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GROUNDING AN INTEGRATIVE PARADIGM IN READING AND INTERPRETING HADITH BASED ON SCIENTIFIC APPROACHES

DOI : 10.14421/livinghadis.2025.6738

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Tanggal masuk : 15 Agustus 2025
p-ISSN : 2528-756
e-ISSN : 2548-4761

Abstract

The issue of modernity has exerted a considerable influence on contemporary life, particularly through the persistent epistemological dichotomy that separates religion and science. This binary opposition fundamentally contradicts religious principles that serve as comprehensive guides for human life, especially given the numerous Prophetic traditions (hadith) that explicitly address scientific realities. This article examines integrative methodological approaches bridging hadith studies and scientific inquiry, framed by two primary research questions: First, what constitutes a scientific approach in hadith scholarship? Second, to what extent can scientific methodology be applied in interpreting, comprehending, and deriving meaning from hadith texts? Employing qualitative library research methodology, this study demonstrates the critical importance of an integrative approach in addressing complex contemporary issues that transcend traditional halal-haram juridical frameworks. The findings reveal that scientific approaches to hadith studies make significant contributions to expanding religious discourse beyond its conventional doctrinal-immanent limitations. As this methodology gains broader acceptance, hadith literature is progressively liberated from perceptions of rigid normativity or obsolescence, emerging instead as a dynamic intellectual tradition capable of substantive engagement with modern epistemological developments.

Keywords: *Modernity; Hadith Studies; Integrating Approach; Scientific; Epsitemology*

Abstrak

Isu modernitas telah membawa dampak yang cukup signifikan dalam kehidupan dewasa ini, apalagi dengan adanya dikotomi pemikiran yang membedakan antara agama dan sains. Hal ini tentunya tidak sejalan dengan prinsip agama yang menjadi pedoman bagi banyak hal, apalagi dalam konteks hadis, banyak hadis nabi yang berbicara mengenai realitas sains. Artikel ini mengkaji lebih jauh mengenai pola pendekatan integratif antara hadis dan sains, dengan dua rumusan masalah sebagai landasan awal. Pertama, apa yang dimaksud dengan pendekatan saintifik dalam kajian hadis?. Kedua, sejauh mana pendekatan saintifik dapat digunakan dalam membaca, mehami, dan memproduksi makna hadis?. Dengan pendekatan kualitatif berbasis studi pustaka (library research), hasil penelitian menunjukkan bahwasanya pendekatan terintegratif cukup penting dalam memberikan jawaban nyata atas masalah-masalah tertentu yang tidak bisa didekati hanya dari domain halal-haram. Pendekatan saintifik dalam studi hadis mampu memberikan sumbangan penting dalam mengukuhkan domain agama yang selama ini terbatas pada dimensi doktriner-imanent. Sehingga, dengan membuminya pendekatan ini, hadis tidak lagi dianggap sebagai sesuatu yang normatif dan ketinggalan zaman, namun bisa senantiasa berdialog secara masif dengan pola perkembangan yang ada.

Kata Kunci: *Modernitas; Studi Hadis; Pendekatan Terintegrasi; Ilmiah; Epistemologi*

A. Introduction

The prevailing notion of modernity today predominantly reflects Western cultural traditions. Western civilizations have contributed significantly to aspects of human life unprecedented in history. (Permata, 2020) While this progress deserves appreciation for facilitating human needs, it necessitates an urgent scholarly response from Muslim intellectuals to bridge the gap with Western traditions and ensure that ongoing transformations align with Islamic principles—including hadith as a primary source governing not only transcendental worship but also social and scientific domains. (Nofiyanti & Miftah, 2025) Numerous hadiths illustrate an integral connection between Prophetic traditions and science, demanding a paradigm shift to ground textual interpretations in contemporary discourses. (Kamil, 2022)

A closer examination reveals that contemporary hadith studies exhibit increasing complexity, transcending their historical role as mere records of the past to become dynamic sources of knowledge engaging with modern scholarship. (Jayana, 2020; Lestari & Asparina, 2020) Reformist approaches employing interdisciplinary analytical frameworks—though debated among scholars—challenge static normative-textual readings, particularly when hadiths address empirical-rational scientific subjects. (Prayogi, 2022) For instance, traditions concerning human embryology, contagious diseases, meteorological phenomena, the coccyx's miracle, astronomy, and botany (al-Azizi, 2018; Riḍā, 2001) necessitate integrative analysis balancing textual authenticity with modern scientific inquiry. This reality underscores the growing need for reformist-modernist methodologies, as advancements in bioinformatics, genetics, quantum physics, and related fields enable more objective hadith reinterpretation.

However, it also raises epistemological questions regarding the scope and authority of scientific methodology in verifying hadith, especially in *matn* (prophetic massages). While hadith occupy a position of *żannī al-wurūd* (probabilistic authenticity), allowing for potential textual inaccuracies, their verification cannot adopt the tentative nature characteristic of scientific inquiry. Guessoum argues that hadis and science operate within fundamentally distinct frameworks, (Guessoum, 2011) necessitating judicious scholarly methodology to examine textual consistency against empirical evidence while rigorously maintaining both *sanad* (chain of transmission) analysis and *matn* criticism within established hadith sciences parameters. This dialectical engagement serves not merely to enrich Islamic intellectual heritage and exegetical practices but, more significantly, reaffirms the continuing relevance of the *sunnah* amidst rapid scientific transformation. (Nofiyanti & Miftah, 2025)

Recent scholarship has demonstrated growing efforts to establish substantive dialogue between hadith literature and modern scientific discourse. Hasbullah's seminal work on the convergence of hadith and human genetic engineering identifies remarkable parallels between contemporary genetic concepts (genes/DNA) and classical Islamic terminology such as al-'Irq (العرق) and *ālu* (آل) found in 1400-year-old Prophetic traditions. (Hasbullah, 2017) Similarly, Basri presents compelling evidence of scientific correlations in hadiths concerning anatomical structures, pediatric urology, and entomological phenomena. (Basri, 2018) This epistemological alignment is further substantiated by Lestari and Asparina, who argue for the intrinsic compatibility between scientific methodology and hadith exegesis. (Lestari & Asparina, 2020) A paradigmatic example emerges from Nurfatihah and Al Anwari's analysis of *riwāyah* Ali ibn Abi Talib's regarding pomegranates, where traditional medicinal claims find validation through modern phytochemical research. (Nurfatihah & Al Anwari, 2023)

Muḥammad al-Ghazāli, as a hadith scholar, made early efforts to raise awareness about the reading of hadith through an integrated approach that inspired contemporary scholars to emphasize the harmonization between religious and scientific epistemology. (Al-Ghazali, n.d.) This highlights the urgent need for a multidimensional interpretation of hadith that goes beyond doctrinal readings while maintaining the integrity of the text. Therefore, current academic discourse increasingly recognizes the need to demonstrate the scientific basis of hadith, transforming its perception from a purely normative religious text into a valid source of scientific insight. This paradigm shift is methodologically supported by Amin Abdullah's interdisciplinary matrix and Abid al-Jabiri's burhani (demonstrative) approach, (Abdullah, 2020; al-Jabiri, 2004) which together advocate complementing traditional philological analysis with contemporary scientific frameworks. Therefore, this multidisciplinary approach not only enriches hadith studies but also facilitates meaningful engagement with the evolving scientific paradigm.

Building upon the aforementioned epistemological considerations, this study seeks to critically examine the position and urgency of scientific approaches in reading, analyzing, and deriving meaning from Prophetic hadith. Given the expansive scope of this inquiry, the research focuses on two fundamental questions. *First*, how might we conceptualize a scientific approach within hadith studies?. *Second*, to what extent can scientific methodologies be effectively employed in the interpretation and meaning-making processes of hadith?. To answer the problems, a descriptive-analytic approach through comprehensive library research was used for this research. (Zed, 2004) Furthermore, the primary

textual sources comprise hadith collections from *kutub al-tis'ah*, while secondary sources include contemporary scholarship examining the hadith-science nexus. This dual-layered analysis serves to contextualize traditional texts within modern scientific discourse while maintaining rigorous standards of Islamic textual criticism.

The ultimate objective of this research is to advance beyond normative-textual readings of hadith that view them solely as foundational Islamic texts. Rather, it seeks to demonstrate how integrated scholarly approaches can uncover deeper epistemological connections, ensuring the continued relevance of hadith in addressing contemporary scientific and practical challenges. Such an approach not only enriches academic discourse but also provides actionable guidance for modern Muslim societies navigating the intersection of religious tradition and scientific progress.

B. The Construction of Knowledge in Hadith Studies and Modern Science

Knowledge, although diversely defined by experts, is essentially the product of cognitive mechanisms involving intellect in formulating conclusions or understanding. (Anggreini et al., 2023; Prabaswara et al., 2023) Within Islamic scholarly tradition, knowledge does not originate from a single source, but emerges through various complementary approaches. There is knowledge derived from deep reading of sacred texts, requiring philological and linguistic understanding to uncover implicit meanings; knowledge originating from observation of natural phenomena, subsequently analyzed through logical frameworks and rational reasoning; and knowledge stemming from spiritual experiences, where humans seek to comprehend the essence of existence through transcendental approaches, such as contemplation and Sufi methods. (al-Jabiri, 2004; Wijaya, 2020) From the perspective of philosophy of science, human cognitive structures are categorized into three major schools: empiricism and rationalism. (Suriasumantri, 2006)

Empiricism emphasizes sensory experience as the primary source of knowledge, while rationalism relies on logic and intellectual deduction. (Husaini et al, 2019; Zaprulkhan, 2019) Both are well-thought-of essential components of scientific thinking, demanding evidence and verifiable validation. 'Irfani, as the other cognitive structure, evaluates truth based on benefits, ethics, and practical applications in real life to arrive at divine truth. Although distinct, these three intersect in modern scholarly practice. The crucial point of all knowledge, whether derived from Islamic tradition or Western philosophy, is its capacity for verification, development within coherent theoretical frameworks, and scientific testing. This is what makes modern science so highly regarded, even among non-

religious circles. This issue warrants serious consideration, given that religious texts, such as hadith, encourage adherents to employ their intellect consistently. Thus, textual evidence (*naqli*) and rational evidence (*aqli*) unite in harmonious mutual reinforcement, forming a cognitive framework that supports textual validity not only based on immanent dimensions but also scientific reasoning.

In the context of hadith studies, Muslim scholars' methodology is built upon strict epistemological frameworks, emphasizing data verification (*taḥqīq*) and objective facts through systematic mechanisms. This approach manifests in a set of authenticity criteria encompassing chain criticism (*sanad/isnād*) and text criticism (*matn*), where each element must meet empirical and rational evidentiary requirements. (Al Anwari, 2025; Sangeetha, 2022) For instance, chains must be *ittiṣāl* (continuous), *ruwāt* (narrators) must meet criteria of *ʿadālah* (integrity) and *ḍabṭ* (memorization accuracy), all verified through verificative schemes. Meanwhile, texts must be free from *syużūż* (anomalies) and *ʿillah* (logical defects). (Ṣalāḥ, n.d.) This verification process is not merely historical-transmissive but also involves rational analysis, such as checking text consistency with the Qur'an, more authentic hadiths, and modern scientific developments. (al-Ghazālī, n.d.; al-Suyūṭī, 1994; al-Tirmīżī, 2009)

These principle shows significant parallelism with Western empiricism, which emphasizes observation and rationalism that prioritizes logical clarification. Thus, scholars have attempted to apply scientific cognitive structures in reading, understanding, and producing meaning from hadith, albeit in simpler frameworks. For example, debates between hadith scholars and Sufis demonstrate the serious attention of hadith experts in verifying and validating every information attributed to the Prophet. When transmission lacks chains, fails to meet hadith authenticity criteria, or is explicitly obtained through intuitive means, its status becomes rejected. (Kudhori, 2018) This reality not only contradicts scientific knowledge structures but also potentially undermines the foundations of hadith scholarship formulated by scholars, both in transmission (*riwāyah*) and comprehension (*dirāyah*). (Idri, 2020) It undoubtedly poses a serious challenge, especially in an era where science and technology increasingly dominate the discourses of truth. (Azizah, 2023; Rosyad & Alif, 2023)

More critical and adaptive approaches become imperative, as hadith are fundamentally intended as guidance for Muslim life. The fundamental problem facing contemporary Islamic knowledge is excessive reliance on doctrinal and textual approaches, without serious efforts to integrate them with current scholarly developments. (Wijaya & Afriani, 2021) Upon closer examination, many Prophetic hadiths in Islam can be studied scientifically using modern theories. (Basri, 2023, p. 89) For example, hadiths about human developmental stages (*nuṭfah, 'alaqah, and muḍghah*) have attracted scientists to examine them from

embryological perspectives. In addition, hadiths concerning natural phenomena, medicine, and social matters can be analyzed through social sciences, medical science, or even artificial intelligence approaches. (Khoir & Alif, 2025; Munandar, 2018) Thus, the significant challenge of transforming religious text studies into disciplines that are not only normative but also empirical and measurable becomes increasingly urgent.

Ultimately, truth claims in Islam are no longer dogmatic but can be rationally and empirically accountable, addressing contemporary challenges while strengthening its position in global discourse. Moreover, the Prophet's saying that Muslims will not go astray as long as they hold firmly to the Qur'an and Sunnah becomes more tangible, not merely a claim, demonstrating its undeniable central role.

C. Scientific Approaches on Hadith Studies

As explained earlier, the structure of empirical and rational knowledge is considered a prerequisite in determining the validity, objectivity, and scientific nature of science. This approach demands systematic and verifiable proof, not knowledge limited to an immanent dimension that cannot be debated. (Suriasumantri, 2006) The same idea also appears in the thought of Alfred Jules Ayer, a figure who introduced the verification principle, which categorizes statements as either meaningful (if empirically or logically verifiable) or meaningless (if not). (Ayer, 1952) Although born from Western philosophical tradition and a result of Ayer's critique of the non-empirical-rational domain of religion, this concept illustrates two distinct forms of knowledge. This means that debates about transcendent values in religion cannot be brought into the realm of science, yet this difference does not imply mutual contradiction. (Selfiyana et al., 2024)

Religious texts, as products of revelation, show that not everything can be rationalized and empirically proven, because God Himself is absolute, where the absolute cannot be approached by the relative and limited, and vice versa. (Youvan, 2024) This is quite natural, but it becomes problematic when used as the sole foundation without any effort to approach it rationally. Amid the massive development of science in the West, they have abandoned noble values that should have been preserved. In other words, science is a truth unbound by values, wisdom, and appropriateness. (Wilber, 1998; Zulfis, 2019) On the other hand, Abuddin Nata argues that the scholarly perspective among Muslims is lopsided, as Muslims only trust knowledge originating from God and intuition. This is evidenced by the rejection of philosophy by some groups and the lack of

appreciation for reason and the senses, with minimal observation and experimentation. (Nata, 2018)

This reality is apparent in the attitudes of some who reject rain as a scientific phenomenon, dismiss Abū Ḥāmid al-Ghazāli's ideas for being contaminated by philosophy, and view science as a Western product opposed to Islam. In William C. Chittick's writings, he describes the loss (though not entirely) of the legacy built during Islam's golden age. (Chittick, 2007) Islam's success in various discoveries now seems like a mere legend, myth, and history that will never be repeated. Instead of catching up with the West, Muslims today are preoccupied with internal debates, such as the authenticity of hadith, the validity of deeds, and approaching Allah through various acts of worship. In this context, they seem to forget that significant transformations in knowledge, technology, and worldly endeavors—when accompanied by good intentions—can be considered righteous deeds leading to reward. (al-Zarnūjī, 2014)

Responding to this, there is an interesting idea from Nidhal Guessoum, an astrophysicist and contemporary Muslim thinker known for his efforts to reconcile modern science with Islamic scholarly tradition. For him, textual reality and scientific reality are two different things, yet not contradictory. Their differences stem from distinct epistemological bases, positions, and functions where hadith (and the Qur'an) are seen as revelation, while science arises from thought, experimentation, and observation and is tentative. (Guessoum, 2011) Nevertheless, not all truths in religious texts are immanent; some can be approached through scientific verification. Similarly, in science, there are ethical matters tied to values and beliefs. (Anas et al., 2015) Given this reality, understanding the relationship between hadith and science must be done carefully, considering epistemology, ontology, and axiology, without forcing the two to interconnect.

Islamic history records integration efforts during its golden age, when scholars like Ibn Sīnā combined Greek philosophy with empirical medicine. Additionally, the contributions of Ibn Rusyd (Averroes) and al-Khawārizmī demonstrate Islam's brilliance in developing religious textual guidance to formulate scientific knowledge. (Rozikin et al., 2024; Guessoum, 2011) In the context of hadith, Muslim scholars like Muḥammad Zafzaf emphasized a scientific paradigm in determining hadith validity, (Zafzaf, 1980) Fazlur Rahman stressed contextualizing hadith texts with social reality, (Rahman, 1984) and Muḥammad al-Ghazālī used modern scientific reality as a criterion for hadith validity, (al-Ghazālī, n.d.) proving Muslim scholars' full awareness of intellectual development. These figures show that a reformative paradigm emphasizing multidisciplinary approaches is necessary today, as many Muslims demand rational proof in reading and understanding hadith. (Abdullah, 2020)

Behind the efforts made by the scholars, the author argues that the main point of this discussion lies in the awareness of Muslim scholars not to be limited to the textual dimension of the text. More than that, an open mind towards modern dynamics, a consciousness to engage in dialogue between the text and other sciences, and seeking real solutions to every problem are the main keys. Even in current trends, preaching that rationalizes religious texts appeals to younger generations. Thus, debates in hadith studies should be directed more contextually, not solely relying on classical paradigms of authenticity but also developing the knowledge contained in prophetic hadith. On the other hand, hadith and scientific knowledge share fundamental similarities, though expressed within certain limits. Here, verifying hadith authenticity through empirical and rational dimensions proves that hadith requires scientific support. If a hadith contradicts common sense, its validity can be rejected, such as the hadith about giving charity with the left hand, deemed *syāż* (anomalous). (Muslim Ibn al-Hajjaj, 2014)

From these explanations, the scientific approach in hadith studies is directed at two aspects: the principle of scientific verification based on data, facts, and empirical testing mechanisms, and the integration of knowledge, allowing hadith to be studied not only narratively-textually but also considering scientific, social, and contemporary developments. Observing current discourse, the author argues that debates on hadith validity should suffice by referencing primary books unanimously agreed upon by scholars—here, the *kutub al-tis'ah* and other authoritative hadith collections. After all, today's demands require tangible implementation of the Prophet's hadith, so that hadith—as one of the two primary sources—is not endlessly debated without real impact on human life, including in technological advancement and progress in all aspects.

D. Analysis of the Applied Biology Approach in Hadith Studies

Fundamentally, the implementation of an integrated paradigm incorporating the framework of scientific knowledge necessitates reinforcement through specific regulatory mechanisms to ensure its alignment with pre-established and consensually recognized principles within Islamic tradition. (Rahman, 1984) For instance, the initial phase in reconstructing the epistemological criteria for validating religious knowledge may involve integrating empirical verification while preserving textual authenticity. (Al Anwari, 2025; Malkawi, 2014) Subsequently, the advancement of interdisciplinary fields that bridge religious and scientific domains such as Islamic bioethics, computational hadith studies, and neuro-theology must be prioritized. These will naturally provide a scientific framework that is truly capable of providing a

paradigm for understanding, reading, and interpreting hadith in a broader, more comprehensive, and down-to-earth manner.

A pertinent illustration arises from the COVID-19 pandemic, which engendered extensive theological and jurisprudential debates in Indonesia and other Muslim-majority societies regarding the permissibility of vaccines derived from porcine-based substrates, (Persada, 2021) a substance classified as *najīs mughāladah* (ritually impure) under Islamic law. This issue cannot be adequately addressed through isolated fiqh based analyses or unilateral Islamic epistemological constructs, as such an approach risks perpetuating unresolved societal contention. However, biotechnological methodologies facilitate empirical examination of molecular composition, revealing that enzymatic agents such as trypsin employed in cell culture processes undergo complete elimination via filtration and purification. Consequently, this sterilization process nullifies the initial ritual impurity (*najasah*), thereby rendering the substance religiously permissible (*ḥalāl*) for therapeutic application. (Imron & Muallifah, 2025)

Another reality underscores the necessity of fostering more intensive dialogue between *ulamā'* and scientists, as the collaboration is critical for developing a holistic epistemological framework that effectively bridges theological principles and scientific inquiry. This imperative is conceptually grounded in the hadith narrated by Imam Muslim, which asserts a divine remedy for every ailment: (Muslim Ibn al-Hajjaj, 2014)

حَدَّثَنَا هَارُونُ بْنُ مَعْرُوفٍ وَأَبُو الطَّاهِرِ وَأَحْمَدُ بْنُ عِيسَى قَالُوا حَدَّثَنَا ابْنُ وَهْبٍ أَخْبَرَنِي عَمْرٌو وَهُوَ ابْنُ الْحَارِثِ عَنْ عَبْدِ رَبِّهِ بْنِ سَعِيدٍ عَنْ أَبِي الزُّبَيْرِ عَنْ جَابِرٍ عَنْ رَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ أَنَّهُ قَالَ لِكُلِّ دَاءٍ دَوَاءٌ فَإِذَا أُصِيبَ دَوَاءُ الدَّاءِ بَرَأَ بِإِذْنِ اللَّهِ عَزَّ وَجَلَّ. (رزاه مسلم: 4084)

The hadith does not merely function as a theological assurance but also necessitates concrete scientific action to substantiate its claim epistemologically. A significant tension arises from the scientific consensus that cures for numerous diseases—such as HIV/AIDS, West Nile Virus, MERS, autoimmune disorders, and schizophrenia—remain elusive. (Halodoc, 2019; Tim Penulis, 2022)

The prophetic hadith and contemporary medical knowledge create an urgent intellectual and practical mandate for Muslim scientists, demanding concerted research efforts and groundbreaking innovations in medical science to discover novel or alternative therapeutic modalities, thereby providing tangible solutions for patients. This endeavor is further supported by a corpus of other authenticated hadiths that specifically identify potential natural pharmacopeia

with therapeutic properties, including honey (*ʿasal*) and black seed (*ḥabbah al-sawdāʾ*). (al-Bukhārī, 2002; Muslim Ibn al-Hajjaj, 2014) These texts provide a religious and historical basis for ethnopharmacological research, directing scientific investigation towards these substances to empirically validate their efficacy and uncover their mechanisms of action. Thus, the integration of textual evidence and scientific research not only enriches the understanding of the hadith but also operationalizes its guidance within a modern scientific paradigm.

Successful integration would position Islam not merely as a repository of spiritual doctrine but as a dynamic corpus of empirically substantiated knowledge. Within the domain of bioinformatics, an integrative discipline synthesizing molecular biology, biochemistry, computational science, and statistical modeling, (Ethica, 2020) sophisticated analytical techniques such as sequence alignment and genome annotation enable the identification of genetic polymorphisms, pathogenic mutations, and individualized therapeutic targets. Such advancements hold transformative implications for precision medicine and public health policy. Meanwhile, the hadith as the main guideline presents an initial overview, guidelines, and ethical framework for every regulation of development and work methods, so that they are always in line with the values of Islamic teachings. (al-Syāfi'ī, 1938)

Notably, classical Islamic medical traditions, particularly Prophetic hadith exhibit prescient consonance with contemporary bioinformatic principles, despite their articulation within premodern epistemological frameworks. For instance, a representative example documented in the Sunan al-Tirmīżī: (al-Tirmīżī, 2009)

حَدَّثَنا سُوَيْدٌ، أخْبرنا عَبد اللهِ بن المبَارِكِ، أخْبرنا إسماعيلُ بن عَيّاشٍ، حَدَّثَني أبو سَلمةَ الحِمصيُّ وحَبِيبُ بن صالحٍ، عن يحيى بن جابرٍ الطّائيّ عن مِقْدامِ بن مَعْدِي كرِبَ، قال: سَمِعتُ رَسولَ اللهِ صلى الله عليه وسلم يَقولُ: ما مَلأ آدَميٌّ وِعَاءً شَرًّا من بَطْنٍ، بِحَسْبِ ابن آدَمَ أُكْلاتٌ يُقِمْنَ صُلْبَهُ، فإنْ كانَ لا مَحالةَ، فَثُلُثٌ لِطَعامِهِ وثُلثٌ لِشَرابِه، وثُلثٌ لِنَفَسِهِ. (رواه الترمذي: 2302)

The hadith indicates the existence of an ideal bodily proportion, particularly concerning the stomach. Humans require not only food to sustain daily activities but also water and air. When the body is excessively filled with food, the space for other essential elements diminishes. Moreover, the prohibition of overeating is scientifically linked to the prevention of metabolic disorders such as diabetes, obesity, cardiovascular disease, and sleep apnea (a sleep disorder caused by excessive weight), prompting many scholars to advocate for defined physiological

limits. (Rashid et al., 2020) On the other hand, Islam prescribes fasting—particularly the obligatory Ramadan fast—which yields significant metabolic benefits. Specifically, fasting induces alterations in dietary composition and timing, sleep duration and scheduling, and reduced daily activity, collectively contributing to hormonal stabilization and improved physiological health. (Alogaiel et al., 2025; Rashid et al., 2020)

Within bioinformatics, dietary habits, physical activity, and patient medical histories serve as preliminary phenotypic data for advanced analysis. Machine learning algorithms, for instance, can correlate excessive consumption patterns with specific genetic expressions (e.g., the FTO gene associated with obesity), (Loos & Yeo, 2021) enabling personalized diagnostics and therapeutic interventions. Genomic analyses further highlight lifestyle factors—such as dietary habits—as critical determinants of disease risk. For example, patients carrying the TCF7L2 gene mutation (a type 2 diabetes trigger) may experience accelerated disease onset if coupled with habitual overeating. (Mahajan et al., 2018) Here, the Prophetic principle of dietary moderation functions as a traditional empirical preventive measure, now verifiable through bioinformatic methodologies. This principle also manifests in contemporary trends in hadith scholarship through digital media.

Numerous scholars and organizations collaborate with software developers to create applications facilitating hadith research. Platforms such as Maktabah Syamilah, Lidwa Pustaka, and Jawami' al-Kalim employ database systems to archive Prophetic hadith, alongside supplementary metadata—including narrator biographies, hadith authenticity gradations, and interactive features. (Azizah, 2023; Rosyad & Alif, 2023) For instance, Lidwa Pustaka incorporates a poster feature derived from its hadith database, (Dadah et al., 2018) streamlining scholarly access, study, and dissemination. Given the rapid expansion of interdisciplinary research and concerted efforts to integrate traditional and modern epistemologies, the urgency of dialoguing hadith with diverse academic disciplines becomes evident. This not only demonstrates the adaptability of hadith to contemporary contexts but also underscores its tangible impact on the complexities of modern life. Thus, hadith and science share an inseparable relationship—both as subjects of rigorous academic inquiry grounded in modern scholarly frameworks and as vital forces shaping civilizational progress in ways distinct from Western paradigms. Consequently, this awareness must be continually emphasized and refined through ongoing academic research.

E. Conclusion

Fundamentally, the scientific approach to understanding Hadith must become a shared imperative among Muslim scholars. Paradigms may vary—for

instance, an integrative approach or contextual approaches, among others—yet the essential driver is the impetus for scholars to undertake significant transformations based on the Prophetic traditions. A pertinent example is the development of COVID-19 vaccines, where biotechnology played a crucial role in explaining the purification process that renders impure substances inactive, thereby enabling a halal ruling based on empirical analysis. These demonstrate that scientific verification can enrich religious understanding without compromising textual authenticity. Furthermore, the Hadith stating that "for every disease, there is a cure" provides a methodological and practical foundation for medical research. Consequently, the Hadith, as a guiding source for Muslims, is not merely transcendent but also empirical and scientific, offering tangible evidence.

The development of disciplines such as Islamic bioethics and Hadith studies is therefore vital for bridging the gap between religion and science, creating a holistic scholarly framework relevant to contemporary advancements. Notably, both Hadith studies and science place a profound emphasis on data that must be empirically and rationally verifiable, enabling them to form a robust synergy capable of addressing modern developments and inherent complexities. The integration of Hadith with scientific inquiry reveals a consonance between Prophetic values and modern discoveries. For example, the Hadith advocating for proportional food consumption has been scientifically validated for preventing metabolic diseases, while Ramadan fasting has demonstrated positive effects on gene regulation and metabolism. Moreover, the advent of precision medicine allows the adaptation of Prophetic principles into genetically based nutritional algorithms. Through such endeavors, collaboration between ulama and scientists not only strengthens religious validity but also affirms Islam as a source of the dynamic knowledge that is substantiated scientifically.

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