

# Crime rates in selected Barangays in Cebu City from year 2005-2014

Donald B. Narra<sup>1</sup>, Queen Heneylour S. Relatorres<sup>2</sup>, Analyl N. Ubas<sup>3</sup>, and Chona Marie V. Villarin<sup>4</sup>

**Date Received:** 26th of January, 2016

**Date Accepted:** 10th of December, 2016

## ABSTRACT

Timely information about national crime statistics is essential in order to be able to track and address overall trends, sub-trends and compare criminal patterns. The study uses a descriptive correlational design to test the relationship between total population to crime occurrence as well as the total number of employment to crime occurrence. Results show that there is no significant relationship between total population and crime occurrence ( $r = 0.57, \rho = 0.31$ ). There is also no significant relationship between the employment status and crime occurrence ( $r = 0.58, \rho = 0.31$ ). This means that crimes the demographic description of an area do not dictate crime occurrence. However, it is recommended that another study be conducted using other variables.

**Keywords:** crime, crime occurrence, crime rates

## I. INTRODUCTION

Timely information about national crime statistics is essential in order to be able to track and address overall trends and sub-trends, and compare criminal patterns. Thus, the purpose of the study was to conduct an in-depth analysis on crime rates in selected barangays in Cebu City from the year 2005-2014. This study was premised on the following hypothesis: (a) there is no significant relationship between total number of population and crime occurrence and (b) there is no significant relationship between employment status and crime occurrence.

Most authors have the same opinion on what influences most patterns of crime rates. Crime rates positively have a statistical relationship with population (Cohen & Felson, 2014) and have direct relation with employment and youthful offenders caused by social interaction (Parson, 2012; Sindac, 2013; Buananno, 2003). These common variables have been used through times however most of the authors failed to dig deeper on the local influence that cause the inflation and fluctuation of crime rates. On the findings of Gillado and Tan-Cruz (2010), Albanese (2002), and Becker (2009)

those crime rates increased were standardized by the number of population per area which leads them to analyze the determinants of crime rates using the constant coefficient model. Mehlkop & Graeff (2010) added that analyzing the determinants of criminal behavior from both theoretical and empirical points of view were essential for the people to understand circumstances that influence crime rate.

## II. CONCEPTUAL FRAMEWORK

In order to give a clear step in conducting the study the researchers suggest the following framework.

Crime Statistics Analysis refers to the crime rate which was the main data for the conduct of this research which would be analyzed to assess relationships with the following: demographic description, source of income, and empirical observations to attain a statistical inference of the occurrence of crime.

The statistical properties of spatial analysis of regional crime structure in Australia was examined by Carcach and Muscat (2002). LQCs (Crime Location Quotient) was used by Cahill (2004) as a measure of neighborhood crime in Nashville, Tennessee. It was then used for the empirical analysis of crime. Employing density as an indicator in

1. ORCID Number: 0000-0002-3192-3807, D. B. Narra is with the College of Criminal Justice Education, University of the Visayas, Cebu City, 6000, Philippines (e-mail: mcdo\_6053@yahoo.com).

2. ORCID Number:0000-0002-6888-4960, Q. H. S. Relatorres is with the College of Criminal Jusctice Education, University of the Visayas, Cebu City, 6000, Philippines (e-mail: queenpourma@gmail.com).

3. ORCID Number: 0000-0002-0347-6421, A. L. Ubas is with the College of Criminal Justice Education, University of the Visayas, Cebu City, 6000, Philippines (e-mail: angrapes2016@gmail.com).

4. ORCID Number: 0000-0002-9285-6943, C. M. V. Villarin is with Cebu Shangri-La Hotel Mactan, Lapu Lapu City, 6015, Philippines (e-mail: chonavillarin@gmail.com).

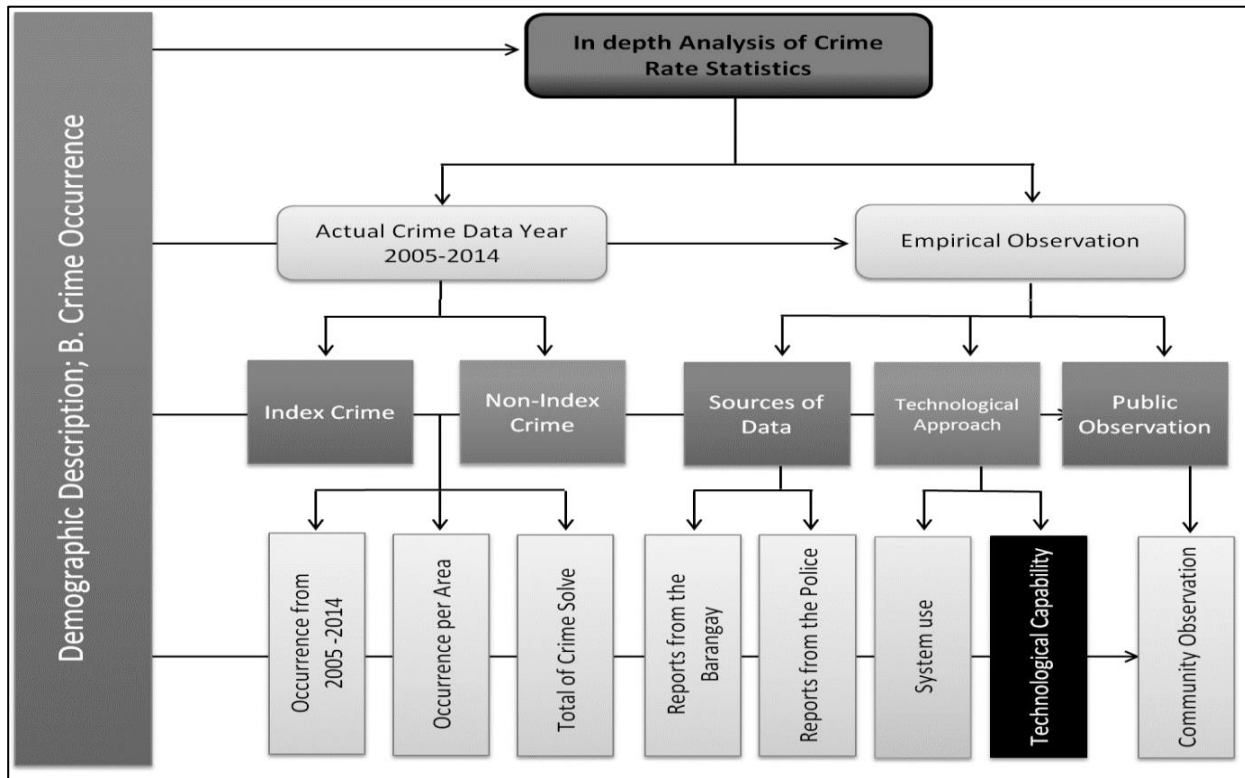


Figure 1. Demographic Description

Only Nicolau (1994) and Harries (2006) used crime density for the investigation of crime through the use of statistical models. The influence of socio-economic index is to overcome the statutes of individual states that ignore how a person is charged, and create a definition of crime classification that is standardized. This definition of characteristics over crime in Lisbon, Portugal was investigated by Nicolau (1994) using multiple linear regression methods. Harries (2006) investigated the impact of population density on the occurrence rate of property and violent crime using bivariate correlation approach. However, gaps still exist with respect to the applicability of the usual crime rate statistic method and crime density for mapping the distribution of crime and for the investigation of the contextual determinants of crime through multivariate statistical analysis (e.g., regression). Although there is no widely accepted definition of a hot spot, for the purposes of the research study, it was defined as a group of similar crimes committed by one or more individuals at locations within close proximity to one another (International Association of Crime Analysts, 2011). Recording was split into Index and Non-index crime so that the researchers can understand the Statistical Inference Category of Crime. Index Crime were the eight crimes the Philippine National Police (PNP) fused to come up with the annual crime index. These offenses are larceny over motor vehicle theft, aggravated assault, arson, forcible rape and

robbery and wilful homicide. A common definition was necessary in order to compare statistical information on a national basis for crime comparison. The purpose of the serious and non-serious offense was done to achieve that objective. Serious felonies make up Part I crimes and non-serious felonies and misdemeanors make up Part II crimes. The reported crimes in the Crime Record Unit (CRU) are made up of these two classifications. Only the crimes that were most likely to be reported were included in the reporting of offenses because those crimes were most likely to occur with a frequency that is sufficient for comparison.

The sum of selected offenses was the Crime Index total. It measures crime rates inflation and fluctuations that is reported to law enforcement. The Crime Index total included Violent crimes such as: Forcible Rape, Aggravated Assault, Robbery, Murder and No Negligent Manslaughter. Also included are Property crimes such as Motor Vehicle Theft, Robbery, and Theft. Inconsistent reporting resulted in the exclusion of Arson. Drug seizures, DUI arrests, Weapon arrests and Prostitution, among others are included in Non-index crime. The FBI Crime Index Totals does not include non-index crimes but are still monitored at the local and state level.

Empirical Observation knowledge is derived from investigation, observation, experimentation, or experience, as opposed to the theoretical knowledge based on logical or mathematical assumption. The

empirical observation would be taken from the personnel who had direct contact with the main data of the study. The practical observations would help the researchers understand the content of the main data.

Demographic Description studies of a population are based on factors such as age, race, sex, economic status, level of education, income level, and employment, among others. The researchers postulate that the demographic description of every selected area has an influence on its crime rate.

This research therefore aims to fill the void in literature by conducting a statistical analysis of crime rate in selected barangays of Cebu City.

**III. METHODOLOGY OR THEORY VALIDATION**

The research was descriptive-correlational in nature because the researchers wanted to determine and assess provide fundamental connections between the public observation and statistical impression of crime rates such as getting the relationship of the demographic description and relationship of crime rate to the source of employment and non-employment, and the relationship to the source of income. The researchers analysed the crime rates based on a statistical approach to produce an unbiased result.

The researchers formulated self-made questionnaires which served as their guide in the conduct of the study. The first, second, third and fifth questions focused on conducting the in-depth analysis of the data on crime rates while fourth question served as an interview guide for the respondents of the study

The data generated were treated using the following for correlational purposes: (a) Poisson Correlation was employed to determine correlation between the employment rate to crime occurrence; (b) Percentage is employed to get the proportion of each crime occurrence per barangays from the total volume of crime occurrence per year; and (c) Mean was utilized to get the average responses of the respondents.

**IV. RESULTS AND DISCUSSION**

Table 1  
Demographic Data of the covered Barangay (N=5)

Covered Barangay	n	Employment Status	Common Source of Income
Barangay Pasil	9366	35%	Self-employed -trisikad -fish vender -merchants Govt. Employee Private Employee
Barangay Ermita	15000	25%	Merchants/Vending
Barangay Lorega	11785	38%	-
Barangay Mambaling	34687	69%	-
Barangay Duljo	15223	51%	-Vending -Employed in Private companies

Demographic data of the five (5) barangays which serves as the research environment of the studies. At present Barangay Mambaling held the greater number total population of 34, 687 as of year 2014 and at the same time had the highest percentage of employability among the covered barangays, this was followed by Barangay Duljo which has a total population of fifteen thousand two hundred twenty-three (15,223) and an employment status of fifty-one percent (51%). Third, was Barangay Ermita with fifteen thousand (15,000) total population and within its population number they had twenty-five percent (25 %) of employment status. Fourth were Barangay Lorega and lastly Barangay Pasil. The study does not cover the relationship of population to employment. However somehow Marx (1856) theorized that people with lower income were the most people who have greater discernment of things.

Table 2  
Crime Occurrence

Covered Barangay	Crime Occurrence from 2005-2014		
	Index Crime	Non-Index Crime	Total Number of Crimes
Barangay Pasil	834	700	1534
Barangay Ermita	764	1067	1474
Barangay Lorega	1230	601	1831
Barangay Mambaling	760	602	1362
Barangay Duljo	847	640	1487
Σ	4435	3610	7688

The crime occurrence form Barangay Pasil, Barangay Ermita, Barngay Lorega, Barangay Mambaling, Baranagy Duljo were presented using the actual number of index and non- index crimes. It can be gleaned that Barangay Lorega has the highest frequency of crime occurrence while Barangay Mambaling has the lowest frequency of occurrence.

**Technological Approaches.** It was the intention of the researchers to determine the technological approaches used by the selected barangays when dealing with crime rates. It was found out that the barangays are now adopting computer technology in keeping records regarding crime incidence or communities' complaints but as of now using the technology in tracking crime occurrence and analysing it for crime prevention purposes does not yet exist. The barangay keeps crime records for the purpose of jurisdiction and hopeful reparation and reconciliation of both affected parties. However, Sindac (2013) explained that there was a change of methodology of recordings of crime incident at present crimes recorded in barangay was included in the counting. The researchers had extended the scope of the respondents from the original plan of isolating the study in one environment due to this new trend of counting crimes.

**System Used.** On a barangay level, the Manual System

of gathering and recording the complaints is being used. For the PNP, the computer system technology has been used as a great aid in determining the crime rate from 2005-2014 in their respective station.

**Technological Capability.** All PNP personnel assigned in Crime Records Unit were observed with technical know-how or have the background of Advance Computer and had undergone series of training in the aspect of crime reporting. However on a barangay level, most of the personnel were the Barangay Tanods, who were assigned to record any possible incidents and complaints.

Table 3  
*Sources of Data (Crime Rates)*

Sources of Data	Barangay	PNP
Barangay Pasil	637	897
Barangay Ermita	512	959
Barangay Lorega	896	935
Barangay Mambaling	648	714
Barangay Duljo-Fatima	514	937
<b>N = 7688</b>	<b>3,207</b>	<b>4,442</b>

Sources of data are the origin of the crime rates records where the researchers were able to procure. Majority of the crime rates records were procured from the Philippine National Police Station where the selected barangay belongs. In the police station, the crime rates data were already summarized as to frequency per area, total volume of crime and total crime solved while at the barangay level, the crime records are individually procured from their blotter reports. Specifically the data revealed that Barangay Lorega still has the highest crime records, both on barangay and the PNP level. The lowest among the group as to barangay level is Barangay Ermita yet the PNP record revealed an opposite data because this barangay has the highest crime records for the covered years. The researchers believed that the PNP records was quite high because it has the jurisdiction over different kinds of crime while the barangay has only minimal jurisdiction over offenses which is under the law can be subjected for local reconciliation.

**Reports from the Barangay.** All covered barangays were visited by the researchers during the government duty hours. The questions on the sources of data were duly answered by the available desk officers and others forwarded an annual report survey from their respective barangay. All covered barangays have stated that they would only know crime incidence through complaints filed under the barangay level. The personnel in-charge would record it upon complaint and necessary response would be done such as if apprehension or police assistance was needed. This complaints was duly recorded under the Blotter Log Book, however summary

as to types of crime was not being practice.

Table 4  
*Summary of Public Observations Results among the selected Barangays in Cebu City (n= 1959)*

Indicators	$\bar{x}$	DE
1. There is no proper reporting on crime rates	2.25	LLO
2. There is a false entry on crime rates to please the community	2.52	MO
3. The presented crime rates is very far from what is happening daily	2.41	LLO
4. The decrease of crime occurrence as reported are false	2.55	MO
5. Crime rates reporting are always hidden from the community	2.63	MO
6. The local government doesn't have any activity in relation to crime rates awareness	2.57	MO
7. The personnel in charged on crime rates has no technical know-how	2.62	MO
8. Crime rates are not reported promptly	2.59	MO
9. There is no significant explanation on the fluctuation and inflation of crime rates	2.63	MO
10. Crime rates reporting is done for compliance purpose only without taking into consideration that it may have a significance to peoples life	2.85	MO
	$\bar{X}$ 2.56	MO
Scale	Range	Descripted Equivalent
4	3.25-4.00	Highly Observed (HO)
3	2.50-3.24	Moderately Observed (MO)
2	1.75-2.49	Less Likely Observed (LLO)
1	1.00-1.74	Not Observed (NO)

This portion was presented through table from the public observation of each Barangay. This tabulated result answers the question two point three (2.3) public observation of crime rates. The extent of observation among the public regarding crime rates were responded, as to that there is no proper reporting on crime rates it has a weighted mean of two point twenty-five (2.25) as well as that there is a false entry on crime rates to please the community has the weighted mean of two point forty-one (2.41) both indicator were moderately observed by the respondents. All other indicators were moderately observed by the respondents.

Table 5  
*Relationship of Employment Rate and Crime Occurrence*

Parameter	B	Std. Error	Hypothesis Test			95% Wald Confidence Interval for Exp(B)	
			Wald $\chi^2$	df	p	Lower	Upper
(Intercept)	7.47	.035	46548.41	1	.000	1751.59	1636.70 1874.55
Employment rate	-.003	.001	15.65	1	.000	.997	.996 .998

A Poisson regression was ran to predict the number of crimes from five barangays with employment rate as the independent variable. For every 1 percent increase in employment, there's a .997 (95% CI, .996 to .998) times less crime counts, a statistically significant result, p = .000

This result, rejects the Ho because the p-value is less than the level of significance at alpha 0.05. This means

that the employment status is negatively correlated with the number of crime occurrence in a particular area. The higher the employment rate the lower the crime counts.

The employment status of the residence of each barangay varies depending on the employment trend. The barangays were not able to give specific details as to the numeric status of income but were able to give a general categorization of the kind of employment its residents have. Results in (table 6.), where employment is a significant factor on the crime occurrence in a barangay showing a relationship of employment to the number of crime counts supports (Marx, 1883) critiques capitalist society which according to him allows millions of billionaires and millionaires to exist while the vast majority of people live in poverty or just get by. Such fundamental economic disparities reflect basic contradictions in the way work is organized into demoralizing, brutalizing and oppressing conditions.

On the demographic data per barangay, the demographic factors which appeared to be common for each barangay were the total population, employment status, however in common source of income, Barangay Lorega and Mambaling were not able to specifically provided data.

It was found out that there has no relationship between total population and employment status with crime occurrence among the data gathered from the covered barangay of the study.

It was found out that the technological system, such as computer and PNP website i.e. blotter has been a great aid for the PNP and Barangay. However, the use of manual recording was still dominant on their process. It has been found further that personnel undergone series of trainings in relation to crime recording and reporting; however at the barangay level, the assigned personnel on crime recording were mostly Barangay Tanods.

The sources of data (crime records) still depend on the complaints reported and recorded in the barangay. The indicators regarding the crime rates, such as recording, reporting, presenting to the public even the capability of the personnel in-charge on crime occurrence recording and reporting were moderately observed that there has been an insufficiency and inefficiency of records and reports.

The result shows that there is significant relationship between employment status and crime occurrence.

## V. CONCLUSION

It is therefore concluded that the number of population and employment status of community residents has no connection whether or not the crime

rates and occurrences in certain barangays were high or low. There are other factors that contributed to the crime occurrences and crime rates of every community for a specific period of time. It also inferred that there has been an inefficiency and insufficiency on crime recording and reporting because it is not fully and properly implemented, monitored, and evaluated for its authenticity, credibility and continuous improvement.

<b>Originality Index:</b>	91 %
<b>Similarity Index:</b>	9 %
<b>Paper ID:</b>	908654503
<b>Grammar:</b>	Checked

## REFERENCES

- Albanese, J., (2014). *Organized Crime in Our Times* (6<sup>th</sup> ed.). NY, USA: Routledge
- Buonanno, P. (2003). The socioeconomic determinants of crime. A review of the literature. Working Paper Dipartimento di Economia Politica, *Università di Milano Bicocca*; 63(1), 1-34.
- Cahill, M. E. (2004). *Geographies of urban crime: An intraurban study of crime in Nashville, Tennessee; Portland, Oregon; and Tucson, Arizona*. University. Arizona: USA: Libraries, University of Arizona
- Carcach, C., & Muscat, G. (2002). Location quotients of crime and their use in the study of area crime careers and regional crime structures. *Crime Prevention & Community Safety*, 4(1), 27-46.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), 588-608.
- Gillado, M., & Tan-Cruz, T. (2004). Panel Data Estimation of Crime Rates in the Philippines. *9th National Convention on Statistics (NCS)* EDSA Shangri-La Hotel, PH.
- Harries, K. (2006). Extreme spatial variations in crime density in Baltimore County, MD. *Geoforum*, 37(3), 404-416.
- Marx, K. (1852). *The eighteenth brumaire of Louis Napoleon* (S. K. Padover, Trans.). Moscow: Progress Publishers
- Mehlkop, G., & Graeff, P. (2010). Modelling a rational choice theory of criminal action: Subjective expected utilities, norms, and interactions. *Rationality and Society*, 22(2), 189-222.
- Nicolau, R. (1994). *Social Representations and Crime Distribution Patterns in Urban Settings*, EGIS Foundation. Retrieved April 25, 2016 from <http://libraries.maine.edu/Spatial/gisweb/spatdb/egis/eg94159.htm>
- Parson, T., (2013). *Theory on Gender Roles*. Retrieved September 27, 2013 from <http://prezi.com/hcaa0qcq3b/talcott-parsons-theory-on-gender-roles/>
- Sindac, R., (2014). *Raps filed vs Purisima meant to malign PNP*. Retrieved September 25, 2014. Retrieved from <http://www.google.com.ph/search?safe=off&site=source=hp&q=sindac+2014&oq=sindac+2014&gsi=hp.3.0i22i30.5953.10121.0.11025.11.8.0.3.3.0.184.1292.0j8.8.0...0.1c.1.64.hp..0.11.1291...0j46j0i131j0i46j0i3j0i10j0i30.enX9uzM0kNg>
- Sutherland, E. H., & Cressey, D. R. (1966). *Principles of Criminology* (7<sup>th</sup> ed.). Philadelphia, USA: Lippincott.

**AUTHORS**



**Donald B. Narra**, born in October 18, 1976 in Iriga City, Camarines Sur. A father of 2 kids and married to Ms. Aileen B. Narra. Earned the degree of Doctor of philosophy in Criminology in 2013 at the Phil. College of Criminology- Sta. Cruz, Manila; SO No. © 90-891301-0015s and awarded as Class Valedictorian and Outstanding Dissertation. Finished the Degree in Master of Science in Criminology Major in Law Enforcement Administration, 2005 with SO No. 80-140804-5s 2005 and awarded as Cum Laude and given the Meritissimus in Oral Revalida.

He is the Dean of the University of the Visayas College of Criminal Justice Education from 2009 until at present; A Member- CHED Regional Quality Assessment Team from 2011 until at present.

Dr. Narra is an active member as a Regional Director of Professional Criminologist Association of the Philippines, Inc.; Vice President of Philippine Society of Criminologist and Criminal Justice Professional and a member of CHED RQUAT Visayas. Dr. Narra is also an author of the book Practicum Manual for Criminology Interns and Profession with ISBN: 978-971-95775-9-1 and had published research papers entitled “ The quality of Service and its effects on stakeholder’s relationship in the office of the Security and Safety X university- pages 2013-217, UV journal of Research 2014-Category A-2 by CHEd. ISSN 2345-802X and “ Psychosocila determinants of corruption” pages 81-89, UV Journal of research 2014-Category A-2 by CHED ISSN 2345-802X.



**Queen Heneylour S. Relatorres** was born in August 14, 1987 in Bulacao, Cebu City, the eldest of the sibling of mr. Henry and Mrs. Lourdes S. Relatorres. Earned the Degree of Bachelor of Science in Criminology in the University of the Visayas in the year 2008. In the same year passed the Criminologist Licensure Examination.

She is work as faculty member of the University of the Visayas, College of Criminal Justice Education from 2008 until at present and appointed as Research Coordinator from 2012-2014. In the year 2013 she was appointed as the Chief Security officer in the University of the Visayas until at present.

Prof. Relatorres is an active member of Professional Criminologist Association of the Philippines and published studies in collaboration with co-authors who were also expert on the different field of research from 2013-2014 namely Bombings and Violence on Mindanao: A Fractal Analysis-2013; Societal Offenders in prison: Global In-country Analysis by Fractals-2013; Fractal Similarity Index for Forensic Handwriting Analysis-2013; Variation in Well-being Across Law Enforcement Agencies-2013 and Quality of Service and its effects on stakeholder’s relationships in the Office of the Security and Safety Group of X University-2014 under the UV Journal of research 2014-Category A-2 by CHED ISSN 2345-802X and UV journal of Research 2014-Category A-2 by CHEd. ISSN 2345-802X



**Third C. Author Analyn L. Ubas** was born in May 24, 1987 in Cagayan De Oro, the 5th of the siblings and was raced in St Bernnard Catmon Leyte. Went To the University of the Visayas, Cebu and earned the degree of Bachelor of Science in Criminology and in the year 2008 passed the Criminologist Licensure Examination.

She is work as faculty member of the University of the Visayas, College of Criminal Justice Education from 2009 until at present and appointed as Research Coordinator from 2015 until at present.

Prof. Ubas is an active member until at present of Professional Criminologist Association of the Philippines and a member of the board of Philippine Society of Industrial Security Region 7. She was given recognition being a Research Presenter, Criminological Research Paper Presentation November 28-30, 2014.



**Chona Marie V. Villarín** was born in October 6, 1996 at Pandacan Pinamungajan Cebu and was the eldest among the siblings of Mr. Felix and Mrs. Leonarda Villarín. Earned the Degree of Bachelor of Science in Criminology in the University of the Visayas in the year 2015. In the same year she passed the Criminologist Licensure Examination.

She is currently working at the Cebu Shangri-La Hotel Mactan as Security Officer while waiting of for the regular recruitment in the Law Enforcement Field. She started to become enthusiast in researcher during the year 2015 and was able to work hand in hand with her co-authors in the College of Criminal Justice Education.

Criminologist Villarín is member until at present of Professional Criminologist Association of the Philippines.