

# Rukyat as Determination of the Lunar Month Beginning: A Method, Obstacles, and Debate in Indonesia

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**Submission date:** 13-Jun-2023 12:49PM (UTC-0400)

**Submission ID:** 2115356521

**File name:** 20.\_Rukyat\_as.....pdf (831.93K)

**Word count:** 10295

**Character count:** 52337

## ***Rukyat* as Determination of the Lunar Month Beginning: A Method, Obstacles, and Debate in Indonesia**

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| Received: 01-07-2022

| Revised: 05-06-2023

| Accepted: 11-06-2023

**Abstract:** Two calendar systems are developing globally, namely the *Syamsiyah* system (solar system) and the *Kamariyah* system (lunar system). The lunar system is a calendar used by Muslims and has utility in worship rituals based on the calendar period. Qur'an and Hadith have mentioned this completely, namely, one year consists of twelve months. This study aims to determine the determination of the beginning of the lunar month using the *rukayat* method and to determine the extent to which the implementation of the *rukayat* method can be accepted by the Indonesian people. The type of research in this article is qualitative research or also known as naturalistic research methods. The data analysis techniques used were condensation, data presentation, and drawing conclusions. The results of the study show that the *rukayat* method is one of the methods of determining the lunar month, which has been carried out since the time of the Prophet Muhammad p.b.u.h. and his companions, even today it is still used by Muslims around the world, including in Indonesia. *Rukayat* is a method of determining the beginning of the lunar month by paying attention to important matters and conditions. As for the obstacles of the sighting as determining the beginning of the lunar month, there are several factors, namely the eye of the observer, the shape of the new moon, weather, seeing, the height of the new moon, the distance of the bow and the observer's psychology.

**Keywords:** *Rukayat*; Determination; *Kamariyah* (Lunar); Month Beginning

### **Introduction**

In Southeast Asia itself, especially countries that are members of the Ministers of Religion Brunei Darussalam, Indonesia, Malaysia and Singapore (MABIMS), issued a fundamental decision in 1991 regarding the theory of the visibility of the *hلال* (new moon), which requires the height of the *hلال* not less than 2 degrees, the elongation of not less than 3 degrees, and the age of the moon is not less than 8 hours. In practice, the use of MABIMS *hلال* visibility varies between members. Indonesia, which is considered the "bearer" of the MABIMS *hلال* visibility theory cumulatively and is waiting for the *isbat* (determination) trial to determine the beginning of Ramadan and Shawwal. Meanwhile, Malaysia and Singapore also use MABIMS *hلال* visibility with several considerations. Unlike the two previous countries, Brunei Darussalam uses the MABIMS *hلال* visibility to guide total *hلال* observation. This social fact often occurs regarding *rukayat* as the initial determination of the lunar month (Museumastronomi.com, 2012).

In Indonesia, the development of *rukayat al-hلال* as a method of determining the beginning of the lunar month is believed to have entered Indonesia since Islam came to the Archipelago (Jayusman, 2015a, p. 2). Then the calendar is used in the kingdoms in Indonesia. Only when the Dutch arrived was the Lunar calendar replace the Gregorian calendar for state administration. In addition, the differentiation and multiculturalism of Islam in Indonesia also affect each Muslim's different calendars. At least from historical records, the public commonly uses six lunar calendars. The first is the Javanese Islamic calendar compiled by Sultan Agung. Second, the Muhammadiyah calendar, which was initiated by KH. Ahmad Dahlan, the Tarjih Council, and Tajdid, the central leadership of Muhammadiyah in 1915 AD. Third, the

Muhammadiyah Hijri calendar was published by Suara Muhammadiyah's publisher. Fourth, the PBNU Almanac, compiled by the Lajnah Falakiah team of the Nahdatul Ulama Executive Board. Fifth, the Indonesian Standard Taqwi was compiled based on the results of the work deliberation of the *Hisab-Rukyat* Board of the Ministry of Religion of the Republic of Indonesia. And sixth, the Almanac Menara Kudus, which was compiled by KH. Turaichan Adjhuri (Jayusman, 2015b, pp. 60–61). Both conventional and modern rukyat methods still guide all of these differentiations. Because of this difference, which in its development has become a kind of obstacle and conflict among the people regarding the determination of the beginning of the lunar month, especially the difference in crucial months such as the beginning of Ramadan and the determination of 1 Shawwal.

Therefore, the Komariah month calendar method is necessary. The calendar is a method of measuring time units used to record various important events. There are many other time methods, such as days, weeks, months, years, etc. Broadly speaking, there are two kinds of calendar methods, namely those based on the circulation of the earth around the sun, known as the Syamsiyah/solar method, and those based on the circulation of the moon around the earth, known as the Kamariah/lunar method (Pembinaan Administrasi Hukum dan Peradilan Agama, 1983, p. 1). The lunar calendar is often referred to as the Islamic calendar because this calendar is used officially by Muslims and not only to record important events but has a close relationship with worship rituals, such as the implementation of the fasting month of Ramadan for a whole month, the implementation of the Hajj, the commemoration of the day of Ramadan, Islamic holidays, etc. The lunar calendar or Islamic calendar is also often referred to as the Hijri calendar because the epoch used in calculating this calendar is when the event of the hijrah of the Prophet Muhammad p.b.u.h. from Mecca to Medina. Humanity needs a calendar because humans will always be bound by time and need to organize their activities (Iman, 2016). The Hijri calendar system is based on the circulation of the moon around the Earth. In syar'i the beginning of the Hijri or Komariah month is determined by the appearance of the new moon (young crescent) at sunset on the 29<sup>th</sup> (Nadhifah, 2020). At the time of the Prophet, the *rukya*t method became the only guide to determine the beginning of the month. In other words, the age of the month of Sha'ban and Ramadan is 29 days, or 30 days are determined by *rukya*t. If the *rukya*t succeeds, the moon's age is perfected to 30 days (Widiana, 2000, p. 12).

As for the facts of literature, Khusurur, in his research entitled *The Combination of Hisab and Rukyat as a Method of Determining the Beginning of the Hijri Month*, the opinion of the majority of scholars, the determination of the beginning of the Hijri month, especially the months of Ramadan and Shawwal must be based on two things, namely the *Rukyat* or *Istikmal* method (Khusurur, 2020, p. 161). However, other scholars allow using the *Imkanur Rukyat Hisab* method. Jayusman classifies the early lunar *hisab* (reckoning) method used in Indonesia to be more specific, including: first, the Ministry of Religion, which uses *Urfi* and *Hakiki hisab* based on Taufik's proposal in the 1997 Astronomy Seminar in Tugu, Bogor, West Java (Jayusman, 2015a, p. 7). Second, methods of *hisab* are divided into conventional science (represented by the book *al-Qarwa'id al-Falakiah*, *hisab* book *al-Khulasah al-Wafiyah*, *Sullam an-Nayyirain*, *Almanac Falakiah*, and *Fathu ar-Rauf al-Mannan*), and semi-modern methods represented by New Comb and Jean Meuus. Third, based on calculation procedures, data collection, and principles/formulas. Fourth, the method of *hisab urfi*, *hakiki*, and *rukya*t. And fifth is *hisab Ijtima'*, *imkanur rukya*t, and *hisab* the moon's position (Jayusman, 2015a, p. 8).

These three methods in determining the beginning of the lunar month often result in determining the initial lunar month, which is different, because the methods used are also different. This has given birth to obstacles as well as conflicts in several elements of society against these differences. This paper aims to reveal *rukya*t as a method of determining the beginning of the lunar month and observing the obstacles and debates in Indonesia. Therefore, a study on this matter is very important to discuss because it will find out the root causes of the obstacles and debates that occur in Indonesian society regarding *Rukya*t as a method for determining the beginning of the month of Komariah. So that knowing the root of the problem will produce the best solution.

Research on the *rukya*t method has been carried out by several previous researchers. Suhardiman's research entitled *Fiqh Hisab-Rukya*t: *The Role of the Hisab-Rukya*t Agency on Dynamics in Determining the Beginning of the Lunar Month in Indonesia. This study seeks to reveal the role of the Ministry of Religion of the Republic of Indonesia through the Hisab and *Rukya*t Agency (BHR) as the sole authority in determining the Hijri guide (Suardiman, 2018, p. 63). This is certainly different from what the author will examine, and the difference lies in finding the root of the problem rather than the obstacles and debates regarding *rukya*t as a method for determining the beginning of the lunar month in Indonesia. Another research from Aini 2018 titled *Disparity Between Hisab and Rukya*t: *Roots of Difference and Complexity of Branches*. Aini revealed that so far in Indonesia, there had been recurring problems related to the inconsistency of the beginning of the month of Ramadan, Shawwal, and the determination of the day of Arafah in society, and these things are so basic because they are related to religious rituals in Islam. Aini said the *inkanur rukya*t method could be a mediator and solution to multiculturalism, understanding and sects in Indonesia, and this was also shared by the policies taken by the government (Aini, 2017, p. 41). The difference with the study that the author will examine is in the study of obstacles and debates regarding *rukya*t as a method of determining the beginning of the lunar month in Indonesia. Meanwhile, Andriana's 2019 research entitled *State Authority in Reforming the Method of Determining the Beginning of the Qamariyah Month*. This study tries to place differences of opinion regarding *hisab* and *rukya*t in Indonesia proportionally. Fika thinks that determining the beginning of the lunar month is a matter of *ijtihad*iyah, meaning there is no absolute truth. This is also in line with the message of the Prophet p.b.u.h. that if you make a mistake in *ijtihad*, you will get one reward. Meanwhile, maintaining *ukhuwah*, brotherhood, and the unity of the people is an obligation (Andriana, 2019, pp. 139-140). At the same time, the author's study focuses on the study of *rukya*t as a method of determining the beginning of the lunar month in Indonesia and containing the obstacles and debates.

Based on the literature facts and research gaps above, there are two research questions that the author reveals in this article. First, how is the *rukya*t method adopted to determine the beginning of the lunar month? And second, how is the implementation of the *rukya*t method in Indonesia? The purpose of this study was to find out the advantages and reasons why the *rukya*t method is still commonly used as a determinant of the beginning of the lunar month in the community and to determine the extent to which the implementation of the *rukya*t method can be accepted by the Indonesian people. This article also contains obstacles and conflicts regarding the application of *rukya*t to determine the beginning of the lunar month in Indonesia. This is very important to research because knowing the root cause of the occurrence of obstacles and the debate will resolve the conflict and provide the best solution regarding the initial determination of the lunar month for Muslims in Indonesia.

## Literature Review

### *Rukya*t's Basics and Laws

Many verses in the Qur'an can be used as the basis for *rukya*t law, such as the QS. Yunus/10:5 and QS. Al-Isra/17: 12. In these two verses, Allah has explained that Allah made the sunshine and the moonshine so that people can know the number of years and count them. From this verse, it can also be concluded that the count of years or calendar can refer to the sun and can also refer to the light of the moon and Allah s.w.t. set the number of months as much as twelve months as implied in the QS. At-Taubah/9:36 and QS. Al-Baqarah/2:185.

In addition, Allah also explains this in QS. Al-Baqarah/2: 189, which in the verse of Allah explains that the *hila*l (crescent moon) is a sign of time for humans. Humans can make the *hila*l a sign of the turn of the month, that is, the old month has passed, and the new month has entered. Moonlight is a reference in the calendar (Kamariah system/Lunar system).

In addition to the Al-Quran there are several Hadith that discuss the determination of the beginning of the Lunar month. Including the following: "From Abdullah bin Umar ra. That the Prophet p.b.u.h. said:



“One month is twenty-nine nights, so do not all of you fast until you see the hilal, if clouds cover the hilal then complete the number to 29 or 30 days” (Bukhari, 1992).

The above hadith describes the lunar calendar. The Messenger of Allah has given a reference that the lunar month consists of twelve months, and the number of each month is 29 or 30 days. “From Abu Hurairah said: Rasulullah p.b.u.h. He said: “Fast when you see the hilal and break your fast because you see the hilal. When the hilal is covered by a cloud over you, complete the number of Sha’ban to 30” (Bukhari, 1992).

These hadiths explain that the method of determining the beginning of the month is clear in the sharia, namely by *rukyyat* on the 29th of the lunar month, and if the *rukyyat* is not successful, it can use *istikmal*, which is to complete the number of even months of 30 days. Thus, according to most scholars, *rukyyat* concerning Ramadan fasting is *ta’abbudi ghair ma’kul al-makna* (should not be rationalized / cannot be interpreted as *hisab*).

According to most scholars, the expression *faqduruu lahu* must be referred to as “then complete the number of the month of Sha’ban 30 days” because one hadith is *mujmal* and the other hadith is *mubayyan*. When there is a *mujmal* hadith and a *mubayyan* hadith, it is clear that what is practiced is a *mubayyan* hadith (Kasim, n.d., p. 22). As for the jurists who hold that the determination of the beginning of the lunar month must be by *rukyyat al-hilal* on the 29th of the current month, and if it is not visible, then by completing the number of days that run to 30 days are the Maliki jurists, Hanafi jurists and Hanabilah jurists, as well as the Syafi’iyah jurists. Imam Syafi’i uses two methods in determining the beginning of the lunar month, namely *rukyyat al-hilal* and reckoning (*hisab*). *Hisab* is important in seeing the new moon, but the *rukyyat al-hilal* remains the basis (Amin, 2018).

Thus *rukyyat al-hilal* is a method of determining the beginning of the lunar month that Allah and His Messenger have determined. However, the development of *Hisab* is expected to increase the effectiveness of the implementation of *rukyyat* so that the results are accurate. With *rukyyat al-Hilal* and supported by accurate data and *hisab* results, it is hoped that *rukyyat* will become a method of determining the beginning of the Hijri month that can be mutually agreed upon. This is to avoid recurring debates and problems yearly, especially before Ramadan and Shawwal.

### Overview of *Rukyyat Al-Hilal*

*Rukyyat* (رؤية) is an Arabic term which means “to see” The verb (رأى), has several *masdars*, including رؤيا and رؤية which means النظر بالعين او بالعقل (Ma’luf, 1986, p. 132), which means to see with the eyes or with the mind. In everyday use, the term *rukyyat*, with the understanding as above, is rarely said “*rukyyat*” is a term that is often used by *fiqh* experts or the wider community for the meaning of the new month, which has to do with the beginning of the lunar month (Departemen Agama RI, 1983, p. 1).

The definition of the word *Rukyyat al-Hilal* in its development has changed, but as scholars, they still interpret it as what was done by Rasulullah p.b.u.h., namely *rukyyat bi al-fi’li*, but some others understand it by *rukyyat bi al-ilm*, namely calculating the conditions of the new moon with astronomy (Musonnif, 2017). The *rukyyatul hilal* activity was a custom carried out by the Prophet himself down to the generation of his companions, *tabi’in* and even in modern times to determine the beginning of the lunar month, this refers to the hadiths regarding reckoning and *rukyyat* himself, totaling around 56 hadiths (Imron, 2014). All of these hadiths, whether regarding reckoning or *rukyyat*, are included as authentic hadiths (Hajar, 2015). *Rukyyat* is a method of determining the beginning of the Islamic month by observing the *hilal*’s visibility.

The diversity of definitions and perceptions of the *hilal* in Indonesia can be grouped according to the fraction area of the *hilal* crescent (the ratio of the crescent area to the entire moon’s circle) and the moon’s height at sunset. There are several definitions of the *hilal*, namely:

1. *Hilal* is implicitly defined as all crescents of the moon after *ijtima’* or conjunction at the time of the nearest sunset after *ijtima’*, the moon’s position is still above the horizon. In this case, the fraction of the area of the crescent moon (relative to the entire lunar cycle), which is referred to as the *hilal*, is  $F > 0\%$  (Mark > means bigger, F bigger zero percent), and the height of the moon  $H_{\text{moon}} > 0^\circ$  (moon height above zero degrees) when  $t = \text{sunset time}$ .

2. *Hilal* is implicitly defined as the crescent moon that the naked eye can observe for the first time after *ijtima'*. Implicitly at the time of sunset, which is closest after *ijtima'*. In this case, the fraction of the crescent area of the moon, which is referred to as the *hilal*, is  $F > F_{critical}$  ( $F > 0,7\%$  until  $1\%$  dan moon height ( $H$ ),  $H_{moon} > H_{critical} > 0^\circ$  when  $t = t_0 + \Delta t$ .  $t =$  time to see the *hilal*  $t_0 =$  sunset time, and  $\Delta t =$  the time lapse between the sighting of the *hilal* and sunset time).
3. *Hilal* is implicitly defined as a crescent moon with agreed criteria, for example, the crescent moon after *ijtima'* has a height  $2^\circ$  at the time of the nearest sunset after *ijtima'* and so on. In this case, the fraction of the crescent area of the moon, referred to as the *hilal*, is  $F > 0\%$  (needs to be studied further the original size) and moon height  $H_{moon} > 2^\circ$  when sunset time.
4. *Hilal* is implicitly defined as a hallucinatory crescent moon. Several cases that can have implications for seeing the *hilal*: a) Several cases of success in seeing the *hilal*, whereas, at the time of observing, the condition of the sky in the direction of the western horizon where the sun and moon set was cloudy, it was cloudy so it was impossible to see the sun that would set after the *hilal*; b) Several cases of success in seeing the *hilal*, even though at the time of observation the moon had set earlier than the sun or the moon had set; and c) Some cases of success in seeing the *hilal*, even though *ijtima'* has not yet taken place (Raharto, 2006, p. 8).

Meanwhile, *rukyyat*, in terms of terms, underwent various developments according to its function and use. In the beginning, the meaning of *rukyyat* was limited to seeing the *hilal* at the time of seeing the sunset at the end of the month of Sha'ban or Ramadan to determine the beginning of the next lunar month. If at sunset the *hilal* can be seen, then that night and the next day are the first dates of the new month, while if the *hilal* is not visible, that night and the next day are the 30th of the month that is currently in progress, or other words, the month that is currently taking place in *istikmal* (perfected) to 30 days (Raharto, 2006, p. 8).

The definition of *rukyyat*, as stated above, shows that the people are limited to only doing it at the end of the month of Sha'ban to determine the beginning of the month of Ramadan to determine the beginning of the month of Shawwal. It is known that in subsequent developments, seeing the *hilal* is not only limited to the end of Sha'ban and Ramadhan but also in other months, especially before the beginning of the month, which is related to the time of worship or major Islamic holidays, such as the month of Zulhijah, Muharram, Rabi'ul Awal, and Rajab.

Even for the sake of checking the results of *hisab* and training the skills of the implementers to see the month, it is carried out at the beginning of every lunar month. Thus, the implementation of *rukyyat* is not only carried out at the beginning of Ramadan and Shawwal but can also be carried out at the beginning of other lunar months (Departemen Agama RI, 1983, p. 2).

Implementing *rukyyat* to determine the beginning of the lunar month for worship purposes as above, in reality in the field, is not an easy job because the new month, which is the *hilal*, is very soft. The success of *rukyyat al-hilal* depends on the sharpness of the eyesight, the contrast of the *hilal* with the natural surroundings, and the weather conditions. Thus the *rukyyat al-hilal* requires adequate professional experience through continuous, regular and methodological research.

## Method

The type of research in this article is qualitative research or also known as naturalistic research methods. This is because the research was conducted in a natural setting. In addition, the object under study is also natural because it is what it is, and there is no element of manipulation from the researcher from beginning to end. Data sources in this study are all information that can be used as a guide in research and those related to the research focus. Specifically, the data sources in the research are divided into books, documents, archives, and scientific articles related to the research topic. The data collection technique used is documentation or library research. The data analysis techniques used are condensation, data presentation, and conclusion drawing (Miles et al., 2014).

## Results and Discussion

### Method *Rukyat Al-Hilal* for Indonesian Islamic Society

*Rukyat* is one of the methods of determining the lunar month that was carried out at the time of the Prophet and his Friends, even today there are still many Muslims around the world who do it, especially in determining the beginning and end of the holy month of Ramadan (Arbi, 2006, p. 7). Implementing the *rukyat al-hilal* as the determination of the beginning of the lunar month in Indonesia has existed along with the entry of Islam in Indonesia. Some Muslims in Indonesia are still doing *rukyat* in determining the beginning of the month related to the implementation of worship, namely the month of Ramadan, Shawwal, and Zulhijjah.

There are several important things related to the *rukyat al-hilal* as an initial method of determining the beginning of the lunar month for Muslims in Indonesia, namely:

1. *Hilal* is a very thin crescent moon that can be observed for the first time after *ijtima'* or conjunction. Therefore, it is necessary to know the time of conjunction or *ijtima'*, namely when the moon and sun are at the same ecliptic longitude. In principle, observing the *hilal* before *ijtima'* occurs is impossible because the *hilal* has not yet been born. If anyone manages to observe the *hilal* at times before *ijtima'*, it is clear that what is being observed is not the *hilal*.
2. The sighting of the *hilal*, a very thin crescent of the moon that can be seen for the first time with the naked eye, requires that the twilight conditions have dimmed, generally between the time of Maghrib and Isha. Therefore, the sighting of the *hilal* is only possible after sunset.
3. The position of the moon at sunset needs to be confirmed. If the moon has set at sunset, then the *hilal* is impossible or impossible to observe. However, the Indonesian government's decision to adopt the *rukyat hisab* system usually awaits the results of the *rukyat*.
4. *Hilal* is a natural phenomenon, part of the process of changing the appearance of the moon's face in the sky. *Hilal* is the first crescent moon that can be observed (from a place) with the naked human eye. The visibility of the *hilal* (somewhere) with the naked eye is a sign of the turn of the Islamic month (somewhere).
5. Indonesia, which adheres to the *Hisab-Rukyat* system, if the moon's position at sunset is still above the horizon, then the implementation of the early Islamic month needs to adopt the agreed criteria for the visibility of the *hilal* and wait for the results of the *rukyat*. In Indonesia, the standard *taqvim* calendar uses the criteria at sunset, the moon's height is above or equal to 2°, then it can be determined that it has entered a new month. This criterion does not guarantee that every determination at the beginning of the month is based on the physical visibility of the *hilal*.
6. The shortest number of days in a month is 29 days, and the longest is 30 days. The Islamic day and calendar start after Maghrib.
7. Indonesia adheres to the *Hisab-Rukyat* system, the available *rukyat* time is on the day of *ijtima'* at the end of the Islamic month, the 29th day.
8. Indonesia adheres to a unified system of jurisdictions, the results of *rukyat* throughout Indonesia are binding on Indonesian Muslims, as the determination of the beginning of the Islamic month in Indonesia (Raharto, 2006, p. 9).

Meanwhile, in determining the start of the month of Ramadan and Shawwal, the Ministry of Religion of the Republic of Indonesia uses the paradigm that the correct *rukyat* will not conflict with the results of *hisab*, so maybe one of them is wrong, or both are wrong. Based on the paradigm of the Ministry of Religion regarding the determination of the beginning of the month of Ramadan and Shawwal based on the principles, among others, that *rukyat* can be used as the basis for determining the beginning of the month of Ramadan and Shawwal, namely *rukyat* that meets the following requirements:

1. *Hilal* is the first crescent moon seen with the naked eye after conjunction (*ijtima'*). To observe the *hilal*, the main requirement is that the moon is above the horizon at sunset. If this first condition is not met, it will be useless to observe the *hilal*. Therefore, for the observations to be effective and efficient, knowledge of the position of the *hilal* is required at the time of the observation. However, even though,



according to the *hisab*, the *hilar* is already on the horizon, it is not certain that the *hilar* can be observed. Many factors affect the appearance of the *hilar*, in addition to weather conditions at the time of observation, the twilight sky, parallax horizon, space refraction, horizon depth (DIP), the angular distance between the moons, the sun and the height of the moon on the horizon (Darwanas, 1994, p. 7).

2. *Rukyat* must be *isbat* (determination) by the religious court judge after being examined from the sharia and the science of *hisab*. This is following the opinion of *fiqh* experts, namely: "Fasting is obligatory because it is proven that the *hilar* can be *rukayat* (to see) before a judge based on the testimony of a just person as explained earlier accompanied by the judge's statement that the *hilar* is proven to be visible. So fasting is obligatory for all residents, where the *hilar* is visible." And it is proven that the sight of the *hilar* for those who do not see it for themselves is proven by the judge's decision (Taufiq, 1993, p. 10).
3. *Rukyat* performed must be supported by accurate data and *hisab* so that the presence of the *hilar* can be determined (its height and azimuth). Thus, the implementation of *rukayat* will be more focused, the results will be accurate (scientifically accounted), and the object seen is indeed the *hilar* and not another object. As the azimuth explanation in the table below in table 1 (Jamaludin, 2018, p. 168):

**Table 1.** Azimuth and Maximum Height

Different Azimuth	Maximum Height (°)
0,0	8,3
0,5	7,4
1,0	6,6
1,5	5,8
2,0	5,2
2,5	4,6
2,0	4,0

4. The *rukayat* does not conflict with the *hisab* of the *qath'i hisab* experts, and this is following the opinion of the *fiqh* experts, namely: "In the book of *Mughni* by al-Khotib there is a stipulation that if one or two witnesses say they have seen the *hilar* while the *hisab* results say it is impossible to see the *hilar*, then according to Imam al-Subuki the testimony cannot be accepted because *hisab* has a *qath'i* value." Meanwhile, human testimony is only a strong assumption, and a strong assumption cannot defeat something that has definite value (Jamaludin, 2018, p. 168).
5. If the *hilar* cannot be *rukayat* (to see) because there are obstacles such as cloudiness, clouds, pollution and others, while according to the calculation of the *hisab*, the *hilar* may be *rukayat* (to see), then the determination of the beginning of the month of Ramadan is determined based on the *imkanur rukyat*. This is under the opinion of the *fiqh* experts as follows: "If the *hisab* shows that the *hilar* has appeared and it is possible to do *rukayat* after sunset, but it cannot be *rukayat* (to see) *bil fi'il*, then the determination of the beginning of the month of Ramadan should be completed with the results of the *hisab*." As for what is meant by *rukayat bil fi'il*, it cannot be seen with the naked eye because it is covered with clouds or other particles that cover the *hilar* (Jamaludin, 2018, p. 168). The visibility coefficient for the *hilar* can be seen as shown in Table 2 below (Nugraha, 2011, p. 625):

**Table 2.** Visibility *Hilar*

No.	V	Visibility <i>Hilar</i>
1.	$5,65 \leq V$	The <i>hilar</i> is easy to see with the naked eye



2.	$2,00 \leq V < 5,65$	The <i>hilal</i> is easy to observe with optical instruments and may be observed with the naked eye
3.	$-0,96 \leq V < 2,00$	The <i>hilal</i> is only possible to observe with optical instruments
4.	$V < -0,96$	The <i>hilal</i> will not be observed even with optical instruments.

### **Rukyatul Hilal Obstacles as a Method for Determining the Beginning of the Komariah Month**

The success or failure of the *rukyyat al-hilal* depends on the conditions to the west of the place of review, the position of the *hilal* itself and the foresight of the observer's eye. Based on the experience that is often done, someone usually estimates whether or not the *hilal* is a new month. There is no guarantee because the shape of the *hilal* is so thin, and it looks like a cloud in the background. *Hilal* is very difficult to observe by people whose calculations are not sharp (Departemen Agama RI, 1983, p. 14).

Several obstacles in the field must be considered so that the *rukyyat al-hilal* can be successful, and what is seen is indeed the *hilal*. Some of the obstacles to the visibility of the *hilal* include:

1. Observer factor. To successfully see the *hilal*, the observer must not be farsighted. Shortly after sunset, until an hour later, it was felt that the vision was less alert because the eyes were not used to the dim light. Therefore, to successfully see the *hilal*, the eye must be trained to see distant objects at dusk. Observers who often succeed in seeing the *hilal* are generally first in a dark room one hour before sunset, as soon as they are notified that the sun has set, they go out and immediately conduct reconnaissance at the location of the sky that has been predetermined based on the calculation results. Because previously he was in a dark room, he felt his eyes were very alert when he came out, whereas, for others, the light outside the room was very dim.
2. The *hilal* form factor. In the form of a line of yellow light. The entire edge of the lunar disk can rarely be seen clearly. With a form like that, observers often get lost, thinking that what they see is the *hilal*, even though it is *mega*.
3. Weather factor. Often the weather in the area of the *hilal* location is not supportive. For example, rain, cloudy, foggy, lots of dust particles or lots of water particles. Because of this water particle disturbance, *rukyyat* business from the seaside with a west-facing towards the sea is more difficult than if *rukyyat* business is carried out facing a low lowland that opens in the west.
4. They see factors. Seeing is a distraction for observation because the air in front of the observer moves due to temperature changes. This seeing factor can be explained, if the observer faces the bonfire, the people behind the bonfire are difficult to observe clearly. It looks as if the person is moving so that the boundaries of the image are not clear, even though the person is standing still. After sunset, this seeing factor occurs in space because the air temperature changes from hot in the afternoon to cold after sunset. As a result, it is difficult to observe the *hilal*.
5. The height factor of the *hilal* above the horizon. The *Hilal*, the same height above the horizon at sunset, can never be seen. Then the height of the position of the *hilal* above the horizon is easier to observe. This is a result of the refraction of space. Space consists of layers of air that are not the same density. The higher the air, the more tenuous. Light is refracted or bent in the plane between two layers of air that are not the same density. The closer a celestial object is to the horizon, the stronger it is refracted. If you observe the full moon that has just emerged from under the eastern horizon, you can see that the moon is not round but slightly oval. That is the effect of celestial refraction. Observers who managed to see the *hilal* and followed the moon's motion down towards the western horizon could never observe the *hilal* until it touched the horizon. At an altitude of approx  $2\frac{1}{2}$ , the degree of the *hilal* is no longer visible. This is also the effect of celestial refraction. To be able to see the *hilal*, it must have a certain height above the horizon. The Conference of Islamic States in Istanbul in 1879 determined that the *hilal* could not be seen if the height was not too high  $5^\circ$ . However, observers' experience in Indonesia has a high *hilal* of only  $2\frac{1}{2}^\circ$ . This incident confused astronomer. At one of the seminars in Tugu, Bogor, the evaluation

team of the *Hisab Rukyat* Agency of the Ministry of Religion discussed this incident. This seminar has not succeeded in ascertaining why the high *hilar* is only  $2\frac{1}{2}^{\circ}$  can be seen from Indonesia, though it cannot be seen from Europe. This seminar can only make assumptions. Black clouds often cover the sky above the equator. Maybe the *hilar* was in the gap between the dark cloud groups on that occasion. If the position is like that, it is not impossible to see even though the light of the *hilar* is dim because of the contrast between the moon that reflects light even though it is dim and its dark environment. This situation can be compared if one observes someone smoking in the light of day in the middle of the field at a distance of  $\pm 40$  meters. The smoke from a cigarette cannot be seen because it is not comparable to the bright light surrounding it. If the incident is seen in the middle of the night, can be seen the cigarette flames because of the contrast with the dark environment.

6. The factor of the arc distance between the *hilar* and the position of the sun that is setting. If the distance is too close, the *hilar* is difficult to observe because the light is inferior to the sunlight scattered in the sky. The Conference of Islamic State in Turkey in 1978 determined that the *hilar* can be seen when the distance from the sun is minimal  $8^{\circ}$ .

Observer psychological factors. This factor in psychology is called hallucinations. The object does not exist, but he is eager to see it or afraid to see it because of a mental condition. Has anyone ever reported seeing the *hilar* in a position  $8^{\circ}$  in the north to the west, even though the position of the *hilar* at that time was  $7^{\circ}$  in the southwest direction (Arbi, 2006, p. 6). The perpetrators of the *rukayat* must also meet the criteria of having spiritual health, clear vision, being fair, trustworthy, and knowing the situation and conditions of the *rukayat* (Raisal, 2018).

#### **The Debate on Determining the Beginning of the Komariah Month and the Role of the Indonesian Government as a Solution in Responding to Differences**

Determining the beginning of the lunar month has been the longest study and has never found a meeting point in determining the beginning of a different month (Suhardiman, 2013). Especially before Ramadhan, Eid al-Fitr and Eid al-Adha (Muslifah, 2020). The dynamics regarding the debate over the beginning of the lunar month has affected the condition of Muslims, so far, there has been no established Islamic calendar (Alwi, 2020). The difference, which later gave rise to the debate, was born because of the method of determining the beginning of the lunar month, which is different (A. H. T. Hidayat & Izomiddin, 2019). In her research, Siti Tatmainul Qulub that the factors causing the difference are the height of the new moon and different approaches and methods in determining the beginning of the lunar month (Qulub, 2015). For example, NU uses the *rukayatul hilar* method as outlined in PBNU decision No.311/A.II.04.d/1994 and the NU Congress in Lirboyo Kediri in 1999 (Madaniy, 2003). In contrast, Muhammadiyah uses the reckoning method pioneered by KH Ahmad Dahlan to respond to the Aboge system (Rohmat, 2014).

From this fact, a kind of adage emerges which says that if the minister of religion is from NU, then he will use the *rukayat* method, and if the minister of religion is from Muhammadiyah, then the method of determining the beginning of the lunar month will use the reckoning method. However, this did not become a prolonged problem, this was evident in the administration of President Abdurrahman Wahid and the minister of religion held by Saiq Aqil Munawar, as well as when held by Tolhah Hasan, Maftuh Basyuni to Suryadarma Ali (Hefni, 2019). This difference does not only occur in groups using the reckoning and *rukayat* methods. However, it can occur in fellow adherents of the reckoning method or fellow adherents of the *rukayat* method, as is often the case for differences between Muhammadiyah and Persis, even though both use the reckoning method (Mulyadi, 2010). This is because both the reckoning and *rukayat* methods have various criteria (Iman RN, 2016). Therefore, despite these differences, the Ministry of Religion tries to synthesize the two methods (*hisab* and *rukayat*) (Azhari, 2000).

Some of these differences are also due to laws allowing people to think and worship according to their beliefs (Fadholi, 2019). Coupled with ideological and political interpretations that resulted in debates about determining the beginning of the lunar month in Indonesia (Hefni, 2020). This conflict in differences

will then affect the determination of a worship procession, including the first day of Ramadan, Eid al-Fitr and the beginning of the month of Dzulhijjah (Ulum, 2015).

Indonesia recorded several differences in determining the beginning of the lunar month. Among them were in 1985, 1992, 1993, 1997, 1998, 2002, 2006, 2007, and 2011, and the discrepancies will always repeat themselves (Azhari, 1998). One of the reasons for this difference was the differentiation of the methods used. If this difference is not anticipated, it will create commotion and division among Indonesian Muslims, and this can also cause the people's psyche to become unhealthy because, like a steady (sustainable) custom carried out by the community, where they need more time and preparation, both to welcome the month of Ramadan and Shawwal.

Based on this argument, there needs to be an intervention that commands and coordinates the determination of the Muslim Hijri calendar simultaneously, and in this case, the government through the Ministry of Religion by forming the *Rukyat* Reckoning Agency (BHR) (Kementerian Agama RI, n.d.). The government always tries to resolve the debate through the BHR by conducting training, workshops, seminars and meetings (Hambali, 2012).

Efforts to resolve this, for example, were carried out by the Religious Research and Development Agency and Religious Education and Training Ministry of Religion of the Republic of Indonesia by holding a National Seminar on Hisab and *Rukyat* in 1424 H or 2003, which resulted in three joint criteria options, namely the shape of the national *hilar*, LAPAN criteria and crescent area criteria (Azhari, 2015). So the Ministry of Religion always tries to carry out various dialogues to make the lunar calendar one date throughout Indonesia (Wahidi, 2011). The government, through the Ministry of Religion, has attempted to unite various opinions regarding the method of determining the lunar month (Muslifah, 2020).

However, problems later arose because community organizations (Ormas) rejected the provisions of the government and carried out worship rituals according to the *ijtihad* they believed in. According to Hidayat, they are departing from the analysis of QS. An-Nisa/4:59 and the principles of *ushul fiqh* "The government's decision binds and eliminates differences of opinion", religious issues that have relations with social affairs, ideally the government has the right to intervene and decide. The decision is coercive (*binding/ilzam*) (M. N. Hidayat, 2012, p. 79). However, the government is still trying to standardize the *hijriyah* calendar or determine the beginning of the lunar month in Indonesia (Hamdun, 2014).

Qardhawi also added that the people must obey their leader as long as it does not come from two conditions. First, the rules made by the government do not conflict with Islamic law. And secondly, these opinions can change according to changing conditions, customary law, and traditions (M. N. Hidayat, 2012, p. 62). According to Hidayat, looking at the government's position from the perspective of *fiqh siyasah* is important. This position will later lead to people's understanding of how strong the regulations made by the government are.

This is because every government regulation always contains and relates to *masalih al-mursalah*, namely decisions that are in line with *syar'i* guidance and are useful for the common good, there is no specific argument that points to it, and the benefit is not contrary to the Qur'an, Sunnah and *Ijma'* (Misran, 2016, p. 251). As for achieving a benefit, all issues need to be discussed first. Likewise, in taking *ijtihad* in determining the Hijri calendar, the government sits in discussions with experts, the Ministry Of Religion, and mass organizations.

Hidayat also mentioned that Ulil Amri's opinion could be applied to three scopes, including: matters for which there is no provision from the texts (Qur'an and Hadith), problems that have alternatives, and finally, related to the common good (*maslahat al-mursalah*) (M. N. Hidayat, 2012, p. 83). In the *rukyat* case study, the government can be categorized into points two and three because differences of opinion are clear in the historical records of Islamic scholarship, as *fiqh* experts have different views on the law. So the government here must be able to choose alternatives and *tarjih* (interpret) some of the existing opinions and choose the closest alternative to its realization with the aim of sharia and the benefit. Rahmad et al. added that the government must have a strong foundation on *rukyat* so the community can follow it. Both normatively, logically-philosophically, and juridically (Rahman et al., 2020, p. 111).



### 1. Mechanism of Determining the Lunar Month Beginning by Government

The government, through the Ministry of Religion, has regulated the mechanisms and procedures for determining the beginning of the lunar month, which are as follows (Nufus, 2018, p. 10):

- a. The implementation of the *rukyyat al-hilal* by the government through the regional offices of the Ministry of Religion of the Provinces or the offices of the Ministry of Religion in districts/cities throughout Indonesia.
- b. The Directorate General of the Religious Courts Board of the Supreme Court ordered the Religious High Courts/Sharia Courts throughout Indonesia as experts and officers to witness the *rukyyat al-hilal* witness observe the implementation of the *rukyyat*.
- c. The *rukyyat al-hilal* activity must be carried out with judges of the Religious Courts/Sharia Court, representatives of Islamic organizations, religious leaders, *Hisab-Rukyyat* experts, and the general public in strategic places.
- d. People who want to join can do *rukyyat al-hilal* with the *rukyyat* committee at the provincial office of the Ministry of Religion or the district/city Ministry of Religion.
- e. As soon as possible, reports on the results of *rukyyat* activities and regional *rukyyat* committees will report to the *rukyyat* and *isbat* (determination) committees for Ramadan, Syawal, and Zulhijjah at the Indonesian Ministry of Religion (Central).

### 2. Responding to Differences in the Determination of the Hijri Month Beginning in Indonesia

Based on the social reality regarding the method of determining the beginning of the lunar month, there are differences of opinion in terms of the methods used and from community organizations. For example, Muhammadiyah, with the concept of *wujud al-hilal* does not require *rukyyat* with the determination of the new month but is sufficient by calculating the position of the *hilal* above the horizon, even though it is only one arc minute. While the Nahdatul Ulama (NU) requires *rukyyat fi al-fi'il*, when the *rukyyat* process is unsuccessful, it will be *istiknal* to 30 days.

People often think of his views as the only right, while others are wrong. The consequences then widen to the truth claim on religious issues. Whereas what is considered a "religion" is an interpretation of religion itself. Most scholars argue that the absolutism of religion is in the area of *ijma'* ulama or the area of *mulhakat* arguments, such as: the oneness of God and the truth of the Qur'an. Meanwhile, in the area of *musytarak* and *mutasyabihat* arguments, which are still the *ikhtilaf* of scholars (due to differences in interpretation), they are relative. Nevertheless, relativity is meant here in the context of truth, not in the context of wrong and false. Because Allah gives guarantees to scholars who make efforts to *istinbath* the law of guaranteeing the truth (New.uin-malang.ac.id, 2013).

Marpaung said that ideally, the state plays a role and has full authority in realizing the determination of a uniform lunar month, Marpaung called it the editor of the "State *Mazhab*". Even though the country is open to polls by experts and groups, even though Islam allows this, it is feared that these repeated differences will divide multicultural Indonesian Muslims. However, many concepts must be considered and matured before realizing the idea (Marpaung, 2018, p. 130).

Regarding the State school of thought, in determining the beginning of the lunar month, the MUI has stated its position in its fatwa No. 2 of 2004 that "all Indonesian Muslims are obliged to comply with the provisions of the Indonesian government regarding the beginning of Ramadan, Shawwal and Dzulhijjah". So here, the government becomes the authority that maintains the Islamic calendar in Indonesia (Rohmah, 2015).

From a methodological point of view, the government has been gathering *Falak*/astronomy experts and mass organizations for a joint session when determining the initial moment of Ramadan or 1 Shawwal, and the results of the decision were announced in an *isbat* (determination) session to the Indonesian people. The decision to accept starts with the *Hisab* and *Rukyyat* Agency collecting data from various religious groups and government agencies as well as from experts on reckoning and *rukyyat*, this data becomes the basis for observing the *rukyyatul hilal* whose results will be reported to the minister of religion and decided at the *isbat* assembly and then announced to the people of Indonesia (Musfiroh, 2012). The *isbat* meeting

itself was attended by all elements of the government and religious experts as well as astronomy/astronomy experts from both Islamic organizations and related institutions as well as from individuals (Nufus, 2018).

Wahidi commented that it felt strange when the trial agreement had been obtained, but some people rejected it and continued to carry it out according to the provisions of their respective groups/organizations (Wahidi, 2011, p. 90). Muslifah added that although many argue that "difference is a blessing", in the case of rukyat al-hilal, this indicates friction. Among them are the legitimacy and solemnity of worship, the emergence of conflicts between community groups and the government, the decline in the credibility of the scholar, and the possibility of damaging the image and symbols of Islam (Muslifah, 2020, pp. 93-94), this image of Islam includes those who continue to argue over petty things and ignore the grand design of Islam to spread mercy to all people.

Lastly, Djalaluddin also said Muslims should unite without debating the methodology for determining the lunar month. This is based on the same vision: all want an established Hijri calendar system that provides certainty of worship times. The established criteria meet at least three elements of the requirements, firstly, there are boundaries of the application area. Secondly, a single authority sets them, and finally, certain criteria are mutually agreed upon (Djalaluddin, 2011, p. 29).

## Conclusion

Therefore, the results of the analysis of the authors conclude that the *rukyyat* method is one of the methods of determining the lunar month, which has been carried out since the time of the Prophet Muhammad p.b.u.h. and his companions, even today it is still used by Muslims throughout the world, including in Indonesia. *Rukyyat* is a method of determining the beginning of the lunar month by paying attention to important matters and conditions. As for the obstacles of the sighting as determining the beginning of the lunar month, there are several factors, namely the eye of the observer, the shape of the new moon, weather, seeing, the height of the new moon, the distance of the bow and the observer's psychology. Then the debate over the difference in determining the beginning of the lunar month in Indonesia is caused by the different methods used. This difference will create commotion and division among Indonesian Muslims if it is not anticipated. Therefore, the government accommodates determining the beginning of the lunar month through the Ministry of Religion by gathering experts in astronomy and various Islamic organizations for a joint meeting, and the results of the decision are announced in an *isbat* meeting for Indonesian people. *Rukyyat al-hilal* is successful in one area of Indonesia and applies to all regions of Indonesia because Indonesia adheres to a unified jurisdiction.

There are two recommendations from the author for Indonesian Muslims in responding to differences in determining the beginning of the lunar month using *rukyyat al-hilal*: First, Following the direction of one command from the government. This is because *Ulil Amri* (government) has legal and legal authority in state administration and Islam. Furthermore, this aligns with the concept of *mashalih al-mursalah* in Islam. An second, The public can follow directions from mass organizations, provided that the methodology used in determining the beginning of the lunar month is scientifically correct and has the correct reference source. The selected mass organizations are also, as much as possible, within the scope of mass organizations recognized by the legitimate government.

## Acknowledgement

Thank you to all those who have contributed to this research so that it can be completed in the form of a scientific article. This research was not funded by any institution, but purely on the initiative of the author personally. Thank You.

## Conflict of Interest

This article has not a conflict of interest

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