

The Effects of Moon Phases on Suicide Attempts

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Abstract

Objective: The effects of changes in moon phases on human psychology and behavior have been extensively studied. In our study, we aimed to compare the effect of the five different phases of the moon on the frequency of patients suicidal admissions to the hospital.

Materials and Methods: Patients who presented to emergency department between January 2018 and December 2018 due to attempts of suicide were included. Patients data were analyzed in relation to the new moon, full moon, last quarter moon, first quarter moon and lunar eclipses in the moon calendar. Moon cycles were taken from the moon calendar and the dates when the moon was visible and the exact date of the cycle have been evaluated.

Results: 419 patients included in this study, 280 were female and 139 were male. Suicide attempts is most commonly seen in the 18-49 age range, and it is found that the frequency of suicide due to secondary gain is high in female gender. The most frequent suicide attempts have been found to be the in the new moon, lunar eclipse, last quarter moon, first quarter moon and the full moon, respectively (Pearson $\chi^2(5) = 59.2428$ Pr = 0.000). When we analyzed the same data with Cramér's V test, we got the result of 0.2751, which confirms our hypothesis that the frequency of suicides increased with the advances of lunar cycles.

Conclusion: It was found that during specific phases of the moon the rate of suicide attempts the present to the emergency department had been increased.

Key words: suicide, moon effects, emergency medicine

Özet

Amaç: İnsan psikolojisi ve davranışı üzerine aydaki değişimlerin etkisi olduğu düşünülerek bir çok araştırma yapılmıştır. Ay, Dünya'ya yakınlığı ve onun synodic (dört fazlı) döngüsünü gözlemlenimin basitliği nedeniyle olağanüstü olaylar veya sapkın davranışlarla ilişkilendirilmiştir. Çalışmamızda, ayın beş farklı evresinin ile yapılan intihar nedenli başvuruların sıklığı üzerindeki etkilerini karşılaştırmayı amaçladık.

Gereç ve Yöntem: İntihar girişimi nedeniyle Ocak 2018 ile Aralık 2018 tarihleri arasında acil servise başvuran hastalar bu çalışmaya dahil edildi. Hasta verileri ayın beş evresine göre analiz edildi.

Bulgular: Çalışmaya 419 hasta dahil edildi. Hastaların 280'i kadın, 139'u erkekti. İntihar girişimleri en sık 18-49 yaş aralığındaydı. Sekondere kazançlı nedenli intiharlar kadınlarda daha sıklı. Evrelere göre intihar girişim sıklığının sırasıyla, yeni ay, ay tutulması, son çeyrek, ilk çeyrek ve dolunay evrelerinde olduğu tespit edildi (Pearson $\chi^2(5) = 59.2428$ Pr = 0.000). Aynı verileri Cramér'in V testiyle analiz ettiğimizde, 0.2751'in sonucunu aldık, bu, ayın döngüsünün ilerleyişiyle intihar sıklığının arttığı hipotezimizi doğruladı.

Sonuç: Ayın belirli evrelerinde intihar oranlarında artış olduğu tespit edildi.

Anahtar kelimeler: intihar girişimi, ayın etkisi, acil tip

Introduction

The Moon is the world's only natural satellite and it is approximately 385,000 km away from our planet¹. Even at this distance, it can cause many natural phenomena in our world due to the effect of gravity. The effects of changes in moon phases on human psychology and behavior have been extensively studied². In our study, we aimed to compare the effect of the 5 different phases of the moon on the frequency of

patients suicidal admissions to the hospital. Fluctuations in the number of suicides committed during a year are affected by several factors including seasonal changes, seasonal transitions³ and moon calendar⁴.

The hypothesis of the cosmic effect on human behaviors has long been investigated. Tradition and folklore in many cultures have regarded the moon as a perfect destination because it is associated with extraordinary events and deviant behaviors due to its proximity to the earth, and because of

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to the simplicity of observing its synodic cycle, these correlations have been deceptive in most cases⁵. Although there is no scientific evidence, the hypothesis of the lunar effect on suicide still believed⁶. We conducted a population based study to assess the effects of moon phases on suicides by age, gender, chosen method, cause of suicide and the clinical outcomes.

Material and Methods

Our study included 419 patients who presented to our hospital between January 2018 and December 2018 due to attempts of suicide. Age, gender, history, moon calendar, clinical outcome, suicide mechanism and cause of the patients were retrospectively obtained from hospital records. These data were evaluated statistically. The data obtained in this way were analyzed in relation to the new moon, full moon, last quarter moon, first quarter moon and lunar eclipses in the moon calendar. These cycles were taken from the moon calendar and the dates when the moon was visible and the exact date of the cycle have been evaluated. Cases whose identity information could not be reached and those with

suspected criminal offenses where judicial process have been initiated were excluded from the study. Pearson chi-square, Fisher exact and Cramér's V tests were used to analyze the data in our study

Results

Of the 419 patients included in this study, 280 were female and 139 were male. 27 of the patients had organic pathology and 109 had psychiatric disease history. Other patients had no history of disease. 236 of the applicants were discharged from the emergency department, 50 were admitted to psychiatry, 24 were transferred to the intensive care unit and 109 left the hospital without permission. The most frequent suicide mechanism was found to be drug intake 93.3% (391), hanging 3.1%¹³, only by firearm 1.2%⁵, firearm and incision 1.9%⁸ and 0.5% by drowning in water². When causes of suicides were examined, 155 patients had sudden anger, 126 patients wanted death and in 135 patients causes were due to secondary gains. We concluded that the most frequent suicide attempt among the age groups was between 18-49 years in both sexes. (Table 1)

Table 1. Distribution of patients according to age groups

	N			%		
	Total	Female	Male	Total	Female	Male
14-17 age	46	41	5	10,98	14,64	3,60
18-49 age	340	222	118	81,15	79,29	84,89
50-65	27	13	14	6,44	4,64	10,07
65+	6	4	2	1,43	1,43	1,44
	419	280	139	100	100	100

When the phases of the moon are compared with the frequency of suicide, the days in which the moon is seen in the lunar calendar differ significantly from the other days when it is not. The most frequent suicide attempts have been found to be the in the new moon, lunar eclipse, last quarter moon,

first quarter moon and the full moon, respectively (Pearson $\chi^2 = 59.2428$ Pr = 0.000). When we analyzed the same data with Cramér's V test, we got the result of 0.2751, which confirms our hypothesis that the frequency of suicides increased with the advances of lunar cycles.

Table 2. Comparison of the frequency of suicides per day and lunar phase

	Number of days	Number of Suicides	Suicide per day	FEMALE	MALE
Full moon	11	28	2,55	22	6
Last quarter moon	13	39	3,00	25	14
New moon	12	50	4,17	29	21
First quarter moon	12	35	2,92	27	8
Lunar eclipse	2	7	3,50	6	1
Other	314	260	0,83	171	89

No significant relationship has been found between the patients gender and frequency of suicides per day in lunar phases ($p>0.05$) (Table 3)

Table 3. Gender evaluation of suicide attempts in the cycles of the moon.

		Female n=280		Male n=139		p
		n	%	n	%	
New moon	Absent	251	89,64	118	84,89	0.158
	Present	29	10,36	21	15,11	
First quarter moon	Absent	253	90,36	131	94,24	0.176
	Present	27	9,64	8	5,76	
Last quarter moon	Absent	255	91,07	125	89,93	0.704
	Present	25	8,93	14	10,07	
Full moon	Absent	258	92,14	133	95,68	0.172
	Present	22	7,86	6	4,32	
Lunar eclipse	Absent	274	97,86	138	99,28	0.284
	Present	6	2,14	1	0,72	

Table 4. Relationship between gender and he causes of suicide attempt

		Female n=280		Male n=139		p
		n	%	n	%	
Anger	Absent	182	65,00	82	58,99	0.230
	Present	98	35,00	57	41,01	
Death	Absent	203	72,50	131	94,24	0.176
	Present	77	27,50	8	5,76	
Secondary gains	Absent	177	63,21	107	76,98	0.005
	Present	103	36,79	32	23,02	

Statistical analysis of the reasons of suicide attempt showed that suicide attempt due to secondary gains was found to be significantly higher in female gender ($p<0.05$) (Table 4). Suicide attempt due to anger or desire for death can be seen in both sexes and no significant difference was observed.

Discussion

The effects of the Moon's cycles on the world have been investigated for millennia. Although the hypothesis of the lunar effect on suicide is widespread, there is still insufficient scientific evidence⁷. Contrary to our hypothesis, there are many studies and contradictory views⁸. At the same time, many organic pathologies have been studied in relation to the cycles of the moon. Renal colic and stroke has been studied also and no relationship has been found between these medical condition and moon cycle. Our study should be evaluated separately from organic conditions since it in-

cludes more psychopathological issues. As a prediction of this study, suicidal admission to hospital was significantly increased in the four stages when the moon was visible and when there was lunar eclipse. Another important finding in our study is that the frequency of suicide due to secondary gain is significantly higher in women than men. In a study, specific biological factors found in women may contribute to suicide and these factors work differently in female and male populations¹¹. In fact, this results are correlated with the results of our study. In addition to that understanding this extremely complex phenomenon, social and biological explanations should be considered as complementary work, not as rivals.

Conclusion

It was found that during specific phases of the moon the rate of suicide attempts the present to the emergency department had been increased. Suicide attempts is most commonly

seen in the 18-49 age range, and it is found that the frequency of suicide due to secondary gain is high in female gender. Further studies are still needed in this subject.

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