). All but two studies resulted in positive findings and hence concluded that the PM treatment was beneficial (Table 1).

The mini-review results showed that PM studies were mainly conducted and funded in Islamic countries. For example, 41.6% of the studies were conducted in Saudi Arabia, the “home of Islam,” where the holy cities of Mecca and Madinah are located, and where the Prophet Muhammad lived and died (Shin,2019). Additionally, 33.6% of the studies were funded by Saudi universities, which creates the potential for bias in these studies. Respecting the Prophet and believing that he speaks from more than simply his own inclination are parts of the Islamic faith (Rahman,1987); hence, Muslim medical researchers might find it extremely difficult to describe some of his sayings or actions as incorrect or unscientific. Not only that, some of them may believe that loving the Prophet requires them to defend all his words and deeds, using all means of proof, including EBM (Ragab,2012). Accordingly, it is not surprising that

there are so many studies in Islamic countries defending PM by means of EBM and other resources.

Although the exploratory nature of the mini-review precluded assessing the quality of the studies it included, there are signs pointing to quality concerns with some of these studies. For example, review articles and systemic reviews constituted almost half of all studies reviewed, which contrasts with the general pattern in research wherein most research on a particular topic consists of original studies, while review articles on the topic are in the minority (WHO, 2017). A possible explanation for the disproportionate number of review articles on PM is that there was a rush of researchers seeking to prove the validity of PM regardless of the logical evidence-building sequence that is standard in the medical field (Ragab,2012). This explanation is supported by the nature of the clinical trials that were included in this review. None of these trials specified a clinical phase (e.g., phase 1, phase 2, or phase 3), which may be considered a sign of negligence in haste to confirm preselected conclusions in support of PM.

The majority of the studies reviewed mentioned PM with approval in the introductory section. This means that these studies simultaneously used hypothetico-deductive reasoning to confirm the validity of PM and assumed that PM's validity stems from its divine origin and needs no proof—a self-contradictory stance (see Introduction). All studies bar two found that PM was beneficial, which raises concerns regarding possible publication bias toward positive results. It is evident in general that publication bias is prevalent in the case of clinical trials and that there is a tendency to report only positive results (Dwan, 2008), and PM studies are no exception, especially given the ideological motive to defend PM.

To summarize the results of this mini-review, most of the studies in effect followed a caricature of the hypothetico-deductive method that assumes the validity of the claim first and then conducts experiments, not to test its validity, but only to prove it. Accordingly, the scientific method here is only a tool to reach a predetermined conclusion, an approach that flies in the face of the entire scientific method and especially the concept of falsification, whereby the research claim in question—in order to be scientific—must be falsifiable and subject to possible rejection (Popper,1963). This epistemological contradiction, however, should not preclude making use of the PM Hadiths and testing their validity in modern times. It simply means that doing so requires a new look at the epistemological model used in PM and finding an adaptation that is consistent with modern EBM as well as the Prophet's Hadiths. This reform requires a deep textual analysis of the Hadiths and books of commentaries to extract the methods used by Islamic scholars to resolve the conflict between PM and Greek medicine in their time. Those scholars found it essential to develop methods to defend PM against those who attacked its validity on the grounds that it contradicted some aspects of the common medicine of their time, i.e., Greek medicine (Perho.1995). It is justifiable, therefore, for current Islamic researchers to

adapt the old methods or develop new ones to reconcile PM with currently prevalent medicine (i.e., EBM).

Textual analysis

In general, most scholars' commentaries on the PM Hadiths did not mention any conflict between PM and Greek medicine. Only a few scholars mentioned such a conflict and tried to resolve it. The techniques used by scholars to resolve this conflict can be classified into three types:

- 1: Non-divine source for PM; the Prophet was using the Arabic traditional medicine of his time.
- 2: PM works only in the presence of internal faith in Allah that it will work (i.e., appeal to miracles).
- 3: The context of PM is limited to specific people, diseases, or situations (Takhshis Al Am).

Non-divine source for PM; the Prophet was using the Arabic traditional medicine of his time.

This technique was rarely used since it demolishes the concept of PM altogether. According to this secularizing technique, PM can simply be considered Arabic traditional medicine, and the Prophet used it without divine instruction, which means that it is vulnerable to error and can be corrected in the future if needed. The famous historian and Tunisian philosopher Ibn Khaldun was one of those who proposed this technique, arguing in *The Muqaddimah*: "*Civilized Bedouins have a kind of medicine that is mainly based upon individual experience. They inherit its use from the shaykhs and old women of the tribe. Some of it may occasionally be correct. However, it is not based upon any natural norm or upon any conformity [of the treatment] to the temper of the humors. Much of this sort of medicine existed among the Arabs. The medicine mentioned in religious tradition is of the Bedouin type. It is in no way part of the divine revelation. [Such medical matters] were merely part of Arab custom and happened to be mentioned in connection with the circumstances of the Prophet, like other things that were customary in his generation. They were not mentioned in order to imply that that particular way of practicing medicine is stipulated by the religious law. Muḥammad was sent to teach us the religious law. He was not sent to teach us medicine or any other ordinary matter*" (Ibn Khaldun, 2004). However, although the Prophet used the medicine of his time, he used the best medicine available, and the mistakes—if any—that he made were very rare according to Al-Qadhi Ayad (Al-Asqlani, 1961).

PM works only in the presence of internal faith in Allah that it will work (i.e., appeal to miracles).

This technique was often used and was considered the most spiritual technique, ignoring as it did the cause and effect relationship and calling for blind faith, in neglect of the laws of nature and human experience. The prophetic-miracle concept was used to resolve the conflict between PM and EBM. For example, Al-Qastallani, in defending the Hadith that supported the use of cold water to treat fever, said: "*if the hadith (i.e.*

use of cold water to treat fever) is authentic, it is not subject to medical rules; rather, it is subject to prophetic miracles” (Al-Qastallani,1921).

Another example is Al-Nawawi’s discussion of the Hadith that called for the use of truffle water in treating eye diseases. In arguing with those who claimed that truffle water could cause blindness, he said: *“The right opinion is that truffle water is an absolute medicine... I saw a completely blind person who applied truffle water to his eyes recover his eyesight, and he used the water believing in its efficacy and seeking the blessing (Baraka) from it” (Al-Nawawi,1969).* The blessing (Baraka) is a kind of internal faith that this medicine will be beneficial since the Prophet used it and called for its use, a faith that means ignoring experimental medicine and relying on miracles. The concept of Baraka was used by Al-Khattabi when he defended the use of honey for diarrhea (Al-Khattabi,1988) and by Al Sarkhasi in defending the use of camel’s urine to treat abdominal pain (Al-Sarkhasi,1993).

The context of PM is limited to specific people, diseases, or situations (Takhsis Al Am).

This intermediate technique was used by some scholars to reconcile the divine nature of PM with the fact that some people might apply PM without benefiting from it. They suggested that the context of the original PM Hadiths was essential, and if PM was not beneficial in more recent instances, this was because the original PM Hadiths were limited to specific people, diseases, times, or geographical locations. In Islamic jurisprudence, this technique of restricting the meaning of the whole to certain parts is called *“Takhsis Al Am” (Al-Qarafi,1995).* Applying this technique enabled the scholars to defend PM in all cases, even those in direct conflict with Greek or experimental medicine. The ready answer to any counterevidence or argument would be that PM was prescribed to specific people with specific conditions, and medical research should continue to endeavor to understand PM and unveil its context and range of validity (Ragab,2012). Therefore, PM is *“hidden knowledge [that] reveals itself in direct proportion to the scientific knowledge that develops independently...As knowledge and science expand and progress, our ability to understand the Prophetic traditions increases” (Ragab,2012).* Since it is always possible to blame any apparent failure of PM on its being applied out of context, this approach makes it impossible to refute or falsify PM.

An example of this technique is Ibn al-Qayyim’s defense of the Hadith that recommended the use of the tail of a nomad's ewe for sciatica (Irb An-Nas): *“The Messenger of Allah, as we have noticed in previous Ahadeeth, may use two types of meanings in his expressions. One meaning may be general, for all conditions and people, while the other is specific, its meaning and indications being specifically directed at some particular people or situation. The Hadith in this section is the specific type; it is directed at Arabs and the people of Hijaz in particular, including the Bedouins of those areas” (Ibn al-Qayyim,1994).* This technique was also used by Ibn-Alarabi to defend cupping therapy (Ibn-Alarabi,1997) and by Ibn Hajar when he explained the Hadith

that “*black seed is the cure for every disease except death*” by saying that black seed is a treatment for some diseases, not all (Al-Asqlani,1961).

Establishing an epistemological framework

Five epistemological frameworks (models) emerged from the integration of deductive or inductive reasoning with the techniques used by Islamic scholars to resolve the conflicts between PM and Greek medicine (Figure 3). Each model will be discussed separately in one of the next five subsections.

Model 1

In this model, all PM Hadiths are part of traditional Arabic medicine and have no divine source. Inductive reasoning can be applied in this model with no conflict. Medical researchers can conduct experiments and collect data to generate medical hypotheses. With sufficient repetition and sample size, hypotheses can be generalized and supported (Figure 3). Although this model is simple, practical, and logically consistent, a minority of scholars have adopted it, as previously explained.

Model 2

This model assumes that PM Hadiths have a divine source. If it also uses hypothetico-deductive reasoning (that is, the current medical application of deductive reasoning, not the Aristotelian syllogistic version), this model is self-contradictory. It simultaneously posits that PM is guaranteed to be factual because of its divine source and that PM is a theory, a mere likelihood, to be supported or refuted by the data that is subsequently collected. Most articles reviewed in the Mini review section used this model, since their authors first referred to the PM Hadiths as factual in their introductions, then collected data and reached conclusions in support of elements of PM (Figure 3).

Model 3

Like Model 2, this model assumes the divine origin of PM but adds that it is effective only for persons who have faith that PM is divine and beneficial. This model can be considered pseudoscientific since it goes against the very definition of current science, which relies on cause-effect relationships verified through observations and experiments. Using inductive reasoning in this model is meaningless since faith in God cannot be observed or subjected to experiments (Figure 3).

Model 4

This model relies on the idea that PM is limited to specific categories of people, diseases, or situations throughout all time. This model simultaneously assumes that PM is of divine origin and that PM accords with cause and effect relationships. Using inductive reasoning to collect data in this model threatens to contradict the divinity of PM's source if the data shows any cases in which PM fails. Although this model claims that PM is only beneficial in certain cases, these cases are unknown. If the

scholars specify particular groups of people, diseases, places, or situations as the ones to which PM applies, examining the effect of PM on those groups by inductive reasoning from empirical evidence runs the risk of contradicting the divinity of PM if it fails to show a beneficial effect (Figure 3).

Model 5

Like Model 4, this model claims that PM is divine and limited to certain cases, but unlike Model 4, in this model PM is limited to the individuals to whom the Prophet made the prescriptions. This technique to resolve the conflict between PM and Greek medicine or EBM was not mentioned by Islamic scholars. Rather, it is proposed here to preserve the divinity of PM and to help set aside any potential future conflict with EBM. In this model, the PM Hadiths can be a beneficial source of information, but any applications of PM in the present time should be validated using EBM. If EBM shows that PM has no benefits in the present time, this will not contradict the divinity of PM's source since PM was prescribed only for single cases that existed only at the time of the Prophet (Figure 3).

The most appropriate model

As discussed in the previous subsections, Models 1 and 5 are best aligned with the scientific method and current EBM. Although Model 1, which affirms a non-divine source for PM, was suggested by Ibn Khaldun about six hundred years ago (Ibn Khaldun,2004), respect for the holiness of the prophet's Hadiths among Muslim scholars prevented this opinion from spreading (Robbi,2018). The scholars argued that if the Hadiths concerned with Prophetic medicine cease to be regarded as holy on the grounds that the Prophet's medical actions were limited to the traditions of the Arabs of his time, then this interpretation will extend to other Hadiths in the fields of economics, politics, and so forth. Consequently, this approach will lead—in their view—to the secularization of Islam and the limitation of the Prophet's role to metaphysical issues (Robbi,2018). Furthermore, they argued that granting that the Prophet may make mistakes in medicine contradicts the Qur'an's statement that the Prophet does not utter his own opinions but rather says what God has revealed to him (Ibn al-Qayyim,1994). Therefore, Model 5 may represent a more acceptable approach for these scholars. Model 5 preserves regard for the holiness of the Prophet's Hadiths and the tenet that the Prophet did not speak except by revelation, and at the same time, this Model limits the Prophet's medical Hadiths to his time with the understanding that he chose the best medicine available then and that if the elements of modern medicine had been available to him, he would not have hesitated to adopt them. Thus, the benefit and sanctity of the Prophet's medical Hadiths are limited to the people to whom the Prophet prescribed these medicines and do not extend to those after them. However, this does not prevent current medical researchers from benefiting from these medicines by testing their current validity. Model 5 thus closes the door to futile or self-contradictory attempts to reconcile PM with EBM and opens the door to scientific progress in medicine without hindrance.

There is no study without shortcomings, and one shortcoming of this study is that the mini-review used only two databases, namely Google Scholar and PubMed, which may have reduced the number of resulting studies. However, since the review was exploratory in nature, there was no need to search all available databases. Also among the shortcomings is that the books of Hadiths and commentaries used in the second part of the study were limited to the Sunni doctrine in Islam, omitting the Shiite sect and other schools of thought. Because the Sunni doctrine is the most prevalent in the Islamic world (Fuchs,2017), this approach was considered adequate for this study.

Conclusion

This study has aimed to build an epistemological framework that can resolve the conflict between PM and present-day EBM. To that end, a mini-review was conducted to investigate the epistemological frameworks used in PM medical articles. The mini-review found that almost all PM articles were conducted in Islamic countries with possible publication bias toward positive findings. The majority of the studies reviewed misused hypothetico-deductive reasoning by citing the PM Hadiths in the introduction as factual and then confirming their validity using the tools of EBM. The second part of the study was a textual analysis carried out to identify PM Hadiths recounted in Islamic Hadith collections and scholars' commentaries and to describe how Islamic scholars resolved the conflicts between PM accounts and Greek medicine. Finally, epistemological frameworks (models) were constructed, and one of them was chosen as the most appropriate for resolving conflicts between PM and EBM. It may be appropriate to conduct further studies to discover how scholars of other Islamic schools (other than Sunni school of thought) have dealt with PM. It is also appropriate that the epistemological frameworks proposed in this study be used in the studies of PM in the future in order to test their quality, validity and acceptance among researchers.

References

- [1] Ahmad, A., et al., A review on therapeutic potential of *Nigella sativa*: A miracle herb. *Asian Pacific journal of tropical biomedicine*, 2013. 3(5): p. 337-352.
- [2] Al-Asqlani, I.H., *Fath ul-Bari fi Sharh Sahih al-Bukhari*. Vol. 10. 1961: Dar Almaarifa.
- [3] Al-dhahabi, S.-A., *At-Tibb al-nabawi*. 2004: Dar Al-nafais.
- [4] Al-Khattabi, H., *The A 'lām al-ḥadīth* Vol. 2. 1988, Saudi Arabia: Umm Alqura University.
- [5] Almazri, M., *Al-Mualim Sharh Sahih Muslim* 1988: Al-dar Altounsya.
- [6] Al-Nawawi, Y., *Al Minhaj Be Sharh Sahih Muslim* Vol. 5. 1969: Dar Ihya Alturath.
- [7] Al-Qarafi, S.a.-D., *Al-ihkam fi tamyiz al-fatawa an al-ahkam wa tasarrufat al-qadi wal-imam*. Vol. 1. 1995: Dar Al-bashair.
- [8] Al-Qastallani, A., *Irshad al-Sari li Sharh Sahih al-Bukhari*. Vol. 8. 1921: Almatbah Alamieria.

- [9] Al-Sarkhasi, A.B., Al Mabsut Vol. 1. 1993: Dar Almaarafa.
- [10] Azizah, N., AN UPDATE REVIEW: THE USE OF WET CUPPING THERAPY AGAINST VERTIGO. *Jurnal Ilmu Keperawatan: Journal of Nursing Science*, 2018. 6(2): p. 219-229.
- [11] Bolton, J.W., Varieties of clinical reasoning. *Journal of Evaluation in Clinical Practice*, 2015. 21(3): p. 486-489.
- [12] Bradley, C.P., *Medical Renaissance in Florence*. 2006.
- [13] Bürgel, J.C., Secular and religious features of medieval Arabic medicine. *Asian medical systems: A comparative study*, 1976: p. 44-62.
- [14] Cosans, C.E., The experimental foundations of Galen's teleology. *Studies in History and Philosophy of Science Part A*, 1998. 29(1): p. 63-80.
- [15] Djulbegovic, B., G.H. Guyatt, and R.E. Ashcroft, Epistemologic inquiries in evidence-based medicine. *Cancer control*, 2009. 16(2): p. 158-168.
- [16] Dwan, K., et al., Systematic review of the empirical evidence of study publication bias and outcome reporting bias. *PloS one*, 2008. 3(8): p. e3081.
- [17] Fuchs, S.W., REVIEWS: Circuits of Faith: Migration, Education and the Wahhabi Mission. *Bulletin of the School of Oriental and African Studies. University of London*, 2017. 80(2): p. 382.
- [18] Fujii, C., Comparative Studies of the Medicine of the Sunna and Uganga. *イスラーム世界研究: Kyoto Bulletin of Islamic Area Studies*, 2011. 4(1-2): p. 156-189.
- [19] Grenon, P., *Compete Or Complete: A Contextualist Approach on Prophetic Medicine*. 2018, McGill University Libraries.
- [20] Hussein, A.A., A. Albar, and S. Alsanad, Prophetic Medicine, Islamic Medicine, Traditional Arabic and Islamic Medicine (TAIM): Revisiting Concepts and Definitions. *Acta Scientific Medical Sciences*, 2019. 3(8): p. 62-69.
- [21] Ibn al-Qayyim, a.-J., *Zad al-Maad*. Vol. 4. 1994: Almanar Library.
- [22] Ibn Khaldun, A., *The Muqaddimah by Ibn Khaldun*. 2004: Dar Yaarb.
- [23] Ibn-Alarabi, M., *Aridhat al-Ahwathi bi Sharh Sunan al-Tirmidhi* Vol. 1. 1997: Dar Alkutaab Alalmya.
- [24] Ijaz, H., et al., *Nigella sativa (Prophetic Medicine): A Review*. *Pakistan journal of pharmaceutical sciences*, 2017. 30(1).
- [25] Karimov, N. and A. Doniyorov, Conflicting Views Regarding the Hadiths. *IJITEE, ISSN*, 2019. 2278(3075): p. 2090-2094.
- [26] Khemlani, S. and P.N. Johnson-Laird, Theories of the syllogism: A meta-analysis. *Psychological bulletin*, 2012. 138(3): p. 427.
- [27] Lambert, H., Accounting for EBM: notions of evidence in medicine. *Social science & medicine*, 2006. 62(11): p. 2633-2645.
- [28] Lee, C.M. and J. Hunsley, Evidence-Based Practice: Separating Science From Pseudoscience. *Can J Psychiatry*, 2015. 60(12): p. 534-40.
- [29] Organization, W.H., *General guidelines for methodologies on research and evaluation of traditional medicine*. 2000, World Health Organization.

- [30] Perho, I., *The Prophet's Medicine: A Creation of the Muslim Traditionalist Scholars (Studia Orientalia)*. 1995: Finnish Oriental Society.
- [31] Popper, K.R., *Science as falsification. Conjectures and refutations*, 1963. 1(1963): p. 33-39.
- [32] Ragab, A., *Prophetic traditions and modern medicine in the Middle East: resurrection, reinterpretation, and reconstruction*. *Journal of American Oriental Society*, 2012. 132(4): p. 657-673.
- [33] Rahman, F., *Health and medicine in the Islamic tradition*. 1987: Crossroad New York.
- [34] Robbi, A.A.M. and M.A.A. Hamat, *Prophetic Medicine: A Studies in Tasarrufat Nabawiyah Contexts*. *Journal of Hadith Studies*, 2018. 3(2).
- [35] Sackett, D.L., et al., *Evidence based medicine: what it is and what it isn't*. *BMJ*, 1996. 312(7023): p. 71-2.
- [36] Savage-Smith, E., *Medicine in medieval Islam*. *The Cambridge History of Science*, 1997. 2: p. 139-167.
- [37] Serdar, D., *A Theoretical Framework for al-Tib al-Nabawi (Prophetic Medicine) in Modern Times*. *Revelation and Science*, 2011. 1(02).
- [38] Shin, H.S., *Reasoning processes in clinical reasoning: from the perspective of cognitive psychology*. *Korean J Med Educ*, 2019. 31(4): p. 299-308.
- [39] Tonelli, M.R. and T.C. Callahan, *Why alternative medicine cannot be evidence-based*. *Acad Med*, 2001. 76(12): p. 1213-20.
- [40] Ullmann, M., *Islamic medicine*. 1978: Univ. Press.
- [41] Wenning, C.J., *Scientific epistemology: How scientists know what they know*. *Journal of Physics Teacher Education Online*, 2009. 5(2): p. 3-16.
- [42] Wieringa, S., et al., *Different knowledge, different styles of reasoning: a challenge for guideline development*. *BMJ evidence-based medicine*, 2018. 23(3): p. 87-91.

Figures, Tables

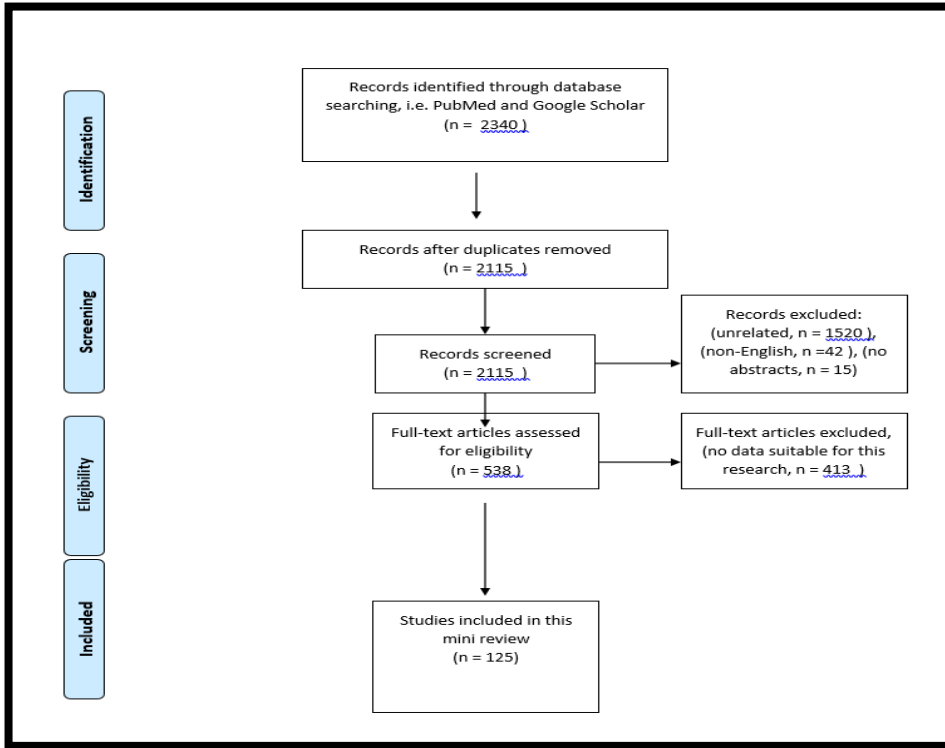


Figure 1. PRISMA flow chart of included studies

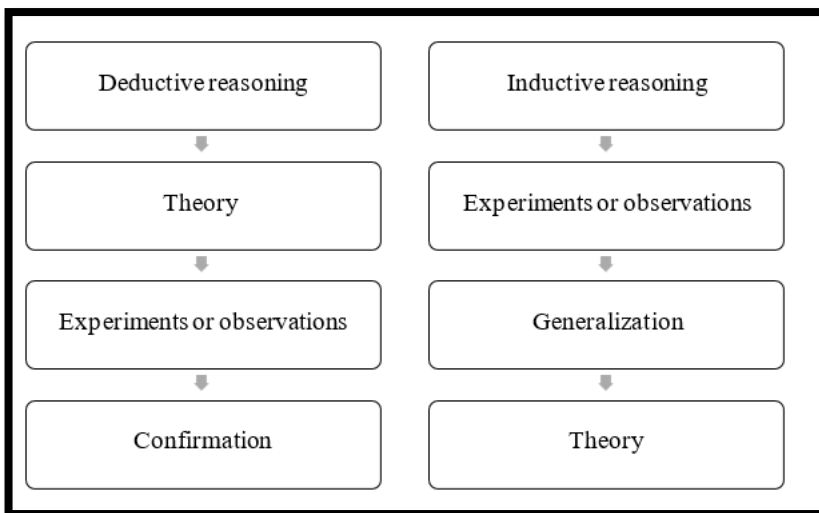


Figure 2. Conceptualizing inductive and deductive reasoning

Hadith collection	Commentaries (Shruh) books
Sahih al-Bukhari	Fath ul-Bari fi Sharh Sahih al-Bukhari by IbnHajar Al-asqlani Irshad al-Sari li Sharh Sahih al-Bukhari by al-Qastallani Al-Kawkab al-Darari fi Sharh Al-Bukhari by al-Kirmani The A 'lām al-fiadīth of al-Khaṭṭābī: ACommentary on al-Bukhārī's Safiīfi Kashf al-mushkil li-Ibn al-Jawzī 'alá Şafiīfi al-Bukhārī
Sahih Muslim	Al Minhaj Be Sharh Sahih Muslim by Al-Nawawi Al-Mufhim Sharh Sahih Muslim By Al-Qurtubi Al-Mualim Sharh Sahih Muslim By Al-mazri
Jami al-Tirmidhi	Aridhat al-Ahwathi bi Sharh Sunan al-Tirmidhiwritten Ibn al-Arabi Tuhfat Al-Ahwadhi Bi Sharh Jami' Al-Tirmidhiby 'Abd al-Rahman al-Mubarkafari
Sunan Abu Dawood	Tahdhib Sunan Abi Dawud - Ibn al-Qayyim al- Jawziyyah Awn al-Ma'bood by Shams ul-Haqq Azimabadi
Sunan an-Nasa'i	The Ḥāshiyah of»AlḤāfiẓ Al-Suyūṭī The Ḥāshiyah of 'Allāmah Sindī Dhakhīrat al-'Uqbā fi Sharfi al-Mujtabā, by Shaykh Mufiammad ibn 'Alī ibn Ādam al-It'yūbī
Sunan ibn Majah	The Ḥāshiyah of 'Allāmah Sindī
Other books	At-Tamhid (sharh al-Muwatta) by Imam ibnAbdil-Barr Al-Istidhkār by Imam ibn Abdil-Barr Zad al-Ma'ad by Ibn al-Qayyim al-Jawziyyah At-Tibb al-nabawi by Al-dhahabi Al-ihkam fi tamyiz al-fatawa an al-ahkam watasarrufat al-qadi wal-imam by Shihab al-Dinal-Qarafi Irshad Al-khalq by Mahmood Al-subki Al Mabsut By Imam Abi Bakr Al Sarkhasi Faid al-Qadir by Muhammad Abdur-Rauf al-Manawi The Muqaddimah by Ibn Khaldun

Table 1. Hadiths collections used to identify the PM Hadiths in this study.

Variable	Total number	Percentage
Article type		
Review	61	48.8
Tissue or cells experiments	27	21.6
Animal experiments	17	13.6
Clinical trials (no phase mentioned)	16	12.8
Case report	2	1.6
Systematic review	2	1.6
The country where the study was conducted		
Saudi Arabia	52	41.6
India	21	16.8

Egypt	12	9.6
Pakistan	9	7.2
Other	31	24.8
The country where the journal was published		
India	40	32
Saudi Arabia	14	11.2
United kingdom	14	11.2
United Status	12	9.6
Other	45	36
Funding source		
King Abdulaziz University (Saudi Arabia)	17	13.6
Taibah University (Saudi Arabia)	15	12
Qassim University (Saudi Arabia)	5	4
Taif University (Saudi Arabia)	5	4
Other	83	66.4
Where the “Prophet medicine” was mentioned in the article		
Introduction	116	92.8
Discussion	8	6.4
Results	1	0.8
Treatment		
Black seed (alone or with other ingredients)	67	53.6
Cupping (Alhijama)	24	19.2
Lawsonia inermis (Henna)	8	6.4
Phoenix dactylifera (Ajwa date)	7	5.6
Costus	5	4
Other	14	11.2
Is the treatment beneficial		
Yes	123	98.4
No	2	1.6

Table 2. Characteristics of the PM studies