

Moon Cycles and Mental Ailments

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ABSTRACT

It is a long-held belief that the phases of the moon affect the human mind. At the time when we have landed on the moon, such beliefs also need to be tested. In this paper, we have taken up the question of whether moon cycles have some effect on the mental disorders of humans. While Science does not believe any impact of moon phases on humans but it is an observable fact that phases of the moon do affect water in the sea. Tidal waves reach the peak on a full moon day. It is due to the gravitational pull of the moon which is at its peak on full moon day. As the moon cycle affects water and we, the humans, are made up of 70% water, is it possible that we also get affected by moon phases? Scientifically researched papers bring out that moon cycles intensify the sufferings of patients of bipolar disorder and schizophrenia; on the other hand, there is equally credible scientific research which denies any correlation between moon cycles and human behaviour. The paper examines both aspects.

Keywords: *Phases of the moon, Moon phases and its impact on humans, mental disorders and moon cycles, Moon's gravitational force, tidal waves of ocean and moon*

The shining moon in the night sky has always fascinated us, especially creative people like writers and poets. A full moon is a delight to watch. The sight is so soothing and sweet that the fragrant feel lingers in us for a long time. Its beauty is compared to pretty lasses by poets and Urdu Shayari is replete with ghazals focusing on this. Moon cycles also are depicted in fascinating lyrics and the full moon is at its best in the lyrical world.

However, the moonless nights, the 'Amavasya' is linked to ghost hauntings. Since childhood, we have been fascinated by horror stories told by elders where the background was always 'Amavasya'.

The moon is said to affect the tidal waves of the ocean---Facing the Moon → you are in **High tide**; Forming a 90° angle with the Moon → you are in **Low tide**. This is an observable fact that on full moon time, the intensity of tidal waves is at peak i.e., the height of high tides is at peak and also the low tide pushes water deeper into the sea. It is said that this may be due to the higher gravitational pull of the moon as it is closer to Earth on full moon night.

The moon is intermingled in our lives and we have grown up with many beliefs about the moon affecting us.

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A commonly held belief is that the full moon affects humans emotionally. The idea is that a full moon can stir up emotions, provoke bizarre behaviour, and even cause physical illness. It's a strongly held belief, even today. One study says that nearly 81% of mental health professionals believe the full moon can make people ill. For centuries, physicians and philosophers blamed behavioural changes on the moon's pull.

The word "lunatic," after all, stemmed from the idea that changes in mental state were related to lunar cycles. The connection between the two is even supported in historic legal treatises. For instance, famed British jurist William Blackstone wrote that people gained and lost their ability to reason according to the moon's shifting phases. The "lunar effect" is based on the belief that health and behaviour are altered during specific stages of the lunar cycle, with some claiming that it can affect everything from reproductive health to sleep quality and beyond. (<https://www.healthline.com/health/full-moon-effects#about>)

We all know the word, 'Lunatic' means a mad person. Does this word have some relevance to the moon?

Yes, it does!!

The root of this word is *luna*, which means moon. That's because *lunatic* originally meant someone who went crazy with every phase of the moon, kind of like a werewolf. Most people these days don't believe in moon-caused insanity, but we still talk about lunatics, sometimes meaning clinically insane people. More often this is a slang term, used mainly in exaggerations, for anyone who seems wild and out of control.

(source: <https://www.vocabulary.com/dictionary/lunatic>)

Thus, it appears that the moon has been associated with mental aberrations. In this paper, we shall explore whether the phases of the moon have some impact on human mental disorders and if so how.

Let us first explore how moon phases impact our lives:

Moon's impact on our lives

Before we take discussions on a scientific platter, we must delve into the thinking that our ancestors and philosophers had on this topic.

Historical Belief Linking Moon Phases to Human Behaviour and Health

Mood swings and bouts of anxiety have been linked to phases of the moon from ancient times. Even classical literature abounds in such references. In Shakespeare's "Othello," the maid Emilia tells Othello that the moon has drawn too close to the Earth — and driven men insane.

A paper by the Royal Museum Greenwich¹ brings to us the history of belief that moon phases do have something to do with our mental problems.

"Belief in the Moon's influence on human sickness and health is ancient and widespread, from early folklore and medicine through to contemporary accounts of full moons and a rise in violent crime.

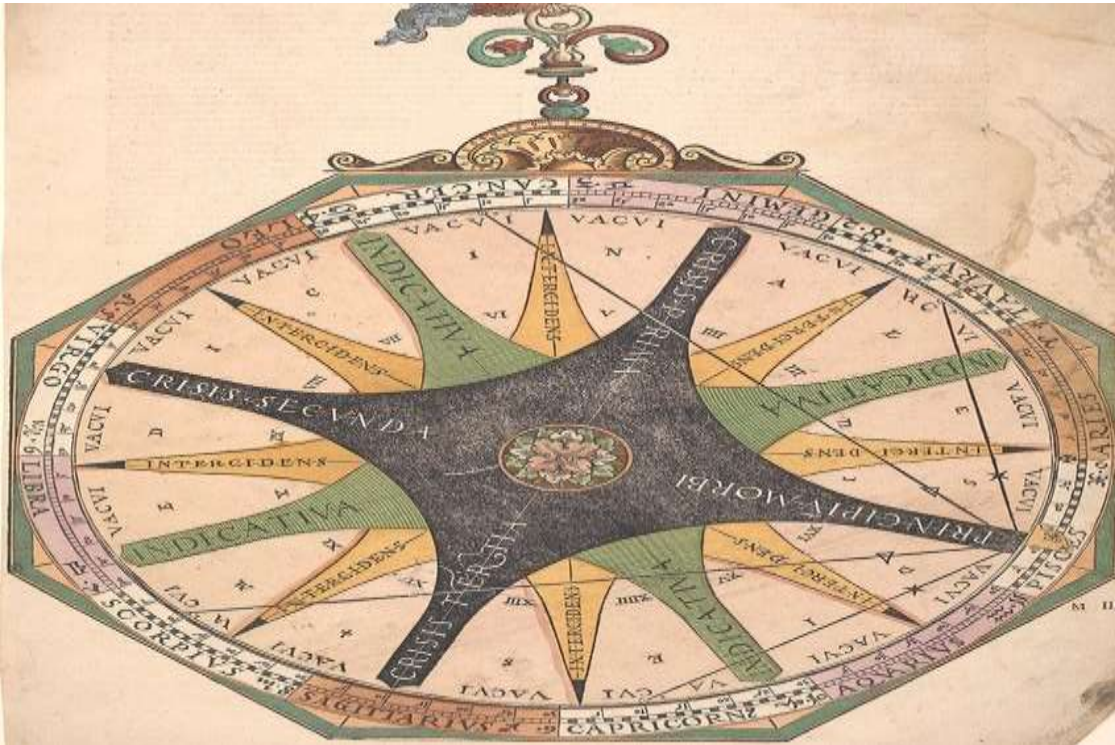
One of the oldest objects in the 2019 Moon exhibition at the National Maritime Museum was a Mesopotamian tablet from 172 BCE. The tablet describes how to ward off the evil effects of a lunar eclipse, which were believed to threaten the life of the king.

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In ancient Greece and Rome by contrast, girls were given crescent-shaped amulets on their birthday to protect them from evil spirits. Women also wore them to improve fertility and for protection during childbirth.

By the 16th century, tracking the Moon's position had become an "essential part" of medicine according to Louise Devoy, Curator of Royal Observatory Greenwich.

The chart below shows one way in which physicians would determine how the Moon affected their patients.



"They used the black spokes on these rotating paper discs – volvelles' – to keep track of the Moon's position," Devoy explains. "The waxing phases of the Moon were thought to enhance the benefits of bloodletting. In contrast, the Full Moon was thought to intensify a patient's fever. Similarly, apothecaries created herbal remedies using watery plants that were thought to be influenced by the Moon." Volvelle shows the critical days of illness.

In Hinduism meanwhile, the god Chandra embodies the movement and changing faces of the Moon, and is closely aligned with periods of sickness and health.

Thus, it has been an ancient thought that the moon has a close influence on our lives and that it could correlate with mental aberrations.

Science does not accept these beliefs.

But still, there is research literature available that speaks aloud that the above beliefs could be true and moon cycles do affect mental ailments.

Impact of Moon cycles on Human Mental Ailments

We saw the beliefs from ancient times about lunar cycles affecting humans, but now we take up real scientific discussions on this topic and explore the pieces of evidence that moon phases do affect mental illnesses.

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Psychologist Susan Albers, PsyD², walks us through some of the research that's been done on lunar cycles:

“All organisms conduct natural biological cycles for survival. When we talk about biological cycles, we probably most often think of our circadian rhythm — our bodies' internal 24-hour sleep-wake cycle — and infradian rhythms (cycles that last longer than 24 hours) like the 28-day menstrual cycle or seasonal affective disorder (SAD).

All of these biological cycles change based on internal and external factors. And since our human bodies are made up of 55% to about 78% of water, there's some reason to believe we, too, might be impacted by the moon, its light and its 27-day lunar cycle — especially when you consider the moon's gravitational pull on the earth is powerful enough to affect the ocean tides.

Research has shown that several species have adapted some of their biological cycles to line up with the lunar cycle. The reproductive cycle of marine animals like tropical corals during full moon nights, annelid worms during the waxing moon and the emergence of midges at neap tides is evidence of this lunar connection. A comprehensive overview of research highlights the moon's effects on biological processes across multiple species related to activity levels, feeding rituals, photosensitivity, migration, moulting patterns and more. But what about humans?

Studies reveal that there is some impact of the full moon on the sleep patterns of humans. In a 2013 study, researchers discovered that around the full moon, people spent 30% less time in NREM sleep (deep sleep) and slept for 20 minutes less than when there wasn't a full moon. These changes were also associated with decreased levels of melatonin. Melatonin is one of those hormones that is naturally released at night to calm your body down and prepare your body for sleep.

Do Moon Phases really impact Mental disorders?

Apart from sleep getting impacted by the moon, there is evidence that emotions also get impacted. It's long been believed that the moon can affect your mood. It's certainly true that environmental factors can play a part in a person's mood swings and act as a trigger for anxiety and depression, but it's unclear exactly how (if at all) the lunar cycle affects our mood and mental health.

Susan goes on to add:

More research needs to be done, but what we do know is that the moon may have an impact on people with bipolar disorder. In a small study of 17 people, researchers learned that their patients cycled rapidly between states of depression and mania and that these rapid cycles weren't random but instead in sync with the lunar cycle. Though the exact mechanism that causes this is unknown, it's believed that those quick mood changes were caused by a disruption to their circadian rhythm and their sleep-wake cycle.”

The above brings out an observation that while lunar phases do not create mental disorders, it may affect our mood swings and it certainly affects the patients suffering from bipolar disorders. The linking factor may be the gravitational pull the moon has on Earth but how it may be accelerating bipolar disorder is still a mystery.

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Another paper by Marissa Moore³ gives a similar observation:

Some pieces of evidence support a link between moon cycles and rapid cycling in bipolar disorder. If you have bipolar disorder, the phases of the moon may affect you more than other people.

If you have a diagnosis of bipolar disorder, you may wonder if the full moon affects you. The moon's tides may align with bipolar cycling. A small 2017 study supporting this theory found that rapid cycling in bipolar disorder may align with the tidal phases of the moon.

The study above also found that sleep disruptions may occur from a small group of nerves synchronized with lunar patterns that can quickly trigger cycling between depression and mania.

The full moon might start the cycling of manic and depressive episodes due to the gravitational pull of the moon's tides. But more research is needed. Full moons can also disrupt your moods causing problems with sleep, a known trigger for manic episodes.

As mentioned in a 2018 study, the group of nerves responsible for sleep disruptions can also cause depressive episodes in people with bipolar disorder. Depression can also occur during the full moon due to disturbances in your circadian rhythm."

The research studies do indicate that bipolar disorders are affected by phases of the moon. While Medical Science still does not accept that the moon and its phases have anything to do with the mental health of humans, the above breakthrough research does give us a hint that though moon cycles may not be the root cause of mental illnesses yet it is established beyond doubt that bipolar disorders do get impacted by changing phases of the moon.

Another research paper by Wally Barr⁴ talks about lunar phase cycles impacting patients with Schizophrenia:

The mental health and quality of life of a sample of 100 people were assessed on four occasions during a 30-month period. Data were aggregated to represent the span of one lunar month, with scores being allocated to the relevant week of the lunar cycle during which each assessment was made. Comparison of mean values across the weeks of the lunar cycle was performed using the ANOVA, Results showed significant change at the time of the full moon only in subjects with a diagnosis of schizophrenia (n = 56), where deterioration was observed in three areas of psychopathology and one area of quality of life. Some implications for nursing practice are discussed, and it is suggested that future research into the possibility of a lunar effect on human life should focus on the direct measurement of functioning in people with schizophrenia.

Some research done on the admissions of patients of schizophrenia in hospitals shows that the full moon is the time when schizophrenia patients have the worst times and admissions to hospitals of such patients reach a peak on full moon day; indicating thereby that the moon phases do impact the intensity of Schizophrenia.

Here are the details of this research conducted by Ran-Ran Wang, Yu Hao, Hua Guo, Meng-Qi Wang, Ling Han, Ruo-Yun Zheng, Juan He, Zhi-Ren Wang⁵:

We evaluated 13,067 patients admitted to Zhumadian Psychiatric Hospital between January 1, 2012, and December 31, 2017 (73 lunar cycles). Patients were retrospectively assigned to lunar phase based on their admission date: new moon +/- 1 day, first quarter +/- 1 day, full

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moon \pm 1 day, and third quarter \pm 1 day. We used multiple logistic regression to further identify the relationship between clinical subtype and lunar phase.

Results: Psychiatric admissions for schizophrenia varied significantly across the lunar cycle ($\chi^2 = 36.400$, $p < .0001$), peaking in the first quarter, followed by the full moon, and lowest at the new moon. Using unspecified schizophrenia (F20.9) as a reference, people with paranoid schizophrenia (F20.0) were more likely to be admitted in the full moon than in other phases (odds ratio: 1.157, 95% confidence interval: 1.040–1.286) ($p < .05$); other subtypes showed no admission differences during the four lunar phases ($p > .05$).

The above discussions lead to the **Conclusion** that Psychiatric admissions for schizophrenia show lunar periodicities. **People with schizophrenia tend to be stable in the new moon, but their condition is easily aggravated during the first quarter and full moon.** Patients with paranoid schizophrenia are more susceptible to deterioration at the full moon, so merit more attention and care from communities, families, and hospitals.

As observed in the above discussions, there are indications that the full moon may be associated with less deep sleep and increased REM (rapid eye movement) latency. Sleep latency is the period between when you first fall asleep and when you enter the first stage of REM sleep. So, increased latency means it takes a longer time to get to REM sleep. But could little disturbance in REM sleep periods affect a person's mood leading to mood swings and bouts of anxiety? The research shows that this is not the case.

Rebecca Joy⁶ posits:

The human body has adapted to aeons of exposure to daylight and darkness. This has led to the development of circadian rhythms that affect many of your body's systems — not just your sleep-wake cycle. Circadian rhythms affect your physical and mental health, too.

However the widespread use of electric light means many of your circadian rhythms are adapting to new light and dark patterns. When circadian rhythms wobble, it can cause or increase symptoms of certain mental health disorders, including:

- anxiety
- bipolar disorder
- depression
- schizophrenia

Does the full moon still have the power to disrupt your circadian rhythm? It brightens the sky by a lowly 0.1 to 0.3 lux compared with a single streetlight (15 lux) or a cell phone screen (40 lux).

So, are full moons associated with changes in mood and mental health?

The prevailing scientific evidence says no. Researchers in a 2017 study analyzed emergency room records at a 140-bed hospital and found that people visited the ER because of a psychiatric condition in roughly equal numbers during all four phases of the moon.

A 2019 review of nearly 18,000 medical records from different facilities found the same thing: no relationship between lunar cycles and the length of hospital stays or the number of inpatient admissions or discharges at psychiatric facilities.

While the research reveals no correlation between lunar phases and bouts of anxiety and mood swings, the impact on bipolar disorders and Schizophrenia continue to intensify with moon phases.

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Rebecca, in the same paper, admits following:

Researchers have found that those with bipolar disorder may be affected by changes in the lunar cycle. Specifically, a 2018 study examined 17 people whose bipolar disorder tended to switch rapidly from depression to mania. The study revealed that the circadian pacemaker (a small group of nerves) in these individuals becomes synchronized with lunar patterns. This caused changes in their sleep that then triggered a shift from depression symptoms to mania symptoms.

The above discussions can be summarized as follows:

There is a long history of belief that the phases of the moon do affect our lives. Mood swings, bouts of anxiety and mental illness have been linked to phases of the moon from ancient times. We have explored the literature and found that there have been studies which go on to establish that patients suffering from bipolar disorders and Schizophrenia go through exaggerated bad cycles synchronizing with the phases of the moon. We have seen scientifically researched papers with statistical analysis in support of the above theory. It is an observable fact that the gravitational forces of the moon which is at its peak during the full moon exert gravitational force on the water of the ocean and escalates the intensities of tidal waves. Since the human body is also constituted of 70% water, its effect on them cannot be ruled out and it manifests in escalating mental disorders.

The research suggests that the phases of the moon escalate the suffering of patients of mental illnesses but these phases do not cause mental illness.

I could not find any paper which tried to establish that any type of mental illness is caused by the moon cycles. No mental disorder has its roots in the phases of the moon. In fact, there are many papers which go on to establish that there is no correlation between moon cycles to mental illness. My exploration of the topic will be biased if this viewpoint is not included in the paper.

I give below some research which scientifically explores the fact that moon cycles don't correlate with mental disorders in any way:

Moon phases do not have any relevance to mental disorders

Maria Cohut⁷ has this to say,

“The moon influences life on Earth and natural mechanisms in a way that must have seemed natural hundreds and thousands of years ago. At full moon, corals release eggs and gametes in a reproductive frenzy. And the gravitational attraction between the moon and the Earth causes sea tides — the rising and falling of the sea.

Since the moon influences such mechanisms of life on Earth, people have also believed that it can affect various aspects of physical and mental health.

But is this true, and to what extent?

Some people still refer to menstrual cycles as “moon cycles,” and many remain convinced that there is a form of synchronicity between the phases of the moon and female menses. The notion that the menstrual cycle and the phases of the moon are somehow linked derives from the concept that, on average, a menstrual cycle lasts 28 days, which is about as long as a moon cycle.

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However, most periods are unlikely to “synch” with particular moon phases, except by coincidence. Menstrual cycles can last anywhere between 21–35 days, and their length can also change with age and due to hormonal factors.

A more recent 1-year-long retrospective study of 74 females of reproductive age contradicted the idea that the moon had a say in menstrual cycles. The study found no correlation whatsoever between menses, fertility, and the phases of the moon.

Another widely held notion is that the moon influences mood and psychiatric health and that the full moon, in particular, can make people more aggressive.

*However, other research has contradicted the notion that the full moon makes people more likely to harm themselves and others. A study published in the journal *Psychiatry* in 1998 found “no significant relationship” between any phase of the moon and a rise in violent behaviour.*

And, in 2019, researchers from Switzerland and the United States analyzed the data of 17,966 individuals treated at 15 different psychiatric wards over 10 years. This study also found no evidence of a rise in aggression during the full moon phase.

“Beliefs that the moon influences human behaviour seem largely impervious to the fact that a great deal of research, including the present study, has failed to support them,” the researchers warn in the study paper.

This research paper is not the only one which contradicts the long-held belief correlating mental illness with moon cycles, in fact, the literature is replete with scientific investigations which have failed to establish any relevance of phases of the moon with mental disorders.

K A Maslov⁸ posits the results of a scientific study in Russia:

The influence of the moon phase on persons with mental disorders and the frequency of emergency and urgent admissions to the mental hospital in the city of Penza and Penza oblast (Russia) in 2018–2019 has been investigated. The frequency of hospital admissions is estimated among persons with severe mental disorders (with pronounced psychotic and pronounced affective and behavioural manifestations) during the periods of different moon phases: the full moon, new moon, first quarter, and last quarter. According to the results of the study, it has been found that the frequency of admissions did not differ significantly in the different moon phases ($p = 0.4382$), which agrees with the data of similar international studies.

This study also tends to scientifically establish no correlation between Lunar phases and with mental health of people.

Thus, we reach an impasse!!

Maybe we have to conclude this paper inconclusively. The arguments in favour and against are both credible. Both the findings even though contradicting each other are based on scientific research and cannot be brushed aside as nonsense. The diametrical opposite scientific revelations, both, seem to be credible. While the research gives a positive indication about some correlation of moon cycles with ups and downs of mental disorders restrict their inferences only to bipolar disorders and Schizophrenia and that too only to the extent of escalation of the diseases but they do not intend to prove that the diseases are caused by the

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lunar phases. In fact there is no scientific paper which claims to have established that the cycles of the moon cause mental disorders. At the most the existing mental illness gets aggravated by moon phases.

One thing is certain science has advanced to a stage where the long-held beliefs and myths associated with the phases of the moon are broken and scientific facts established that these phases do not cause mental disorders.

At most the moon phases could aggravate bipolar disorders and schizophrenia in some patients and this may not warrant a generalization that this happens in all the cases of bipolar disorder and schizophrenia.

A view worth considering is the possibility of design flaws in the research and in this context following views of Mark Owens and Iain W Mcgowan⁹ cannot be taken lightly:

Historically, there has been a perceived association between the moon and human biology and behaviour that can be traced back to at least Roman times. The idea that the moon can in some way influence human biology or behaviour is a phenomenon that has now come to be known as the "Transylvanian effect" in the academic literature. Many mental health professionals continue to hold the belief that lunar cycles can alter human behaviour despite contradictory evidence, but this may also be due to personal, ethical, aesthetic, and intuitive ways of knowing. However, studies that have reported positive findings have been shown to be methodologically flawed, inconclusive, or confounded with other variables.

Contrary to this belief in a Transylvanian effect are more recent studies refuting any association, relationship, or correlation between lunar cycles and human biology or behaviour.

In the face of contradictory claims, it is difficult to stay aligned with either claim because both tend to follow scientific methodology. Maybe there are design flaws in either line of research and more research is needed to falsify either claim by examining minutely the possibilities of design flaws.

We look forward to deeper research in times to come and till then we should keep our fingers crossed!!

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