



Rukyatul Hilal and Hisab: A Comparative Study of Muhammadiyah and Nahdlatul Ulama in Determining the Beginning of the Hijri Month

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Abstract

Determining the beginning of the Hijri months often gives rise to differences of opinion, especially between Islamic organizations Muhammadiyah and Nahdlatul Ulama (NU). These differences stem from the different method used for hisab (astronomical calculation) and rukyat (moon sighting), as well as the interpretation of Quranic verses. This study aims to analyze the interpretation of Quranic verses concerning the crescent moon and hisab to compare the perspectives of Muhammadiyah and NU. This study uses a qualitative approach with the thematic interpretation method of Quranic verses related to the crescent moon and reckoning. Data were obtained from primary sources such as the Koran and tafsir books, as well as secondary sources such as books and journals. The data were then analyzed comparatively to identify differences between the two groups. The results show that Muhammadiyah prioritizes hisab based on rational interpretation of Quranic verses, while NU prioritizes rukyat with a textual approach based on texts and hadith. These differences have practical implications for determining the beginning of hijri, which are often inconsistent. Different understandings of verses about the crescent moon and hisab reflect the epistemological characteristics of each mass organization. Despite their differing approaches, both aim to safeguard the validity of sharia and the unity of the Muslim community.

Keywords: Crescent Moon, Hisab, Muhammadiyah, Nahdlatul Ulama, Rukyat

Abstrak

Penentuan awal bulan Hijriah sering menimbulkan perbedaan pendapat, terutama antara ormas Muhammadiyah dan Nahdlatul Ulama (NU). Perbedaan ini berakar pada perbedaan metode yang digunakan hisab dan rukyat serta penafsiran ayat-ayat Al-Qur'an mengenai hilal. Penelitian ini bertujuan untuk menganalisis penafsiran ayat-ayat Al-Qur'an tentang hilal dan hisab dan mengkaji implikasi perbedaan metode yang digunakan Muhammadiyah dan Nahdlatul Ulama. Penelitian ini menggunakan pendekatan kualitatif dengan metode tafsir tematik (tafsir maudhu'i) terhadap ayat-ayat Al-Qur'an yang berkaitan dengan hilal dan hisab. Data diperoleh dari sumber primer seperti Al-Qur'an dan kitab tafsir serta sumber sekunder seperti buku dan jurnal ilmiah. Lalu dianalisis menggunakan metode komparatif untuk membandingkan perspektif keduanya. Hasil penelitian menunjukkan bahwa Muhammadiyah mengedepankan hisab berdasarkan interpretasi rasional terhadap ayat-ayat Al-Qur'an, sedangkan NU mengutamakan rukyat dengan pendekatan tekstual terhadap nash dan hadits. Perbedaan ini memunculkan implikasi praktis dalam penetapan awal bulan yang kerap tidak seragam. Kebaruan penelitian ini adalah analisis mendalam mengenai implikasi penafsiran tersebut yang belum banyak dibahas, serta relevansinya



terhadap upaya unifikasi kalender nasional demi menjaga persatuan umat Islam. Pemahaman yang berbeda terhadap ayat-ayat tentang hilal dan hisab mencerminkan corak epistemologi masing-masing ormas. Meskipun berbeda pendekatan, keduanya tetap bertujuan menjaga keabsahan syariat dan kesatuan umat.

Kata kunci: *Hilal, Hisab, Muhammadiyah, Nahdlatul Ulama, Rukyat*

A. INTRODUCTION

The observation of the crescent moon (hilal) serves as the definitive astronomical marker for the commencement of lunar months within the Islamic calendar (Hijriah) (Taman et al., 2021). As significant religious periods such as Ramadan, Shawwal, and Dzulhijjah approach, the Muslim community frequently navigates complex methodological and jurisdictional challenges regarding the determination of the new month. These fundamental issues center on the tension between traditional physical sighting (rukya) and astronomical calculation (hisab), as well as the debate over whether to use global or national mathla' criteria (wilayat al-hukmi), and whether the decision should be made by the government or simply announced by the head of a religious organization. These questions are closely related to determining when to begin fasting, when to celebrate Eid al-Fitr, and Eid al-Adha (Zaman, 2015).

In Indonesia, Muhammadiyah and Nahdlatul Ulama (NU) represent the two most influential socio-religious organizations, with followers reaching tens of millions. Both play a crucial role in the development and advancement of Islamic teachings in the country. One striking difference between the two lies in their perspectives and approaches to religious issues, including worship practices such as determining the beginning of the Hijri month. This difference stems from the interpretation of the Qur'an and Sunnah, the primary sources of Islamic teachings. Each organization has its own characteristics and methods for understanding and interpreting these texts (Fatimah et al, 2024).

Discrepancies in the determination of the lunar month are a recurring phenomenon among the public, especially in Indonesia, due to differences in the criteria for hisab and rukya between mass organizations, particularly Muhammadiyah and NU (Adji, 2020). At the core of this divergence lies the hermeneutical variation in interpreting the verses of the Qur'an that serve as the sharia basis for determining the

beginning and end of the lunar month. These foundational text transcend literalism, possessing intrinsic scientific dimensions that not only contain textual meaning but also have a scientific dimension that can be studied further. The resulting multiplicity of interpretive frameworks, methodological approaches, and astronomical criteria used to determine the beginning of the lunar month widens the differences of opinion among Muslims. Therefore, this study seeks to map the interpretation of the verses of the Qur'an related to hisab and rukyat, particularly regarding determining the beginning of the lunar month, and examines how the Qur'an addresses the issue of hisab and rukyat from an interpretive perspective.

The main issue raised in this research is the persistent divergence in determining the commencement of the Hijri month, especially between Muhammadiyah and Nahdlatul Ulama (NU). This difference is fundamentally rooted in the methodological attention used, namely hisab and rukyat. The critical research gap found in this study is the practical implications of the differences in the methods of determining the beginning of the month which are often not uniform, this gap also shows that an in-depth study of how the interpretation of the verses of the Qur'an regarding hisab and rukyat has implications for determining the beginning of the Hijri month in Indonesia and then examining how the different methods used by Muhammadiyah and Nahdlatul Ulama in determining the beginning of the Hijri month based on the interpretation of these verses.

While several studies relevant to this research have been written, including: Taman et al (2021) and Rokim (2019) has explored the scriptural definition of the crescent moon and also research by Husna et al (2022), and Ulum (2021) which explains the scope and describes the Hijri calendar which is carried out using methods and understanding from different points of view by Muhammadiyah and Nahdlatul Ulama. Based on the previous studies mentioned above, there are similarities in the research objects, namely the crescent moon sighting and the method for determining the beginning of the Hijri month. Unlike previous research this study maintain a unique analytical focus, the present study substantively interrogates the hermeneutical layers of the crescent moon and calculation (hisab) verses to compare the epistemological foundations of Muhammadiyah and Nahdlatul Ulama. It also examines how these

differences impact the determination of the beginning of the Hijri month in Indonesia, a topic that has not been discussed in depth in previous studies.

By understanding the basic thinking of each party, it is hoped that this research can provide broader insight into the dynamics of interpreting the verses of the Qur'an and their implications for the lives of Muslims in Indonesia.

The purpose of this study is to examine the implications of the differences in methods used by Muhammadiyah and Nahdlatul Ulama in determining the beginning of the Hijri month based on the interpretation of these verses and to provide a more comprehensive understanding of the methods of each mass organization in interpreting the hilal and hisab verses, this study also aims to offer a contribution of thought for efforts to unify the national Hijri calendar as an effort to maintain order in worship and unity of Muslims in Indonesia.

B. RESEARCH METHODOLOGY

This research uses a qualitative research design utilizing the thematic interpretation method (Tafsir Maudhu'i) to systematically analyze the conceptualization of the hilal and hisab. The main instruments in studying the meaning of hilal and reckoning in the Al-Qur'an in this research are the verses on hilal and reckoning. This methodological framework facilitates a comprehensive synthesis of relevant Qur'anic verses, and the selection of this thematic method allows researchers to collect verses of the Qur'an comprehensively and then subsequently juxtaposed with the distinct theological and astronomical perspectives of Muhammadiyah and Nahdlatul Ulama in determining the beginning of the Hijri month (Tohis et al, 2023). The primary data of this research are the verses of the Qur'an which are the focus of the study, namely the verses on the crescent and hisab in the Qur'an as well as the book of interpretation, *Muhammadiyah Hisab Guidelines*, Nahdlatul Ulama Rukyat and Hisab Guidelines and the Decisions of the NU Congress and Tarjih PP Muhammadiyah. Meanwhile, secondary data was obtained from scientific literature, academic journals, and books relevant to this research.

The data collection technique was carried out through library research. In this study, the researcher collected data starting from collecting verses in the Qur'an about

the crescent moon and hisab, and verses related to the crescent moon and hisab but not written in the text to provide complete information about matters related to the crescent moon and hisab to be used as study objects.

C. RESULTS AND DISCUSSION

Results

There are two distinct hermeneuticals models for interpreting the crescent moon: the first model, championed by Nadhatul Ulama (NU) posits that the physical sighting of the crescent moon (*rukyatul hilal*) which cannot be rationalized simply by hisab (calculation). The second model, adopted by Muhammadiyah, maintains that *rukyat* can be replaced by hisab. Both methodologies, the *rukyat* and hisab serve as a basis for determining the beginning of the lunar month, but they differ in their principles. Muhammadiyah utilizes hisab as an independent and sufficient legal basis, whereas NU use them solely as an aid, using *rukyat* with hisab. (Marpaung, 2016).

For NU, astronomical reckoning function exclusively as an assistant in implementation *sighting of the crescent moon* in the field. Therefore, even though they have made predictions, they refrains from confirming the start of Ramadan, Shawwal, and Dzulhijjah using hisab, but still await the results of *rukyat* in the field. NU, even though it uses *rukyat*, has also developed its own criteria over time. *sighting of the crescent moon* which can be accepted and used as a basis for determining the beginning of the Hijri month. Especially since 1994 and emphasized in 1998, when the PBNU rejected reports of *rukyatul hilal* from Cakung and East Java in the case of 1 Shawwal 1418 H. *Rukyat* results can be rejected when they are not supported by science or accurate calculations (Ulum, 2021). This intersention of empirical observation and scientific validation reflects a nuanced attempt to harmonize classical tradition with contemporary accuracy.

The methodology for determining the commencement of the Hijri month by *sighting of the crescent moon* is categorized as a communal obligation (*fardlu kifayah*) which emerged based on an understanding of the evidence that discusses the determination of the beginning of the lunar month from both the Qur'an and the Sunnah. In this case, the Sunnah plays a predominant role in detailing and explaining

the globality of the evidence of the Qur'an regarding the determination of the beginning of the month through diverse narrations and textual variants. These traditions, supported by reliable chains of transmission chain of narrators (sanad) serve as the primary legal instruments for scholars engaged in *ijtihad* to formulate specific lunar criteria (Indayati, 2020).

If rukyat (physical sighting) of the crescent proves unsuccessful, Islamic jurisprudence offers three distinct remedial pathways. The first is *istikmal*, which means completing the month to a full 30 days. The second is *hisab*, which advocates for a return to astronomical calculations as the primary determinant. The third is by narrowing (*fa'adhayiqu*), which means narrowing the number of months. The narrowest or shortest month is 29 days, so the next day is the beginning of the month (Mohd Nawawi et al., 2024). The first opinion is held by NU, the second opinion is held by Muhammadiyah, while the third opinion is not widely held in Indonesia (Wahidin, 2022).

Discussion

1. The meaning of Hilal and Reckoning in the Qur'an

a. Crescent Moon

Hilal in the Big Indonesian Dictionary means the new crescent moon which rises on the first day of the Hijriah month (National, 2008). This term comes from Arabic meaning "new moon" or "crescent moon". (Jamarudin, 2017).

Surah Al-Baqarah verse 189:

يَسْـَٔلُونَكَ عَنِ الْاٰهْلِةِ ۖ قُلْ هِيَ مَوَاقِيْتُ لِلنَّاسِ وَالْحَجِّ ۚ وَلَيْسَ الْبِرُّ بِاَنْ تَاْتُوا الْبُيُوتَ مِنْ ظُهُورِهَا وَلٰكِنَّ الْبِرَّ مَنِ اتَّقٰۤىۤ وَآٰتُوا الْبُيُوتَ مِنْ اَبْوَابِهَا ۚ وَاتَّقُوا اللّٰهَ لَعَلَّكُمْ تُفْلِحُوْنَ

They asked you (Prophet Muhammad) about the crescent moon. Saying, "That is (indicator of) the time for humans and (the pilgrimage of) Hajj." It is not beauty that enters a house from behind it, but beauty is (the virtue of) a pious person. Enter houses from their doors, and fear Allah so that you may succeed.

According to Wahbah al-Zuhayli in his *Tafsir al-Munir*, the term *ahillah* is the plural form of *hilal*. It is employed to signify the diverse lunar phases observed from

from Earth. On the first two or three nights of each month, the moon manifests as a slender crescent, subsequently increasing in luminosity and size until it reaches plenitude before receding to its original dimensions. This means that the moon's appearance is not in one state like the sun. Etymologically, the term hilal because it "appears" after disappearing (hilal). From here comes the saying الإِهْلَالُ بِالْحَجِّ (appearing Hajj) which refers to the audible proclamation of the talbiyah. Scholarly consensus within this framework suggests that the term hilal specifically designates the mood during the first two or three nights, after which is called Qamar (Az-Zuhaily, 2013).

Complementing this perspective, Imam Syaukani in his book *"Fath al-Qadir al-Jami' Baina Fanni al-Riwayah wa al-Dirayah min Ilmi al-Tafsir"* argues that the crescent moon serves as a celestial chronometer, essential for determinant of time and the precise scheduling of Islamic rituals. Imam Syaukani defines the hilal not merely as a physical object but the crescent moon itself has a meaning, namely the name of the month that appears at the beginning of each month and the end of the month (al-Shawkani, 1997).

This astronomical phenomenon is further detailed in the classical narration involving Mu'adz bin Jabal and Tsa'labah bin Ghanimah who both said to the Prophet Muhammad (peace be upon him): "O Messenger of Allah, we affirm that the crescent moon actually begins as a very thin moon like a thread and appears only for a few minutes. Then it will gradually enlarge and fill until it is the same size as the other parts and becomes completely round (full moon), then it will return to its original state, small and thin like a thread. The dynamic and non-static nature of lunar visibility as a fundamental aspect of Islamic timekeeping (Ridha, 2015).

The crescent moon phase is in the *sirar* phase, which is between the new moon phase (*mihaq*) and the half moon phase (*tarbi'*). In the *mihaq* phase, the crescent moon is in a position where no light is reflected or the reflected light is so thin that it has not yet reached the limit of even soft visibility. Then, in the *sirar* phase, the crescent moon begins to appear and is observed in a state of faint appearance (*sirar*) due to its thin and soft, thread-like shape (Taman et al. 2021). The crescent moon appears on the first two nights of the month. This indicates that the crescent moon is an astronomical phenomenon that only occurs at night, not during the day (Al-Mostafa, 2010). Night is

the time from sunset to dawn. The crescent moon rises on the western horizon (Taman et al. 2021).

From the many meanings of the crescent moon according to the commentators and fuqaha mentioned above, the *hilal* can be defined as the initial appearance of the young moon (crescent) following the astronomical conjunction (*ijtima'*). The occurrence of *consensus* which is seen at the beginning of the month on the first, second and third nights which is shouted by the person who sees it or told to the person who does not see it as a sign of the beginning of the month in the calendar system (Zaman, 2015).

b. Hisab

Etymologically, the term *hisab* comes from the word *hasaba-yahsubu-hisaban* denoting the act of counting, calculating, enumerating. In *al-Munjid al-Waashith fi al-'Arabiyyah al-Mu'ashirah*, confirm that these linguistic derivatives consistently signify the systematic process of calculation (Ma'luf, 2004), while the Al-Ma'any dictionary, further expands this definition include notions of consideration, auditing and rigorous examination (Al-Ma'aniy, 2025). Then, when viewed from the verses of the Qur'an, the word *hisab* has the meaning of Allah's calculation of His creatures both in this world and in the afterlife. What is meant by His creatures is the process of the universe, every rotation of the day and night, the sun and moon and humans in terms of the sustenance they receive from Allah both in this world and in the afterlife, with the calculation of the deeds of each human being while living in this world (Rokim, 2019).

Then, from the discussion above, the word *hisab*, which means calculation, is often associated with Allah (Mujahid et al, 2022) The word *hisab* comes from the Arabic word *al-hisab* which literally means calculation or examination. *Hisab* is used in the sense of calculating time, as Allah says in QS. Yunus verse 5:

هُوَ الَّذِي جَعَلَ الشَّمْسُ ضِيَاءً وَالْقَمَرَ نُورًا وَقَدَرَهُ مَنَازِلَ لِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ مَا خَلَقَ اللَّهُ ذَلِكَ إِلَّا بِالْحَقِّ يُفَصِّلُ الْآيَاتِ لِقَوْمٍ يَعْلَمُونَ

He is the one who makes the sun shine and the moon shine. He is also the one who determined the orbital locations so that you know the number of years and calculations (time). Allah does not create like that, except correctly. He explains the signs (of His greatness) to a people who know

In the context of Islamic jurisprudence (*fiqh*), the application of hisab is fundamentally oriented toward the determination of worship times and orientations essential for religious observance. This methodological framework facilitates the precise scheduling of daily prayer times, the commencement of Ramadan, Eid al-Fitr, and the timing of Hajj, and eclipse times for performing eclipse prayers. Furthermore, hisab is indispensable for the determining direction of the Qibla, ensuring that the directional alignment toward the Kaaba is maintained. The determination of time and direction is done by calculating the geometric positions of celestial bodies, especially the sun, moon and earth in order to determine the time on earth and also the direction of the sun (Muhammadiyah, 2019).

2. Verses about the Crescent and Hisab in the Qur'an and their Interpretation

Researchers in this section collected several types of verses of the Qur'an (Annisa et al., 2025), namely: verses that mention the words hilal and hisab explicitly, verses that are related to hilal and hisab but do not contain these words, which function as a source for searching for data on the nature of hilal and hisab which plays a role in providing complete information about matters related to hilal and hisab which are then studied to determine the relationship between hilal and hisab and determining the beginning of the month.

First, Verses that explicitly mention the words crescent and hisab in the Qur'an:

Al-Baqarah verse 189:

يَسْأَلُونَكَ عَنِ الْهِلَالِ قُلْ هِيَ مَوَاقِيتُ لِلنَّاسِ وَالْحَجِّ وَلَيْسَ الْبِرُّ بِأَنْ تَأْتُوا الْبُيُوتَ مِنْ ظُهُورِهَا وَلَكِنَّ الْبِرَّ مَنِ اتَّقَى وَأَتُوا الْبُيُوتَ مِنْ أَبْوَابِهَا وَاتَّقُوا اللَّهَ لَعَلَّكُمْ تُفْلِحُونَ

They ask you about the crescent moon. Say: The crescent moon is a sign of time for humans and (for worship) the Hajj; And it is not a virtue to enter houses from behind them, but it is a virtue of those who are pious. And enter the houses from their doors; and fear Allah so that you may be successful.

In an Ijmali, this Quranic verse delineates the dialogue between the companions and the Prophet Muhammad about the wisdom regarding the teleological significance of the moon changing phases. Hamka explains in his exegetical work, that the moon phases serves as a fundamental temporal regulator for human affairs. Beyond its

religious utility, it facilitates social contracts, the determination of the *iddah* (waiting period) for divorcees, and the tracking of pregnancy. Furthermore, the crescent moon functions as the authoritative marker for the commencement of fasting, the celebration of Eid, the calculation of zakat, and the performance of the Hajj (Hamka, 2019).

Expanding upon this, Quraish Shihab, interprets the “time” in the use of the Qur'an is the final limit of opportunity to complete human activity. The varying states of the moon allow for structured human planning and social coordination. Astronomically, the transition from the new crescent to the full moon occurs when earth, moon, and sun reach specific angular alignments moving from conjunction to opposition resulting in a synodic month with an average duration of 29.5309 days (Shihab, 2019).

Based on this, the Arabic calendar can be determined from the appearance of the crescent moon until the moon appears fully illuminated. When the crescent moon appears as a thin line on the western horizon, then sets a few seconds after sunset, sighting of the moon can occur. Quraish Shihab also stated that the specific mention of the Hajj emphasizes that this worship has a specific time and cannot be changed by bringing it forward or postponing it (Shihab, 2022).

Yunus Verse 5:

هُوَ الَّذِي جَعَلَ الشَّمْسُ ضِيَاءً وَالْقَمَرَ نُورًا وَقَدَرَهُ مَنَازِلَ لِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ مَا خَلَقَ اللَّهُ ذَلِكَ إِلَّا بِالْحَقِّ يُفَصِّلُ الْآيَاتِ لِقَوْمٍ يَعْلَمُونَ

He is the one who makes the sun shine and the moon shine. He is also the one who determined the orbital locations so that you know the number of years and calculations (time). Allah does not create like that, except correctly. He explains the signs (of His greatness) to a people who know.

The exegetical analysis of this verse reveals that the lunar *manazil* (stations) were divinely ordained as a temporal reference systems, enabling humanity to quantify years and calculate time. This is because the end of the month and year can be determined by the crescent moon phenomenon.

This verse explains that the moon's journey is regular in this way, and that it is determined by certain places according to the names of certain stars. Hamka understands this verse to contain two sentences that have deep meaning regarding the

moon's journey. First, "He has decreed for it," from the phrase *Wa Qaddarohu*. This means that the Moon's orbit around the Earth is predetermined by His destiny, and will never change. The Moon's journey or rotation has been determined to be constant, thereby providing a stable foundation for geocentric time keeping (Hamka, 1990).

Furthermore, Quraish Shihab interprets this verse as empirical evidence of Rububiyyah (Divine Governance) for humans. This verse emphasizes that Allah Subhanahu Wa Ta'ala who created synchronization of the solar and lunar systems is a purposive act designed for the benefit and sustainability of terrestrial life (Fatimah et al., 2025). The setting of the system and the goals expected from it are haq. Thus it is not accidental nor was it created without a purpose. And thus, humans must make and use it for legitimate and correct purposes as well (Shihab, 2019).

Second, Verses related to the new moon and reckoning:

Yasin verses 39-40:

وَالْقَمَرَ قَدَرْنَاهُ مَنَازِلَ حَتَّىٰ عَادَ كَالْعُرْجُونِ الْقَدِيمِ لَا الشَّمْسُ يَنْبَغِي لَهَا أَنْ تُدْرِكَ الْقَمَرَ وَلَا اللَّيْلُ سَابِقُ النَّهَارِ
وَكُلٌّ فِي فَلَكٍ يَسْبَحُونَ

(Likewise) the moon, We have appointed for it stations of orbit until (when it has reached its final station of orbit) it returns to the shape of an old bunch (39). It is not possible for the sun to catch up with the moon, nor can the night outstrip the day. Each one rotates in its orbit.

Having addressed the celestial bodies individually, the Quranic discourse subsequently synthesizes the roles of the sun and the moon to demonstrate the precision of divine providence. This cosmic order ensures that neither the sun nor the moon deviates from its prescribed trajectory. The sun cannot deviate from its orbit, nor can it hasten or slow down its course so as to overtake the moon and overtake it. Nor can the night, on which the moon often appears, overtake the day, so as to prevent its appearance. But God has arranged everything in turn, and each, both the sun and the moon, and all the heavenly bodies, in their orbits (Shihab, 2019).

Researchers will attempt to discuss the epistemological foundation for Muhammadiyah's prioritization of hisab over rukyat. At least the four verses above underlie the choice of tarjih. Muhammadiyah understands the four verses above with

several approaches: First, the existence of a fixed orbit can certainly implied mathematical predictability. Second, the informative form of pronunciation does not negate the spirit of using reckoning, in fact it turns into an imperative form which commands us to study the motion of heavenly bodies, to develop a good time system (as conveyed in al-Baqarah verse 189 and Yunus verse 5), while at the same time absorbing the majesty of Allah SWT (Muhammadiyah, 2019).

Building upon the theological framework of verses 39 and 40 of Surah Yasin as the references for determining the beginning of the month, Muhammadiyah formulated the "Wujudul Hilal" criteria. Although it does not negate other scientific instruments in determining this criterion, there are three criteria for this Wujudul Hilal: first, *ijtimak* (conjunction) has occurred. Second, the conjunction occurs before sunset. Third, the moon is above the horizon at sunset (Muhammadiyah, 2019).

The first criterion is inspired by the verses about the *manzilahs* of the month, while the second and third criteria are taken from the concept of day in relation to day and night. The new reckoning method was deemed to be on the same level as *rukyat* in 2003. In taking this opinion, Muhammadiyah took the basis of the Al-Quran, Sunnah, *fiqh*, and the accuracy of the reckoning results (Muhammadiyah, 2019).

In contrast, Nahdlatul Ulama maintain a jurisprudential framework that prioritizes *rukyat* as the primary determinant for the Hijri calendar, although *hisab* is used as a support for the accuracy of *rukyat*. This institutional stance is grounded in the exegesis of Al-Baqarah verses 185 and 189 and the hadith of the Prophet "Fast because you see it and celebrate Eid because you see it. If it is hindered for you then complete the number of Sha'ban to thirty days" (HR. Al-Bukhari).

Ibn Kathir wrote in his classical commentary, reinforces that the movement of the moon can be a measure of time for both religious and worldly needs. Ibn Kathir cited Hasan Bashri's opinion that the verse *تدرك القمر الشمس ينبغي* La in Yasin's letter: 39 is the night when the new moon is first seen, the beginning of the month Hijri (Katsir, 2017).

Based on these scriptural and traditional foundations, a consensus among NU scholars asserts that the legal obligation for start and end fasting and Eid is inextricably linked to the physical sighting of the crescent moon, following sunset on the 29th of

Sha'ban (Nurkhanif, 2018). This approach recognizes two distinct but interrelated methodologies for determining the beginning of the month: rukyat and hisab. Rukyats, which involves direct observation of the crescent moon with the naked eye, relies on the testimony of those who successfully sighted the crescent moon on the 29th of the current month (Hosen, 2012). And hisab, or astronomical calculation. The method used is known as hisab hakiki wujudul hilal, which relies on scientific calculations to determine the position of the moon (Majid, 2025).

3. Muhammadiyah and Nahdlatul Ulama Astronomical Calculations

The crescent moon constitutes the pivotal astronomical object in the discourse of determining the beginning of the month in the Islamic (Hijri) calendar. Discrepancy in the methodologies of determining the beginning of the Hijri month often lead to discussions about the calculation of lunar sighting, and questions that often spark disputes among Indonesians (R. Amri, 2016).

There are three methods or approaches commonly used in Indonesia to determine the beginning of the Hijri month. First, Rukyatul Hilal, used by Nahdlatul Ulama. Second, Hisab, pioneered by Muhammadiyah (Awaludin et al., 2022), and Imkanu Rukyats, a hybrid criterion established through the consensus of the Ministers of Religion of Brunei Darussalam, Indonesia, Malaysia and Singapore (MABIMS) which are used by the government (Mohd Nawawi et al, 2024).

Determination of the beginning of the Hijri month according to Muhammadiyah

In determining the beginning and end of the Hijri months, which are related to worship, Muhammadiyah bases its opinion on several verses of the Quran and the hadiths of the Prophet. The verses used as a basis are Surah Yunus, Chapter 5, and Surah Yasin, verses 39-40. The hadiths used include those narrated by Imam Bukhari and Muslim, namely:

لَا تَصُومُوا حَتَّى تَرَوْا الْهَيْلَالَ وَلَا تُفْطِرُوا حَتَّى تَرَوْهُ فَإِنْ غَمَّ عَلَيْكُمْ فَأَقْدُرُوا لَهُ

Do not fast until you see the new moon, nor do you break your fast until you see the new moon. If the crescent moon is covered by clouds then you estimate it (calculate it). (HR. Bukhari and Muslim).

Historical records within the Collection of Tarjih Decisions it is stated: "*as-saumu wa al-fithru bi ar-ru'yah wa la mani'a bi al-hisab*" (fasting and Eid Fitriah are determined by sighting and are not precluded by hisab)(Tarjih, 2000). In line with that, according to Djarnawi Hadikusuma, as quoted in Suara Muhammadiyah, the text implicitly acknowledges hisab rukyat (Azhari, 2006). In its early stages, Muhammadiyah used *ru'yah bil fi'li* (physical observation) in determining the beginning of the Hijri month. Muhammadiyah also uses rukyat if the results of rukyat differ from the results of hisab, this can be seen in the Collection of Decisions of the Tarjih Council which states: "if the hisab experts determine that the moon has not yet appeared (date) or has appeared but is not visible, even though in fact there are people who saw it on that night, which is more valid? The Tarjih Council decided that rukyat is the valid one" (Muhammadiyah, 2009).

Parallel to the advancement of astronomical sciences, Muhammadiyah began using the *ijtima' qablal ghurub* (conjunction before sunset) system, which means that when the *ijtima'* occurs, the time after sunset is the beginning of the month even though the crescent moon is not visible at sunset. In subsequent developments, the *ijtima' qabla al-ghurub* system was later refined into the current *wujud al-hilal* system (existence of the crescent) which is the appearance of the crescent moon before sunset. Under the paradigm, the primary requirement is the positive altitude of the moon, at the moment of sunset following the conjunction, if the sun sets before the moon, then that evening and the following day are designated as the 1st of the new Hijri month (Fatimah et al., 2024).

The calculation used by Muhammadiyah is the hisab *wujud al-hilal*, namely a method for determining the beginning of a new month which confirms that a new Hijri month begins when three parameters have been met: conjunction or *ijtima'* has occurred, the *ijtima'* occurs before sunset, and at sunset the moon is above the horizon.(Baidhowi, 2015). Meanwhile, the arguments for why Muhammadiyah chose the hisab method, not rukyat, are as follows:

First, The spirit of the Qur'an is to use hisab. This is stated in the Qur'an, Surah Ar-Rahman, verse 5:

"The sun and moon revolve according to calculations"

This scriptural verse not only establishes that the sun and moon move according to definite laws, rendering them mathematically predictable, but also provides a teleological imperative for their calculation. The verse mentioned that they are useful for knowing the number of years and calculating time (Nursodik, 2018).

Second, The command to see the physical sighting (*rukyat*) existed because the people of the time of the Prophet Muhammad were unlettered, illiterate, and unable to perform *hisab* (calculations). This was confirmed by the Prophet Muhammad in a hadith narrated by Al-Bukhari and Muslim, "Indeed, we are an unlettered people; we cannot write and cannot perform hisab. The month is such and such. That is, sometimes it is twenty-nine days and sometimes it is thirty days." In the rules of *fiqhiyah*, the law applies according to the presence or absence of *ilat* (mathematical literacy). Consequently, in a contemporary era characterized by advanced astronomical expertise, then the command to see the *rukyat* is no longer valid.

Third, *rukyat* present significant practical challenges for modern civil administration, Muslims cannot create a calendar. *Rukyat* cannot predict dates far in advance because the date can only be known one day before. Dr. Nidhal Guessoum called this unpredictability as a "great irony" that Muslims still do not have a clear, unified calendar system (Amri, 2021).

Fourth, beyond administrative limitations, *rukyat* cannot unify the beginning of the Islamic month globally. Instead, *rukyat* forces different Muslims to start the beginning of the month Hijri, including the months of worship. This is because the crescent moon sighting during first visibility does not cover the entire earth. On the same day, some parts of the earth can see the crescent moon, while others cannot. The area of the earth above 60 degrees north latitude and below 60 degrees south latitude is an abnormal area, where the crescent moon cannot be seen for a long time or can be seen late, namely when the moon is already full. This is especially true in the Arctic and Antarctic regions, where the day in summer exceeds 24 hours and the night in winter exceeds 24 hours (Wahidin, 2022). Thus, the transition to a hisab-based system is presented not merely as a technological advancement, but as a logistical necessity for

global Islamic unity and consistency.

On a theoretical level, Muhammadiyah places *hisab* (calculation) and *rukyat* (physical sighting) in parallel. However, in practice, Muhammadiyah views that *hisab* is enough to represent it so that *rukyat* is rarely practiced. In Muhammadiyah's view, determining the beginning of the Hijriyah month falls into the domain of *ta'aquliy* activities, so automatically *rukyat* is not worship. In the realm of hadith thought there are classifications of *al-sunnah al-tasyri'iyah* and *alsunnah ghairu tasyriiyah*. Not everything that comes must be followed all the time and in all places (Ulum, 2021).

In the context of the hadith on *ruqyat*, the command must be understood for its divine purpose. In this case, the applicable principle of *ushul fiqh* states, "*al-hukmu yaduru ma'a illaitihi wujudan wa 'adaman*." At that time, the only facility available to Islamic civilization in Medina was *ruqyat* (Busyro, 2018). This interpretation can be connected to another hadith: *inna ummatun ummiyah, la naktub wa la nahsub*.

The tendency to prioritize *hisab* over *rukyat* within Muhammadiyah has actually existed for a long time. However, this trend has recently become stronger with the publication of the latest book by the chairman of the Tarjih and Tajdid Council, entitled "Hisab Awal Bulan Qamariyah" (Faiz, 2022). Published by Suara Muhammadiyah. Muhammadiyah's courage to embrace this concept is actually considered revolutionary, as in several Arab countries, the tendencies are still varied (Ulum, 2021).

The 26th Tarjih National Conference, which took place on 1-5 October 2003 AD, coinciding with 5-6 Sha'ban 1424 H, at the Minang Hotel, Padang, West Sumatra, regarding *Hisab* and *Rukyat*, which were compiled in the book *Muhammadiyah Hisab Guidelines*. *Hisab* in Indonesia is seen from the system aspect, the method of determining it is by calculations based on circulation moon and earth average in orbiting the sun. This *hisab* calculation, a year is set at 12 months, each odd month (month 1, 3, 5, 7, 9, 11) is 30 days long and even months (months 2, 4, 6, 8, 10, 12) are 29 days long except the month of Dzulhijah in leap years is 30 days long. As for other, is *Hisab Hakiki* which involves the precise determination of the beginning of the Hijriah month with calculations based on the actual orbit of the moon and the earth (Muhammadiyah, 2019).

Muhammadiyah has maintained consistent application of this hisab method since 1970, as recommended by Muhammadiyah's astronomy and hisab seminar, to the present day. This longitudinal commitment reflect a deep-seated institutional policy integrated across all levels of the organizations's administrative and religious hierarchy (Khusurur, 2020). By prioritizing the mathematical certainty of *Hisab Hakiki*, Muhammadiyah provides a stable and predictable framework for religious observance, distinguishing itself from methodologies that remain dependent on the variables of physical visibility.

Determination of the beginning of the Hijri month according to Nahdlatul Ulama

In determining the beginning of the Hijri month related to religious observance, Nahdlatul Ulama adheres to the letter Al-Baqarah verse 189 and several hadiths related to rukyat (Masroeri, 2017). In addition to the hadith, Nahdlatul Ulama also adheres to the opinions of scholars, namely the Imams of the School of Islamic Studies, where the Imams of the School of Islamic Studies state that the beginning of Ramadhan and Shawwal is determined based on the *ru'yah al-hilal* (actual sighting of the crescent) and with *istikmal* (the completion of thirty days of the preceding month) in the event of invisibility (Al-Jaziri, 2003).

Consequently, Nahdlatul Ulama operates on the principle that while *hisab* provides essential data, it remains a subordinate tool for predictive accuracy rather than a final determinant. This view is based on an understanding of verses on rukyat, such as in Surah Al-Baqarah verse 189, and is supported by hadith. As a commitment of this principle, NU continues to conduct *rukyyat hilal* (crescent moon sightings) in the field even though the crescent moon sighting is still below the horizon, this is done so that decision-making, whether the crescent moon is visible or *istikmal*, remains based on the *rukyyat* system in the field, not from the *hisab* prediction (Yazid, 2018). However, in practice, NU integrates modern astronomical science as a supportive mechanism to validate the feasibility of a sighting, thereby maintaining a synthesis between traditional jurisprudential requirements and contemporary scientific rigor.

In determining the beginning of critical the Hijri month, specifically the Ramadhan, Shawwal, and Zulhijah, Nahdlatul Ulama employs *rukyyatul hilal bilfi'li*, namely seeing the crescent moon directly after sunset on the 29th day (30th night) or

using the basis of *istikmal*, perfecting the age of the moon to 30 days when on the 29th day (30th night) the moon is not successfully sighted (Raharto et al., 2019). As a consequence of *rukyat*, NU continues to conduct *rukyat* in the field even though according to *hisab* the crescent moon is below the horizon, or is theoretically invisible. This protocol ensures that the declaration of *istikmal* remains based on *rukyat* in the field that failed to see the crescent moon, rather than the basis of *hisab*. Similarly, if according to the circumstances the crescent moon is likely to be seen or has been *imkanurrukyat*, but it turns out that not a single report of the crescent moon being successfully *rukyat*, then Nahdlatul Ulama will *istikmal* the age of the month in question to 30 days (Husna et al, 2022).

Reports proving the crescent moon can be rejected if all *hisab* experts (with accurate *hisab* results) state that the crescent moon cannot be sighted, whether the crescent moon's position is below the horizon or at the lower limit of the crescent moon that can be sighted or has not yet been sighted (at least two degrees). Or in other words, the report of the crescent moon results can be rejected if it is not supported by science or accurate *hisab*. In this case, NU accepts the concept of *haddu imkanurrukyat*, but is activated to reject proof of the crescent moon sighting. Thus, in practice, NU also conducts *hisab* at the beginning of the month. However, NU places *hisab* to assist in the implementation of *rukyat* and to control the accuracy of the report of the *rukyat* results (Mustaqim, 2021).

The official date of the PBNU calendar is unknown. This calendar is heavily influenced by the calculations of astronomers, using a system combining the results of various systems developed within the Nahdlatul Ulama community, then dividing them according to the number of systems used. The results of this harmonized calculation are used not only as a guideline for calendar creation but also as a reference for conducting *rukyatul hilal* (the moon sighting) (Ulum, 2021). Nahdlatul Ulama has a principle, the crescent moon at the beginning of the month Hijri especially Ramadhan, Syawal, and Dzulhijjah, are based on the *rukyat* system, where *hisab* is only a supporter (Menchik, 2021).

Nahdlatul Ulama continues to hold *rukyat hilal* in the field. However, according to calculations, the crescent moon is still below the horizon. This is done so that the

decision-making process, whether the crescent moon is visible or *istikmal*, is still based on the *rukyat* system.in the field, not based on *hisab* predictions. However, it cannot be denied that in practice, Nahdlatul Ulama uses and accepts *hisab* science only as a support, not a determinant. In this context, Nahdlatul Ulama also accepts the criteria *imkanur rukyat* of government version, although sometimes some controversial decisions occur (Husna et al, 2022).

NU's stance on the system for determining the beginning of the Hijri month, especially the beginning of the month of Ramadhan, Syawal, and Dzulhijjah was taken through the decisions of the NU Congress XXVII in Situbondo (1984), the National Conference of Alim Ulama in Cilacap (1987), the Lajnah Falakiyah NU Seminar in Pelabuhan Ratu Sukabumi (1992), the Seminar on Harmonization of Hisab and Rukyat Methods in Jakarta (1993), and the 6th Plenary Meeting of the PBNU in Jakarta (1993), which was finally stated in the PBNU Decree No. 311/A.II.04.d/1994 dated 1 Sha'ban 1414 H/13 January 1994 AD, and the NU Congress XXXIV in Lampung (2021)(Ulum, 2021). The PBNU decision has been published under the title "Nahdlatul Ulama Rukyat and Hisab Guidelines" (Falakiyah, 2006).

To achieve quality rukyat, NU uses the science of *hisab* and accepts the criteria of *imkanur rukyat* as a support for the *rukyat* implementation process, *hisab* as a support for *rukyat*. It is not used as a basis for determining the beginning of the Hijriah month, especially the beginning of Ramadan, Shawwal, and Dzulhijjah because it is a science produced by *rukyat* (Awaludin et al, 2022).

The decision-making process issued by NU in relation to the results of *rukyat* to determine the beginning of the month of Ramadan, Shawwal, and Dzulhijjah goes through 4 stages: First, conducting the initial month calculation to assist in the *rukyat* implementation and to control the accuracy of the *rukyat* results report. Second, holding *rukyatul hilal bilfi'li* at predetermined strategic locations throughout Indonesia. Third, reporting the *rukyat* results in the *itsbat* session held by the Minister of Religious Affairs. Fourth, then after the *itsbat* from the government, the PBNU will issue an *ikhbar* regarding the *itsbat* to serve as a guideline for NU members. The NU *ikhbar* can align with the government's *itsbat* if it is issued based on *rukyat*. If the *itsbat* is not based on *rukyat*, NU has the authority to take other policies (Indayati, 2020).

NU is not in a position to validate the results of the *rukyat*. The right to validate lies with the government (Zakaria et al, 2025). The right to publish lies with NU (Ulum, 2021) NU has a national perspective, on the legal territory of the Unitary State of the Republic of Indonesia, in determining the beginning of the month Hijri, especially the commencement of Ramadan, Shawwal, and Dzulhijjah. NU believes that the government's *itsbat* is a necessity. NU press was issued after the government's *itsbat* was issued (Sunardi, 2016).

The NU view which is based on the principle of national *rukyat* supported by *hisab* by accepting the criteria of *imkanur rukyat* and recognizing the government's right to *itsbat* is expected to be material for reflection towards unity in initiating *shiyam*, the Eid al-Fitr holiday, and the Eid al-Adha holiday (Indayati, 2020).

D. CONCLUSION

Based on the preceding analysis, it can be concluded that the divergent methodologies for the crescent moon in Indonesia are rooted in two distinct hermeneutical approaches to Qur'anic exegesis. Muhammadiyah emphasizes the *ta'aqquli* (rational) approach, which prioritizes the *hisab* method in determining the beginning of the lunar month. In contrast, Nahdlatul Ulama maintains the *ta'abbudi* (textual) approach, asserting that *rukyat bil fi'li* (seeking the moon) is a non-negotiable requirement, while simultaneously employing *hisab* as a verification tool. These interpretative variances are fundamentally anchored in differing jurisprudential traditions and the evolving socio-religious landscape of the Indonesian Muslim community.

The methodological discord between Muhammadiyah and Nahdlatul Ulama (NU) carries significant practical implications, often resulting in the inconsistent determination of Islamic holidays. A more in-depth study of the practical implications of the interpretation of *hisab* and *rukyat* (the sighting of the crescent moon) on determining the beginning of the Hijri month in Indonesia is still needed, as this topic has not been discussed in depth in previous research. Further academic inquiry is necessitated to examine and provide essential insights into the potential for a unified

national calendar, which remains a prerequisite for the synchronization of social, legal, and financial activities within the state.

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