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Research Article

Relationship of Lunar Phases to Crimes Committed in Zamboanga Del Norte

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ABSTRACT

Human behavior appeared to be influenced by lunar phase. Crimes still committed despite the government efforts to prevent and suppress it. Some authors claimed that the moon of the solar system affect the human body and the planet earth. The term lunacy derived from the idea that the lunar cycles affect human behavior and it is a widely believed phenomenon that a full moon can increase criminal behavior. This study aimed to determine the relationship between lunar phases and crimes committed in the two cities of Dipolog and Dapitan. Documentary analysis and unstructured interviews were conducted to gather information. The data were taken from the reported crimes in the two police stations. Statistical tools used were frequency count and chi-square test of both difference and relationships respectively. The most common index crimes were theft, physical injury and threat. Whereas, non-index crimes were malicious mischief and violations to RA 7610 and RA 9262. Results revealed that most of the index crimes happened during the first quarter and during new moon phase. Non-index crimes on the other hand, happened at any lunar phase. The occurrence of index and non-index crimes are likely to be influenced by the lunar phases. Philippine National Police might set-up additional preventive measures to prevent would be criminals from committing theft, physical injury and threat. Police presence be increased more during first quarter and new moon phases to prevent occurrence of crime as well as implement intensive community policing program to protect the community from untoward crime incidence.

Keywords: *relationship of lunar phases, crimes committed, Zamboanga del Norte.*

Introduction

All over the globe, nations work together and harder than ever to win the battle against crime. However, crime occurrence continues to

climb, and moreover at a disturbing rate necessitates every government through the criminal justice agencies to come up with concrete efforts to address it. Indeed, this problem has to

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be hurdled and overcome not only for the country but the world at large. Obviously, to set people free from fear and for people to take the road to peace and prosperity (Anderson, 2017).

Philippines which is being ranked to be among the most attractive off-shore destination, has successfully declined its rate of crime occurrence due to the law enforcement efforts of the agencies concerned, though remarkably, policing has remained consistent a matter of fact, as reported by the Directorate for Investigation and Detection Management (DIDM), in some places, the volume of crimes like in the two cities namely: Dapitan City and Dipolog city continues soaring high. For Dipolog City, there was a total of 1,223 index and non-index crimes reported for calendar years 2010-2012, and a total of 8,448 during the calendar years 2013-2015. While, for the Dapitan City, there was a total of 1,116 reported index crimes and non-index crimes for year 2010-2012 while there was 5,265 during the calendar years 2013-2015. Evidently, the figures show that in the two cities in Zamboanga del Norte crime occurrence is still prevalent despite the implementation of programs to deter crime.

Unarguably, the government through the Philippine National Police (PNP), the Philippine Drug Enforcement Agency (PDEA) the Local Government Units and other law enforcement agencies have practically taken the responsibility of sharpening the law to avert further its increasing incidence but the relentless effort has not been successful because crime still exist (Tria, 2017).

The study of Lieber (2017) said that crime is caused by outside factors that alter the mind and behavior of the would-be criminals. He is referring to the lunar movement as one of the outside factors. On the other hand, Williams (2017) published a Journal of Psychosocial Nursing and Mental Health Service, pointed out the movements of the moon influence people's behavior like, the Schizophrenics who exhibit a reduction in mental well-being during a full moon and the gravitational pull of the moon during a full moon causes the cavity between

the Earth and the ionosphere to ring in tune with the alpha brain waves that cause the human brain to react increasing one's criminal behavior.

Likewise, Lieber et.al, (2017) supported the idea of Williams, they explained that since the earth is 80% water and 20% organic and inorganic materials, and since the human body approximately mirrors the composition of the earth, the gravitational force exerted by the moon on the earth would also be exerted on the human body. This influence by the lunar cycle demonstrated an emotional and mental disturbance on the would be criminal. A study was conducted examining the measurable disturbance and its directly proportional relationship to the magnitude of gravitational pull to the human brain. The study design utilized the recording of homicides in the general population and it showed an increase of crimes during full moon and new moon cycle.

According to Weiskott et.al, (2017) the lunar movement influenced on human behavior has repeatedly been presented in many studies as having a significant positive and negative effect. They found out contradictory outcomes of the various studies, where studies claimed that crime prevailed during new moon phase, other study claimed that usually prevail during full moon phase.

Methodology

Methods

The study employed the descriptive method of research aided by documentary analysis in gathering the needed information. Documents from the blotter and police records were utilized in the study. Statistical tools used were frequency count and chi-square test of both difference and relationships respectively. Data from the study were taken from the office of the Philippine National Police Dipolog and Dapitan Cities.

Results, Analysis and Discussion

Result and discussion

Table 1. Index Crime Profile in the Cities of Dipolog and Dapitan

Index Crimes	2013		2014		2015		Total	
	Dip	Dap	Dip	Dap	Dip	Dap	Dip	Dap
Abduction	1	1	-	-	-	3	1	1
Direct Assault	1	1	4	1	-	1	5	3
Homicide	19	10	36	18	8	4	63	32
Murder	14	9	26	18	-	3	40	30
Parricide	1	1	1	-	-	-	2	1
Physical Injury	116	50	322	74	19	14	457	138
Rape	1	2	-	-	1	1	2	3
Reckless Imprudence	79	-	91	1	-	-	170	1
Robbery	9	7	27	13	8	1	44	21
Shooting	1	1	-	-	-	-	1	1
Theft	144	78	240	109	122	1	506	188
Threat	105	24	140	43	64	51	309	118
Total	491	184	887	277	223	79	1600	537

Table 1 presents the data on the index crimes in the cities of Dipolog and Dapitan during the years 2013–2015. Looking at the data in Table 2 would reveal that theft is the most common among the index crimes in both the Cities. The total frequency was 506 and 188 for Dipolog City respectively. This was followed by physical injury with a total of 457 and 138 respectively. Third in rank is threat with 309 and 118 for the two cities respectively. These show that theft, physical injury and threat are the most common index crimes committed by the offenders. These could be attributed to the fact that these crimes are the easiest to perform acts that can be perpetuated alone.

Theft is basically the taking of another person's property or services without that person's permission or consent with the intent to deprive the rightful owner of it. Section 1 of the Theft Act 1968 provides for the criminal offense for theft. Under Section one (1) of the Act, an individual is guilty of theft if they dishonestly appropriate property belonging to another with the intention to permanently deprive the other of it. On the other hand, physical injury as one of the highest incidence cases, is a serious or permanent disfigurement, serious impairment of health or loss or protracted impairment of the function of any bodily organ or limb and that creates a reasonable risk of death. Further, Article 263 provides that any person who wound, beat, or assault another,

shall be guilty of the crime of serious physical injuries and shall suffer: 1) the penalty of prison mayor, if in consequence of the physical injuries inflicted, the injured person becomes insane, imbecile, impotent, or blind; 2) The penalty of prison correccional in its medium and maximum periods, if in consequence of the physical injuries inflicted, the person injured lost the use of speech or the power to hear or to smell, or lost an eye, a hand, a foot, an arm, or a leg or lost the use of any such member, or become incapacitated for the work in which he was therefore habitually engaged; 3) The penalty of prison correccional in its minimum and medium periods, if in consequence of the physical injuries inflicted, the person injured become deformed, or lost any other parts of his body, or lost the use thereof, or incapacitated for the performance of the work in which he as habitually engaged for a period of more than ninety days; and 4) The penalty of arresto mayor in its maximum period to prison correccional in its minimum period, if the physical injuries inflicted caused the illness or incapacity for labor of the injured person for more than thirty days.

Going further, threat is also one of the high index crime incidence cases filed in the Cities of Dipolog and Dapitan with frequencies of 309 and 118 respectively for 3 years. Threat is a statement of an intention to inflict pain, injury, damage, or other hostile action on someone in

retribution for something done or not done. A threat is considered an act of coercion. Threats or intimidation are widely observed in animal behavior, particularly in a ritualized form, chiefly in order to avoid the unnecessary physical violence that can lead to physical damage or death of both conflicting parties. Some of the more common types of threats forbidden by law are those made with an intent to obtain a monetary advantage or to compel a person to act against his or her will. It is an offense to threaten with the use of a deadly weapon on another person; injure another's person or property; or injure another's reputation.

Going furthermore would reveal reckless imprudence registered high of recorded cases

Dipolog city while there is only one recorded in Dapitan. This is due to the fact that Dipolog City is busier as compared to Dapitan City. Less reckless imprudence frequently happens in Dipolog City because the streets are narrow. Among the least recorded cases were shooting and abduction which generally rarely happen in both two cities.

The finding of the study is refuted in Nicholas (2017) in the study entitled Critical Elements in Safekeeping of Inmates, that the most committed crime by the inmates was murder and related to it like attempted and frustrated murder. And the least crime was theft.

Table 2. Non-Index Crime Profile of Dipolog and Dapitan City

<i>Non-Index Crimes</i>	2013		2014		2015		Total	
	<i>Dip</i>	<i>Dap</i>	<i>Dip</i>	<i>Dap</i>	<i>Dip</i>	<i>Dap</i>	<i>Dip</i>	<i>Dap</i>
Acts of Lasciviousness	6	1	-	-	-	3	6	4
Alarm and Scandal	14	1	9	-	-	-	23	1
Alleged Misplaced/Missing Passport	1	-	-	-	-	-	1	
Anti-Cattle Rustling	1	1	-	-	-	-	1	1
Arson	-	-	-	1	-	-		1
Bullying	1	-	-	-	-	-	1	
Carnapping	3	1	-	-	1	1	2	2
COMELEC Gunban and Possession of FAS	1	-	-	-	-	-	1	
Drowning	1	-	-	-	-	-	1	
Drunk and Disorderly Conduct	6	-	-	-	-	-	6	
Estafa	18	9	1	2	4	1	23	12
Expired Transport Agreement/Permit	1	1	-	-	-	-	1	1
Fire Incident	2	-	-	-	-	-	2	
House Abandoned	1	-	-	-	-	-	1	
Illegal Position of FA	-	-	-	-	-	1		1
Infanticide	-	-	-	-	1	-	1	
Libel	1	-	-	-	-	1	1	1
Malicious Mischief	31	10	47	8	23	1	101	19
Missing Person	2	1	-	-	-	-	2	1
Oral Defamation	21	5	-	9	4	-	25	14
Qualified Theft (coconut)	-	-	-	-	1	1	1	1
Recovered Abandoned Motorcycle	1	-	-	-	-	-	1	
Slander	2	-	-	-	-	-	2	
Slight Physical Injury	-	-	-	-	-	5		5
Swindling	-	2	2	-	1	-	2	3
Trespass to Dwelling	6	1	-	3	1	1	7	5
Unjust Vexation	1	-	-	1	-	1	1	2
Vandalism	1	-	-	-	-	-	1	

Non-Index Crimes	2013		2014		2015		Total	
	Dip	Dap	Dip	Dap	Dip	Dap	Dip	Dap
Violation of RA 1602	7	6	-	-	-	1	7	6
Violation of RA 4136	-	-	3	-	1	1	1	4
Violation of RA 6136	-	-	-	-	-	1	-	1
Violation to RA 6539	15	10	3	4	-	1	18	15
Violation to RA 7610	24	2	15	11	7	9	46	22
Violation of RA 7832	5	-	2	-	-	-	7	-
Violation of RA 7992/Mining	-	-	1	6	-	-	1	6
Violation of RA 8041	1	-	-	-	-	-	1	-
Violation of RA 8485	1	-	-	-	-	-	1	-
Violation of RA 9136	-	-	2	-	-	-	2	-
Violation of RA 9163	-	-	2	3	-	-	2	3
Violation to RA 9165	6	6	2	1	-	1	8	8
Violation of RA 9222	-	-	1	-	-	-	1	-
Violation to RA 9262	33	1	7	19	4	6	44	26
Violation to RA9287	2	2	-	2	1	1	3	5
Violation of RA 9344	13	-	13	4	-	-	26	4
Violation of RA10054	1	-	-	-	-	-	1	-
Violation of RA 10591	-	-	-	2	1	4	1	6
Total	230	60	110	76	50	41	390	177

Table 2 shows the crime incidence profile of the non-index crimes for the year 2013 – 2015. The table show that in both cities, the most committed non-index crimes were malicious mischief, violations of RA 7610, and violation of RA 9262. They fall on different ranks of occurrences since they differ in frequencies. There were also non-index crimes which happened in one city but did not happen in the other. This leads to a generalization that non-index crimes can happen in one place and may not happen in the other.

Indeed, crime can happen anywhere and at any time. Crimes against persons, including gender-based violence and other non-index crimes can occur in different times in an unpredictable place. Violations of the Philippine laws, and other forms of non-index crimes are normally prone to happen anywhere. In the Philippines, non-index crimes are relatively lesser than the index crimes because only fewer people are capable to evade and violate special laws, though, these are less violent in nature towards human beings and injury inflicted are more lasting (Tria, 2017).

Table 3. Lunar Phases and Index-Crime Incidence

Lunar Phases	Index Crimes Frequencies					
	2013		2014		2015	
	Dip	Dap	Dip	Dap	Dip	Dap
New Moon	206	63	393	68	66	28
1 st Quarter	125	24	267	75	62	12
Last Quarter	113	72	111	91	55	15
Full Moon	47	25	116	43	39	25
Total	491	184	887	277	222	76

Table 3 shows the lunar phases and index crime incidence. It could be seen on the table that majority of the crime happened during darker phases of the moon like the new moon

to the first quarter. In previous Table 2 where theft is the most popular crime, there was a great possibility that theft happened when the moon was almost hidden or was perform

during darker times because thieves hide themselves literally. On the other hand, less crimes happen during full moon because during these periods almost everyone is awake. In between the full moon and the new moon, only average number of crimes happen. This is understandable because criminals look for proper timing.

In a number of studies that relate to crimes and lunar phases, researchers revealed that there is different behavior exhibited by criminals during darker times because they cannot be seen. For criminals who have repeatedly done crimes, more particularly theft, darker times are best times to do the crime due to their

ability to quickly get away in the dark and not recognized by people. Take assaults, for instance. The impulse to beat on someone is clearly crime of passion. It's not a crime of opportunity. When one punches somebody because one is angry, people get angry all throughout the day. Given that, check out this chart. The timeline is organized from 12:00 a.m. to 11:59 p.m. Dark times especially during 3 o'clock to 5 o'clock in the morning, when most people are asleep, assaults actually happen at an even pace throughout the day. Mornings, afternoons, and nights: They are all equally good times for getting pulled into some argument where a fist ensues (Wysaski, 2017).

Table 4. Lunar Phases and Non-Index Crime Incidence

Lunar Phases	Non-Index Crimes Frequencies					
	2013		2014		2015	
	Dip	Dap	Dip	Dap	Dip	Dap
New Moon	84	35	23	23	18	16
1 st Quarter	63	8	28	31	10	13
Last Quarter	33	13	17	16	10	7
Full Moon	51	5	42	6	12	5
Total	231	61	110	76	50	41

Presented in Table 4 lunar phases and non-index crimes incidence. The data on the table showed quite a similar profile with that of the index crimes. However, certain periods of differences occur as to percentage of commission of the crime. As seen on the table, there were times when a greater number of non-index crimes happened during the 1st quarter especially in the year 2014, however, there was also a time when most of the crimes happened during the time when the moon is full. This scenario explains that non-index crimes can happen at any lunar phase. It can occur and can happen at any lunar phase to anybody at any time of the day.

These crimes of opportunity can happen anytime during the day or night, and can be completed in a minute or less. Unfortunately, throughout the country, these crimes are on the rise. The result is supported by Dean et al. (2017) they said that all police force faces enormous challenges. They referred to recent terrorist attacks in Tunisia, France, Kuwait and Denmark. The reality for all is that, it could happen anywhere, at any time. From their perspective, anybody can be a victim, any time, and any place.

Table 5. Test of Difference on Index-Crime Incidence in the City of Dipolog and Dapitan

Cities	Year				X ²	P
	2013	2014	2015	Total		
Dipolog	491	887	223	1600	2.748 ^{ns}	0.253
Dapitan	184	277	76	537		
Total	675	1164	298	2137		

Table 5 shows the test of difference on the crime incidence by city during the last 3 years. The table shows a computed chi-square value of 2.748 with a p-value of 0.253 and a critical value of 5.99. The computed chi-square value did not exceed the critical value of 5.99 which leads to the non-rejection to the null hypothesis. There is therefore no significant difference on the index crime incidence in the two cities during the last three years. This means that the trend on crime incidence is similar to both. In

other words, the rise and fall of the number of crimes were similar and it does not warrant a significant difference. This result further implies the idea that crimes may have its commonalities in different places, especially the most prevalent crimes. These can happen in different places in a similar angle and of similar flow of occurrences. The result is supported by Katzeff (2017) when he revealed that the flow of crimes in Jaipur following a similar path where no significant difference was seen.

Table 6. Test of Difference on Non-Index Crime Incidence in the City of Dipolog and Dapitan

Cities	Year				X ²	p
	2013	2014	2015	Total		
Dipolog	231	110	50	391	30.636*	0.000
Dapitan	61	76	41	178		
Total	292	186	91	569		

Presented in Table 6 is the test of difference on non-index crime incidence in the two cities in the last three years. The data on the table show a computed chi-square value of 60.636 which exceeded the critical value of 5.99 at 0.05 level of significance with 2 degrees of freedom. This means that there is a significant difference on the non-index crime incidence in the two cities in the last three years.

This implies that the flow of occurrence of non-index crimes in one city is different from that of the other. Different non-index crimes happen in different places. Looking back at the data in Table 2 evidently supports the contention that there is a significant difference on the non-index crimes occurrences in the two cities.

Table 7. Test of Relationship Between Lunar Phases and Index Crimes

Lunar Phases	Index Crimes Frequencies						X ²
	2013		2014		2015		
	Dip	Dap	Dip	Dap	Dip	Dap	
New Moon	206	63	393	68	66	28	155.665*
1 st Quarter	125	24	267	75	62	12	
Last Quarter	113	72	111	91	55	15	
Full Moon	47	25	116	43	39	25	
Total	491	184	887	277	222	76	

Presented in Table 7 is the test of relationship between lunar phases and the occurrence of index crimes. The data on the table show a computed chi-square value of 155.665 which is greater than the critical value of 24.996 at 0.05 level of significance with 15 degrees of freedom. This means that there is a significant relationship between lunar phases and the occurrences of index crimes. This implies that there is a certain pattern of crime commission that

occurs in a particular lunar phase. This further show that occurrence of index crimes follows a particular pattern and the same crime may happen when the particular lunar phase occurs. This leads to a conclusion that crimes can be prevented reflective of lunar occurrences and police officers can prevent crimes from happening if they follow these patterns of occurrences.

However, this is refuted by Hall (2017) when he published an article and revealed that scientists looked for a correlation between phase of the moon and such things as murders, violent crime, or births. In particular, many police officers or emergency room personnel have noted a seeming rise in activity in their line of work during full moon. Scientific studies done to isolate this have, however, shown *no* correlation, contrary to the beliefs of those involved. In other words, the moon's phase does not have any effect on the number of crimes committed.

This finding is corroborated by Huston et al. (2017) they found out in their study the impulse to take or to give poison is increased during the first quarter phase of the moon owing to

the increase human tidal waves that is caused by the gravitational pull of the moon. Along this light, Social Scientists speculate people are more likely to notice, and remember, a full moon, rather than the moon at other phases. Thus, if a strange murder is committed when the moon's a crescent, people covering the crime may not remember the phase of the moon that night. If, however, the moon is full, a police officer is more likely to remember the phase of the moon that night, since the full moon is bright and very obvious. Thus, crimes, births, and strange occurrences happen all month long, but only those on the full moon are associated with the moon's phase when people talk about them.

Table 8. Test of Relationship Between Lunar Phases and Non-Index Crimes

Lunar Phases	Non-Index Crimes Frequencies						X ²
	2013		2014		2015		
	Dip	Dap	Dip	Dap	Dip	Dap	
New Moon	84	35	23	23	18	16	57.654*
1 st Quarter	63	8	28	31	10	13	
Last Quarter	33	13	17	16	10	7	
Full Moon	51	5	42	6	12	5	
Total	231	61	110	76	50	41	

Table 8 presents the test of relationship between lunar phases and non-index crime occurrences. The test of relationship shows a computed chi-square value of 57.654 which exceeded the critical value of 24.966 at 0.05 level of significance with 15 degrees of freedom. There is therefore a significant relationship between lunar phases and non-index crime occurrences. This was further supported by the p-value of 0.000 which showed no percentage of acceptance of the null hypothesis. The result shows that there is a significant relationship between lunar phases and the incidence of non-index crimes in the two cities of Dipolog and Dapitan. This means that the movement of the moon suggest that crimes happen at a particular time. The findings are contradicted by Schafer (2017) when he revealed that the findings fail to support popular lore, which has suggested that lunar phase influenced the volume of crime reported

to the police. Future research directions examining qualitative rather than quantitative aspects of this problem may yield further inform the understanding of whether lunar cycles appreciably influence demands for policing services.

Conclusion

Based on the findings of the study, the researcher hereby concludes that most non-index crimes are relatively lesser than the index crimes. That index crimes are more prevalent during darker times and non-index crimes occur at any time either day or night. Both index and non-index crimes happen at a period of time when the moon appears as aggressive behaviors are most evident during any of the moon phases. The occurrence of index and non-index crimes are likely to be influenced by the lunar phases.

Recommendations

1. Philippine National Police might set-up additional preventive measures to prevent would be criminals from committing theft, physical injury and threat.
2. Philippine National Police with the help of the local chief executive may deploy additional patrol officers and deputized police to be visible especially during darker lunar phases.
3. Police officers may create a community policing during designated time and lunar phases to prevent a crime from occurring.
4. Police officers may come up with an intensive community policing program to protect the community from untoward crime incidences.
5. The police stations may include in the blotter particular lunar phase at the time the crime was committed.

References

Anderson, P. (2017) Admissions for Psychiatric Hospital Services on The Rise. Retrieved March 21, 2017 from <http://www.medscape.com/viewarticle/590517?src=rss>.

- Dean et al. (2017). Physical Aggression During Admission to a Child and Adolescent Inpatient Unit: Predictors and Impact on Clinical Outcomes. *Austria New Zealand Journal of Psychiatry*.
- Hall, E. T. (2017). *The Hidden Dimension*. Garden City, NY: Doubleday & Co.
- Human Emotional Disturbance. *Journal of Clinical Psychiatry*.
- Huston et al. (2017). On The Dynamics of a Human Body Model. *Journal of Biomechanics*, Vol. 4 No. 5, pp. 369-378.
- Katzeff, K. (2017). *Moon and Madness*. Citadel Press, Secaucus, NJ.
- Lieber et al (2017) Homicides and The Lunar Cycle: Toward a Theory of Lunar Influences on
- Nicholas Elrhine (2017). *Critical Elements in the Safekeeping of Inmates*". Unpublished Thesis. JRMSU PNP Directorate for Investigation and Detective Management (2018). Retrieved April 06, 2019 from <https://www.didm.pnp.gov.ph>
- Shaefer, R. (2017) *General Sociology*. Mc Graw Hill Inc. USA
- Tria, G. (2017). *General Psychology*. Ken Incorporated, Quezon City, Philippines
- Weiskott et al. (2017). Moon Phases and State Hospital Admissions. *Psychological Reports*
- Williams, H. L. (2017). *Criminal Behavior and Lunar Phases*. *American Journal of Psychiatry*.
- Wysaski, D. N. (2017). Lunar Phases and Homicide in Canada. *Psychological Reports*.