

The Robustness of Judicial Rulings through Biometrics and the Principles Governing Its Probative Value

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Received: 2026-03-11

Revised: 2026-07-28

Accepted: 2026-08-08

Published: 2026-09-01

One of the most effective strategies to counter the significant advancement of criminal activities alongside technological development is the modernization of crime detection methods. In this regard, biometric technology, as a knowledge-based tool, provides an advanced means for crime analysis, offender identification, the collection and documentation of criminal evidence, and the enhancement of judicial decision-making. By facilitating the acquisition of reliable evidence, biometrics contributes significantly to expediting judicial proceedings and promoting the issuance of well-founded and just judicial decisions. This study aims to elucidate how biometric evidence can legally and practically strengthen judicial rulings within the framework of Islamic jurisprudence. This study employs a descriptive-analytical approach based on library research to examine the role of biometric technology in strengthening judicial rulings. The findings indicate that, given the recognition of 'Ilm-e Qāḍī (Judicial Knowledge) as an independent means of proof in criminal proceedings and the growing application of biometric science in evidence gathering, the judge's Iqnā'-e Vojdānī (Inner Judicial Conviction) is formed through the interaction of two complementary elements. The first is the material element, consisting of the objective findings generated through biometric technology, which function as Amāreh-ye Qazā'ī (Judicial Presumptions) obtained through expert analysis. The second is the mental element, namely the judge's judicial knowledge arising from the evaluation of those findings. Together, these two elements provide a sound basis for the issuance of robust judicial rulings. For biometric evidence to possess probative value, however, its admissibility must satisfy the governing legal principles, including the lawful and voluntary acquisition of evidence free from coercion, the authenticity and legitimacy of the evidence, and its free judicial evaluation to ensure conformity with reality and to establish the judge's confidence.

Keywords: 'Ilm-e Qāḍī (Judicial Knowledge); Biometrics; Acquisition of Evidence; Amāreh-ye Qazā'ī (Judicial Presumption); Material Element; Mental Element; Judicial Ruling.

How to cite this article:

Daneshpour, E. (2026). The Robustness of Judicial Rulings through Biometrics and the Principles Governing Its Probative Value. *Interdisciplinary Studies in Society, Law, and Politics*, 5(5), 1-10. <https://doi.org/10.61838/kman.isslp.543>

1. Introduction

Modern technological developments have transformed both the methods of committing crimes and the techniques employed to detect them. Consequently, judicial systems increasingly rely on advanced scientific technologies to improve the collection, preservation, documentation, and evaluation

of evidence. These developments not only enhance the efficiency of criminal investigations but also contribute to the fair administration of justice by enabling courts to issue more reliable and well-reasoned judgments.

Among these emerging technologies, biometrics has become one of the most significant innovations in modern forensic science. Through the scientific analysis



of unique physiological and behavioral characteristics, biometric systems substantially improve offender identification, crime detection, and evidence collection. By expanding the scope of forensic investigations and facilitating the recovery of physical evidence from crime scenes, biometric technology enhances both the quantity and reliability of forensic information available to judicial authorities. Its relatively high degree of accuracy and low error rate further increase its evidentiary value, enabling investigators to provide more reliable scientific findings for judicial consideration.

The results generated through biometric analysis may therefore constitute an important basis for the formation of 'Ilm-e Qāḍī (Judicial Knowledge). Together with other forms of evidence—and, in certain circumstances, even carrying greater persuasive force than traditional forms of proof, such as testimony or confession—biometric evidence may contribute significantly to the judge's Iqnā'-e Vojdānī (Inner Judicial Conviction), thereby supporting the issuance of a sound and well-founded judicial ruling.

Within Iranian criminal law, 'Ilm-e Qāḍī occupies a central position among the means of proof. Although the legal system recognizes several statutory forms of evidence, judicial knowledge enjoys independent evidentiary status. This position is expressly reflected in the Islamic Penal Code of 2013, which recognizes judicial knowledge as an autonomous basis for establishing criminal liability. Accordingly, where a defendant's confession conflicts with the judge's judicial knowledge, the latter prevails. This legislative approach demonstrates that the Iranian law of evidence is fundamentally founded upon the principles of the free evaluation of evidence and judicial persuasion, rather than rigid adherence to predetermined evidentiary rules. Against this background, the present study examines the contribution of biometric technology to the formation of judicial knowledge and analyzes the legal principles governing the admissibility and probative value of biometric evidence in judicial proceedings. By integrating contemporary forensic science with the jurisprudential doctrine of 'Ilm-e Qāḍī, the study seeks to explain how biometric evidence may strengthen judicial conviction and ultimately contribute to the issuance of more robust, reliable, and just judicial rulings.

Another important consideration is that, when a judge renders a decision on the basis of 'Ilm-e Qāḍī (Judicial

Knowledge), the judge is not subject to the principle prohibiting judicial evidence gathering. Nevertheless, the judge is required to expressly identify and record in the case file the reliable evidence and factual grounds that have led to the formation of such knowledge. As a safeguard against arbitrariness and to ensure the proper exercise of this authority, judicial decisions founded upon 'Ilm-e Qāḍī remain subject to appellate review before the Supreme Court.

Against this background, the present study examines the acquisition of judicial knowledge and Iqnā'-e Vojdānī (Inner Judicial Conviction) through the application of biometric technology. This requires an examination of the legal principles governing the use of biometric evidence and clarification of its evidentiary status in the formation of 'Ilm-e Qāḍī. Accordingly, the following research questions are addressed:

- What is 'Ilm-e Qāḍī (Judicial Knowledge), and what are its legal status and probative value in Islamic jurisprudence and the judicial law of evidence?
- What is the evidentiary status of biometric science within the judicial system of proof?
- What legal principles govern the use of biometric technology in the acquisition of evidence and the formation of 'Ilm-e Qāḍī (Judicial Knowledge)?

The following hypotheses are advanced in response to these research questions:

'Ilm-e Qāḍī (Judicial Knowledge) comprises the body of knowledge upon which a judge bases judicial decision-making. Although Islamic jurists have adopted differing views regarding its probative value, it is recognized as a valid and independent means of proof within the judicial law of evidence.

Knowledge derived from biometric technology may, through recourse to Ahl-e Khebreh (persons of expertise), function as Amāreh-ye Qazā'i (Judicial Presumption), thereby contributing to the judge's Iqnā'-e Vojdānī (Inner Judicial Conviction) and facilitating the issuance of well-founded judicial rulings.

The principles governing the free acquisition of evidence, the legitimacy of evidence, and its free judicial evaluation provide the legal framework within which biometric evidence may serve as a reliable basis for judicial decision-making. At the same time, these principles contribute to improving the efficiency of

criminal proceedings and expediting the adjudication of criminal cases.

This study seeks to examine and substantiate these hypotheses by analyzing the role of biometric technology within the framework of the Sanad-e Taḥavvol-e Qazā'i (Judicial Transformation Document). It argues that the adoption of modern methods of crime detection can significantly enhance the efficiency of criminal justice, strengthen the judge's Iqnā'-e Vojdānī (Inner Judicial Conviction), and promote the issuance of more accurate, reliable, and well-reasoned judicial rulings while minimizing the risk of error.

2. Conceptual Clarifications and Theoretical Foundations

Before analyzing the issues under discussion, it is necessary to clarify the meanings and theoretical foundations of several key concepts employed in this study.

2.1. Biometrics

With the rapid advancement of science and technology, the methods employed by offenders in committing crimes have undergone significant transformation. Consequently, the most effective strategy available to criminal investigators is the continuous modernization and development of crime-detection methods and forensic techniques. In this context, biometrics has emerged as one of the most effective, accurate, and technologically advanced tools for criminal investigation and forensic identification (Rowshan-Qalb Deylami et al., 2021).

Etymologically, the term biometrics is derived from the Greek words *bios* ("life") and *metron* ("measurement"). In its broad sense, biometrics refers to the measurement and analysis of biological characteristics. More specifically, it is defined as any unique, distinctive, stable, and measurable physiological or behavioral characteristic that can be used to identify or verify an individual's identity. Biometric systems employ algorithms and mathematical models to analyze measurable physical or behavioral traits and record them as unique digital templates for identity recognition and verification. Such characteristics include fingerprints, iris patterns, retinal scans, ear morphology, lip movement during speech, gait, typing dynamics, and

similar identifiers. In other words, biometric identification—or biometric recognition—is the automated recognition of individuals based on their unique physiological or behavioral characteristics. As a rapidly evolving technology, biometrics plays a crucial role in enhancing security and facilitating reliable identity verification (Jalali & Rajabi Nasabi, 2008; Rezaei et al., 2010).

As noted above, biometric identifiers are generally classified into two categories:

1. Physiological identifiers, including inherent physical characteristics such as fingerprints, facial recognition, iris and retinal scans, hand geometry, and similar biological features.
2. Behavioral identifiers, comprising acquired behavioral patterns such as handwritten signatures, voice characteristics, keystroke dynamics, movement patterns, gait, and comparable behavioral traits.

During the biometric identification process, these characteristics are converted into electronic data and securely stored for subsequent identity verification. It should, however, be noted that physiological biometric modalities generally provide greater reliability than behavioral biometrics, since physical characteristics are comparatively stable over time, whereas behavioral characteristics may vary according to age, health conditions, psychological state, or environmental factors (Modarresi & Kourehpaz, 2017).

Biometric technology has numerous applications in commerce, governmental administration, border and security control, and forensic science (Kazempour & Shirzadi, 2013). Within the scope of the present study, however, attention is focused on the forensic application of biometrics as one of the most reliable and accessible means of identifying criminal suspects. Biometric evidence enables investigators to verify or establish the identity of suspects with a high degree of accuracy and to provide scientifically reliable forensic reports for judicial consideration. Such evidence may significantly assist judges in forming Judicial Knowledge ('Ilm-e Qāḍī), thereby strengthening judicial conviction regarding both the identity of the offender and the commission of the alleged criminal act and ultimately contributing to fair adjudication and the issuance of sound and well-founded judicial decisions.

2.2. Judicial Knowledge ('Ilm-e Qāḍī) and Its Nature

In legal terminology, Judicial Knowledge ('Ilm-e Qāḍī) refers to the knowledge and conviction upon which a judge bases judicial decision-making (Khomeini). Some scholars classify knowledge into two categories: ordinary knowledge and philosophical, or absolute, certainty.

Ordinary knowledge refers to knowledge that, according to ordinary human experience, leaves no reasonable room for doubt, although its contrary may remain theoretically conceivable. By contrast, philosophical certainty denotes knowledge whose contrary is regarded as logically impossible, such as the coexistence of contradictory propositions (Sha'rani).

Some legal scholars further argue that a high degree of probability approaching certainty should also be regarded as ordinary knowledge because, in common social understanding, it is treated as knowledge rather than mere conjecture (Jafari Langroudi, 1999).

Islamic jurists and legal scholars have adopted different positions regarding the legal validity of ordinary knowledge. Some regard it as an exceptional basis of proof, whereas others recognize it as a general principle. The first group approaches certainty, probability, and doubt from the standpoint of philosophical logic. Accordingly, they recognize only those forms of probability that have been expressly validated by the Islamic Lawgiver, such as testimony, confession, and oath (Mehrpour, 1993). From this perspective, ordinary knowledge is essentially probabilistic and therefore lacks independent evidentiary authority unless explicitly recognized by legal or religious texts (Rezaei, 2011).

The opposing view maintains that ordinary knowledge is, in principle, legally valid and should not ordinarily be classified as mere conjecture. Some proponents of this approach further equate predominant probability with ordinary knowledge and likewise recognize its evidentiary authority (Mehrpour, 1993).

In this regard, Jafari Langroudi argues:

"Where philosophical certainty is unattainable, discussion of discovering absolute truth becomes practically meaningless. The proper course is therefore to rely upon ordinary knowledge without insisting upon its complete correspondence with objective reality. Otherwise, there would be little justification for maintaining a judicial system, since judicial decision-

making necessarily depends upon ordinary knowledge. Philosophical certainty is rarely attainable, and without ordinary knowledge, scarcely any legal dispute could be resolved" (Jafari Langroudi, 1992).

He further explains that this understanding reflects the views of prominent jurists such as Naraqi and Ansari, who considered ordinary knowledge to be the appropriate epistemic foundation of legal adjudication. According to Naraqi:

"Legal questions must be resolved on the basis of ordinary knowledge. Ordinary knowledge is that level of certainty at which the overwhelming majority of people no longer entertain any serious doubt, even though a small number of specialists may theoretically consider the opposite possibility" (Naraqi, 1986).

According to Jafari Langroudi, the objective of legal adjudication is not the discovery of reality in the strict scientific sense employed in the natural sciences, but rather the attainment of a level of certainty sufficient for the fair administration of justice (Jafari Langroudi, 1992).

In light of these views, it may be concluded that Judicial Knowledge ('Ilm-e Qāḍī) is, in essence, a form of ordinary knowledge. Contemporary Iranian law recognizes it as a valid basis of judicial decision-making. Within the framework of biometric evidence, Judicial Knowledge constitutes the judge's cognitive basis for judicial conviction, while biometric evidence provides the objective evidentiary foundation upon which that conviction is formed. Together, these two elements facilitate the issuance of sound, well-reasoned, and legally reliable judicial decisions. The following sections examine this relationship in greater detail.

2.2.1. Judicial Value (Probative Value and Evidentiary Authority) of 'Ilm-e Qāḍī (Judicial Knowledge)

The Ḥujjiyyah (probative value) of 'Ilm-e Qāḍī (Judicial Knowledge) has long been a subject of scholarly debate in Fiqh (Islamic jurisprudence). Some jurists regard it as one of the recognized means of proving a claim, alongside Shahādat (testimony), Iqrār (confession), and Sowgand (oath), and consider adjudication based upon judicial knowledge permissible only where these forms of statutory evidence are unavailable (Khaefi, 2003). Others, however, accord judicial knowledge a superior status, considering it to take precedence over all other forms of evidence (Araki, 1994).

Supporting the latter position, some scholars argue:

“Adjudication based upon knowledge is founded upon certainty, whereas adjudication based upon testimony relies upon conjecture. From the standpoint of reason and wisdom, it is inconceivable that the latter should be permissible while the former—that is, adjudication based upon judicial knowledge—should be prohibited” (Al-Suyuri, 1983).

Similarly, other jurists maintain:

“The judge's knowledge regarding a matter requiring the enforcement of a judgment is sufficient to establish the validity of that judgment and dispenses with the need for confession, oath, or witness testimony. A judge who decides in accordance with personal knowledge enjoys peace of conscience in rendering the decision” (Hilli, 1992).

Some legal scholars further contend that the *Ḥujjiyyah* (probative value) of judicial knowledge derives from the degree of certainty it provides. Such certainty constitutes 'Ilm-e 'Ādi (ordinary knowledge), which, irrespective of the manner in which it is acquired, possesses intrinsic evidentiary authority and cannot be deprived of its legal validity (Jafari Langroudi, 1999).

Nevertheless, some jurists distinguish between different categories of rights. They recognize judicial knowledge only in matters concerning *Ḥuqūq Allāh* (Rights of God), while denying its applicability in disputes involving *Ḥuqūq al-Nās* (Rights of Individuals) (Al-Tusi, 2008; Ibn Hamzah, 1987). Others differentiate between 'Ilm-e Ḥissī (sensory knowledge) and 'Ilm-e Ḥadsī (intuitive knowledge), recognizing only the former as legally authoritative (Haeri, 1994).

In contrast, the prevailing opinion among both classical and contemporary jurists recognizes the unrestricted probative value of judicial knowledge in all judicial matters (Golpayegani, 1992; Haeri, 1994; Hilli, 1992; Najafi, 1983; Sayyid Murtada, 1994; Shahid al-Thani, 1992; Tabrizi). Notwithstanding this broad consensus, virtually all jurists agree that the relevant knowledge must be acquired through conventional and objectively verifiable means. Consequently, knowledge derived from extraordinary methods such as mystical unveiling (*Mukāshafah*), *Jafr*, *Raml*, inspiration (*Ilhām*), and similar sources lacks legal validity (Haeri, 1994).

A minority of jurists, however, reject the probative value of judicial knowledge altogether (Askafi, 1995; Iraqi, 2000; Shahroudi, 2002). A detailed examination of the

evidentiary foundations supporting each of these doctrinal positions falls beyond the scope of the present study.

From the foregoing discussion, it may be concluded that, according to those jurists who recognize the unrestricted probative value of judicial knowledge, a judge may issue a judicial ruling whenever definite knowledge is obtained through objective indicia, factual circumstances, forensic medical opinions, or the findings of biometric science as modern methods of crime detection, irrespective of the specific source from which such knowledge is derived, provided that the evidentiary basis is explicitly identified.

In this regard, Makarem Shirazi observes:

“'Ilm-e Qāḍī (Judicial Knowledge) is derived from the cumulative effect of sensory evidence or evidence closely approximating sensory perception. Its scope is sufficiently broad to encompass many contemporary methods of criminal investigation.”

When asked specifically about the evidentiary value of modern forensic techniques—including fingerprint identification, blood analysis, and scientific methods such as biometrics—he further states:

“Whenever these methods give rise to judicial knowledge, the judge may legitimately rely upon them” (Makarem Shirazi, 2001).

Accordingly, referring a matter to a biometric expert for the purpose of crime detection and offender identification constitutes an application of the well-established rational principle of consulting qualified experts in technical and specialized matters (*Rojū'-e Sīreh-ye 'Uqalā be Ahl-e Khebreh*) (Hosseini Shirazi, 1986). Nevertheless, some jurists maintain that expert opinion possesses an evidentiary value independent of judicial knowledge and therefore need not necessarily produce certainty in order to be legally admissible.

It appears that knowledge acquired by the judge through expert testimony constitutes one of the legitimate foundations of 'Ilm-e Qāḍī. At the same time, Islamic jurists have not regarded expert opinion as the exclusive means of acquiring judicial knowledge, acknowledging that such knowledge may equally be obtained through other conventional methods. Consequently, where expert opinion gives rise to judicial knowledge, two independent forms of proof—expert evidence and judicial knowledge—converge and may jointly

constitute the evidentiary basis of the judicial ruling (Hasanzadeh, 2007).

The following section further examines the methods through which judicial knowledge is acquired, thereby providing a clearer understanding of the foregoing discussion.

2.2.2. *Methods of Acquiring 'Ilm-e Qāḍī (Judicial Knowledge)*

a) Customary Methods

A customary method of acquiring judicial knowledge refers to the use of means or instruments that are ordinarily capable of producing reliable knowledge, are generally accessible, and are commonly regarded as sufficient to establish certainty.

In this context, reliance upon Amārāt (presumptions or indicia) constitutes one of the conventional methods through which judicial knowledge may be acquired. From a legal perspective, Article 1321 of the Iranian Civil Code provides:

"An Amāreh (presumption) is a circumstance or condition that is recognized, either by operation of law or in the opinion of the judge, as evidence establishing the existence of a particular fact."

Pursuant to this provision, Amārāt (presumptions) are classified into two categories: legal presumptions (Amāreh-ye Qānūnī) and judicial presumptions (Amāreh-ye Qazā'ī). Each category is examined separately below.

a.1) Amāreh-ye Qānūnī (Legal Presumption)

As its designation indicates, a legal presumption is a presumption expressly recognized by law as constituting evidence of a particular fact. Such presumptions are admissible and applicable in all judicial proceedings unless rebutted by evidence to the contrary. (See Article 1332 of the Iranian Civil Code.)

a.2) Amāreh-ye Qazā'ī (Judicial Presumption)

A judicial presumption refers to the facts and circumstances that, in the opinion of the judge, may reasonably constitute evidence of a disputed fact and give rise to judicial certainty or conviction. According to some legal scholars, a judicial presumption is derived by the judge from the nature of the dispute and the parties' submissions, enabling the judge to infer the facts underlying the controversy (Katouzian, 2004). In other words, it represents the totality of factual inferences drawn by the adjudicator from the circumstances

surrounding the case. These inferences ultimately produce the degree of certainty and assurance necessary for rendering a judicial decision.

Unlike Amāreh-ye Qānūnī (Legal Presumption), Amāreh-ye Qazā'ī (Judicial Presumption) is not restricted to predetermined instances. Accordingly, any factual circumstance or indicium that guides the judge toward discovering the truth may constitute a judicial presumption (Shams, 2009).

In addition to judicial presumptions, another important means through which a judge may attain certainty and Iqnā'-e Vojdānī (Inner Judicial Conviction) is consultation with qualified experts (Ahl-e Khebreh). Since biometric technology is one of the most significant contemporary applications of expert evidence, a brief discussion of this issue is warranted.

a.3) Recourse to Ahl-e Khebreh (Expert Opinion)

Although Islamic jurists have generally examined the evidentiary value of expert opinion and 'Ilm-e Qāḍī (Judicial Knowledge) as distinct legal concepts, the prevailing opinion in Fiqh considers the authority of expert opinion to rest upon Sīreh-ye 'Uqalā' (the established practice of rational persons). According to this view, consultation with experts is not confined to circumstances in which it produces absolute certainty; rather, the attainment of reasonable assurance (Iṭmi'nān) is regarded as sufficient for evidentiary purposes. Nevertheless, jurists have acknowledged an important relationship between expert opinion and judicial knowledge in a number of contexts.

Irrespective of the juristic debate concerning Omūr-e Ḥissī (sensory matters) and Omūr-e Ḥadsī (inferential matters), the decisive criterion for consulting an expert is the technical or specialized nature of the subject matter. From this perspective, no distinction exists between sensory and inferential issues (Sadr, 1987). Rational persons seek expert assistance because a matter requires specialized knowledge and technical competence, rather than because it is sensory or inferential in nature. Put differently, members of society ordinarily satisfy their practical needs by relying upon individuals possessing the requisite professional expertise.

b) Unconventional Methods

Unconventional methods refer to extraordinary means or instruments that are not generally accessible and whose use is confined to particular individuals or groups.

Such methods include dreams, visions, Jafr, Raml, miracles, inspiration, and similar extraordinary phenomena. Owing to the absence of Ḥujjiyyah (probative value), these methods possess no evidentiary authority in judicial proceedings. Consequently, it is impermissible for a court to base its judgment upon such matters, and judges are not legally entitled to render decisions founded upon them.

In light of the foregoing discussion concerning the various methods by which a judge may acquire 'Ilm-e Qāḍī (Judicial Knowledge), it may be concluded that knowledge derived from biometric technology—through consultation with qualified experts (Ahl-e Khebreh)—may, in a manner comparable to an Amāreh-ye Qazā'i (Judicial Presumption), contribute to the formation of the judge's Iqnā'-e Vojdānī (Judicial Conviction) and thereby provide a reliable evidentiary basis for the issuance of a judicial ruling.

Having examined the methods through which judicial knowledge may be acquired, it is now appropriate to consider the legal principles governing the use of biometric technology as a modern forensic tool, together with the requirements governing its lawful and legitimate application in judicial proceedings.

3. Principles Governing the Acquisition of Judicial Evidence in Relation to Biometrics

The process of acquiring evidence for the purpose of ensuring fair and just judicial proceedings is subject to certain limitations. In this regard, not only must the evidence itself be lawful and legitimate, but the methods employed to obtain such evidence must likewise conform to legal and ethical standards so as to prevent arbitrariness and disorder in judicial proceedings.

Biometric science provides a significant opportunity to improve the identification, collection, and documentation of criminal evidence, thereby enhancing the capacity to detect crime and identify offenders on the basis of reliable and scientifically grounded evidence. Nevertheless, in order for biometric evidence to possess probative value, the principles governing its admissibility must be satisfied. These include the free acquisition of evidence, free from any coercion or undue influence, together with authenticity, legitimacy, and, ultimately, the free judicial evaluation of evidence, so that its conformity with reality and its reliability may be established.

The following sections examine these principles in detail.

3.1. The Principle of Free Acquisition of Evidence

Pursuant to this principle, the judge is not confined to the evidence presented by the parties to the proceedings but may rely upon any lawful means capable of establishing judicial conviction. Unlike statutory evidence—such as testimony, confession, and oath—the judge enjoys broad discretion in acquiring evidence capable of producing Judicial Knowledge ('Ilm-e Qāḍī).

It should be emphasized, however, that such judicial discretion is not unlimited. Rather, it operates within a legal framework that simultaneously safeguards the defendant's procedural rights and guarantees a fair trial. Accordingly, the principle of free acquisition of evidence cannot justify resort to unlawful or illegitimate methods of obtaining evidence.

Iranian positive law likewise recognizes this principle. With the exception of ḥudūd and qisāṣ offenses, which are subject to specific evidentiary requirements, judges are generally free to acquire evidence through any lawful means capable of establishing judicial knowledge, and numerous provisions of the Islamic Penal Code reflect this approach.

Accordingly, a judge may rely upon evidence generated through biometric science, which employs modern scientific methods and technologies for offender identification and crime detection, as a basis for rendering judgment. Nevertheless, the general rule is not that judicial decisions must necessarily rest upon statutory presumptions; rather, judges may issue their rulings on the basis of any factual circumstances or indicia capable of producing Judicial Conviction (Iqnā'-e Vojdānī) (Katouzian, 2004).

Consequently, any lawful means capable of producing Ordinary Knowledge ('Ilm-e 'Ādī) for the judge—including findings derived from biometric technologies—may legitimately constitute the basis of Judicial Knowledge and, consequently, the legal foundation of the judicial ruling.

3.2. Principle of the Free Evaluation of Evidence

The Principle of the Free Evaluation of Evidence, also referred to as the judge's Judicial Conviction (Iqnā'-e Vojdānī), signifies that the judge enjoys full discretion in evaluating the evidence and must render judgment with

the objective of discovering the truth on the basis of the judge's inner conviction. This conviction ultimately constitutes Judicial Knowledge ('Ilm-e Qāḍī). Accordingly, even where other evidence appears to conflict with the judge's judicial knowledge, the judge remains legally entitled to render judgment on the basis of that knowledge. This principle is expressly recognized in the Islamic Penal Code of 2013.

Although Islamic jurists have historically differed regarding the permissibility of rendering judgment on the basis of Judicial Knowledge ('Ilm-e Qāḍī), this disagreement has largely been resolved under contemporary Iranian law. The Islamic Penal Code of 2013 expressly recognizes Judicial Knowledge as an independent means of proof in relation to all criminal offenses. Nevertheless, in order to prevent judicial arbitrariness and abuse of discretion, the law requires the judge to expressly identify the factual and evidentiary basis of such knowledge in the written judgment. Failure to comply with this requirement constitutes a disciplinary violation and may also provide grounds for reversal or annulment of the judgment upon appellate review.

An important consideration in relying upon findings derived from biometric science for crime detection and offender identification is that the circumstances and indicia generated by biometric technologies do not, in themselves, establish the disputed fact or automatically reveal the truth. Rather, their evidentiary significance depends upon the judge's independent assessment. It is through the judge's free evaluation of these scientific findings, exercised within the framework of judicial discretion, that they become capable of functioning as a Judicial Presumption (Amāreh-ye Qazā'i), thereby producing Judicial Conviction (Iqnā'-e Vojdānī). Consequently, judicial presumptions are generally regarded as a form of indirect evidence (Katouzian, 2004).

Accordingly, the Judicial Presumption arising from biometric evidence consists of two complementary components. The scientific findings and technical outputs generated by biometric technologies constitute the material element, whereas the judge's interpretation and legal assessment of those findings constitute the mental element. It is only through the judge's free evaluation of these two elements, taken together, that

judicial certainty—and ultimately Judicial Knowledge ('Ilm-e Qāḍī)—is attained.

3.3. Principle of the Legitimacy of Evidence Acquisition

Although judges enjoy broad discretion in acquiring evidence, Judicial Knowledge ('Ilm-e Qāḍī) must nevertheless be derived from lawful and legitimate sources. Knowledge obtained through illegal or illegitimate methods of crime detection cannot constitute a valid basis for proving a claim, nor may it lawfully serve as the foundation of a judicial ruling.

With the rapid advancement of science and technology, a variety of unconventional techniques have emerged that may potentially assist in crime detection or influence the judge's Judicial Conviction (Iqnā'-e Vojdānī), such as hypnosis, polygraph examinations (lie-detector tests), and similar methods. However, because these techniques lack legal recognition and admissibility, they possess no independent probative value, and judgments founded exclusively upon them may be overturned by higher judicial authorities. Accordingly, it is incumbent upon the legislature to identify and regulate legally admissible methods of crime detection and lawful means of proof while expressly excluding unconventional or unlawful investigative techniques. (See Article 169 of the Islamic Penal Code and Principle 38 of the Constitution.) Consistent with this principle, modern forensic sciences seek to improve the systematic collection, preservation, documentation, and management of evidentiary materials. Within this framework, biometric science offers a highly secure and scientifically reliable means of identifying individuals while maintaining a very low margin of error. By preserving the integrity and security of biometric information, this technology provides investigators with accurate and objective scientific data capable of assisting the judge in establishing the relevant facts. It also enables investigators to manage the evidence-gathering process efficiently by recording and analyzing distinctive biometric identifiers—such as voice characteristics, body odor, body temperature, gait, and other physiological or behavioral traits—for the purpose of identifying offenders and presenting scientifically documented findings before the court.

Accordingly, although Article 162 of the Islamic Penal Code (2013) limits the categories of evidence possessing independent statutory probative force, it appears that evidence lacking independent evidentiary status may

nevertheless perform an important evidentiary function as a Judicial Presumption (Amāreh-ye Qazā'ī), thereby assisting the court in establishing Judicial Knowledge ('Ilm-e Qāḍī) and reaching a well-founded judicial decision.

4. Conclusion

- The present study demonstrates that, although Islamic jurists have historically expressed divergent opinions regarding the probative value of Judicial Knowledge ('Ilm-e Qāḍī), this controversy has been substantially resolved under the Islamic Penal Code (2013), which expressly recognizes Judicial Knowledge as an independent means of proof applicable to all criminal offenses.
- At the same time, to prevent judicial arbitrariness and ensure transparency in judicial decision-making, the law requires judges to expressly state the factual and evidentiary basis of their Judicial Knowledge in the written judgment. Compliance with this requirement is subject to appellate supervision, including review by the Supreme Court, thereby safeguarding both the legitimacy and accountability of judicial decision-making.
- The findings further indicate that knowledge derived from biometric science, obtained through recourse to qualified experts (Ahl-e Khebreh), may function as a Judicial Presumption (Amāreh-ye Qazā'ī) capable of contributing to the formation of Judicial Knowledge. Within this evidentiary framework, biometric findings constitute the material element of judicial conviction, whereas the judge's evaluation and interpretation of those findings constitute its mental element. The interaction of these two elements may ultimately lead to the issuance of a well-founded and robust judicial ruling.

Finally, the study concludes that biometric science has significantly enhanced the identification, collection, and scientific evaluation of criminal evidence, thereby improving the reliability of offender identification and crime detection. Nevertheless, the evidentiary value of biometric findings depends upon compliance with the

fundamental principles governing judicial evidence, including the free acquisition of evidence, authenticity, legitimacy, and the free judicial evaluation of evidence. Only where these requirements are satisfied can biometric evidence legitimately contribute to the establishment of Judicial Knowledge and support the issuance of accurate, reliable, and legally sound judicial decisions.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

- Al-Suyuri, J. a.-D. M. i. A. A. (1983). *Al-Tanqih al-Ra'i' li-Mukhtasar al-Shara'i'* (1st ed.). Ayatollah Marashi Library.
- Al-Tusi, M. i. H. (2008). *Al-Mabsut*. Al-Maktabah li-Ihya' al-Athar al-Ja'fariyyah.
- Araki, M. A. (1994). *Istifta'at: Legal Opinions* (1st ed.). Nashr-e Ma'ruf.
- Askafi, I. J. (1995). *Majmu'at al-Fatawa*. Islamic Publications.
- Golpayegani, S. M. R. (1992). *Kitab al-Qada'*. Dar al-Qur'an al-Karim.

- Haeri, S. K. H. (1994). *Al-Qada' fi al-Fiqh al-Islami*. Majma'-e Andisheh-ye Eslami.
- Hasanzadeh, M. (2007). The Relationship between Expert Opinion and Testimony in Islamic Jurisprudence and Law. *Islamic Law Journal*(4).
- Hilli, H. i. Y. (1992). *Qawa'id al-Ahkam*. Islamic Publications.
- Hosseini Shirazi, M. (1986). *Al-Fiqh* (2nd ed.). Dar al-'Ulum.
- Ibn Hamzah, a.-T. (1987). *Al-Wasilah*. Ayatollah Marashi Publications.
- Iraqi, A. Z. a.-D. (2000). *Taqrirat li-l-Najmabadi*. Islamic Ma'arif Institute.
- Jafari Langroudi, M. J. f. (1992). *Daneshnameh-ye Huquqi: Legal Encyclopedia*. Ganj-e Danesh Library.
- Jafari Langroudi, M. J. f. (1999). *Mabsut dar Terminology-ye Huquq: Expanded Legal Terminology*. Ganj-e Danesh Publications.
- Jalali, A. A., & Rajabi Nasabi, M. (2008). Biometrics: A Security Tool for the Citizens of the Third Millennium. *Karagah*(4).
- Katouzian, N. (2004). The Nature and Effect of Judicial Presumption. *Journal of the Faculty of Law and Political Science, University of Tehran*(64).
- Kazempour, Z., & Shirzadi, E. (2013). The Necessity of Employing Biometric Technology to Enhance Information Security with a Passive Defense Approach. *Passive Defense and Security Journal*, 1(3).
- Khaefi, A. (2003). *The Judicial System in Islam*.
- Khomeini, R. *Tahrir al-Wasilah*. Dar al-'Ilm Publications.
- Makarem Shirazi, N. (2001). *Istifta'at-e Jadid*. Madrasat al-Imam Ali ibn Abi Talib Publications.
- Mehrpour, H. (1993). *New Perspectives on Legal Issues* (1st ed.). Ettelaat Institute.
- Modarresi, A., & Kourehpaz, M. (2017). Biometric Technology: From the Classical to the Modern Approach. *Karagah*(40).
- Najafi, M. H. (1983). *Jawahir al-Kalam*. Dar al-Kutub al-Islamiyyah.
- Naraqi, A. (1986). *'Awa'id al-Ayyam* (1st ed.). Islamic Propagation Office.
- Rezaei, R. (2011). A Jurisprudential Study of the Validity of Electronic Documents. *Huquq Journal*(17).
- Rezaei, S. Y., Afkhami, M., & Sajadian, A. (2010). The Role of Biometric Factors in Personal Identification. *International Police Studies Journal*(2).
- Rowshan-Qalb Deylami, I., Hendiani, A., Fakhrz, M., & Talebian, H. (2021). Crime Evidence Collection Based on Biometrics. *Karagah*(54).
- Sadr, S. M. B. (1987). *Mabahith al-Usul* (1st ed.). Maktab al-'Ilam al-Islami.
- Sayyid Murtada, A. i. H. (1994). *Al-Intisar*. Islamic Publications.
- Sha'rani, A. *Al-Madkhal ila 'Adhb al-Manhal fi Usul al-Fiqh*.
- Shahid al-Thani, Z. a.-D. i. A. (1992). *Masalik al-Afham*. Mu'assasat al-Ma'arif al-Islamiyyah.
- Shahrudi, S. M. (2002). *A'in-e Dadresi dar Islam: Judicial Procedure in Islam*. University of Tehran Press.
- Shams, A. (2009). *A'in-e Dadresi-ye Madani: Civil Procedure* (14th ed.). Derak Publications.
- Tabrizi, M. J. *Usus al-Qada' wa al-Shahadah: Foundations of Adjudication and Testimony* (1st ed.). Imam Sadiq Institute.