

## Panel 17 : Social Development

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## Human Rights of Women and the Practices of Female Circumcision in East Java

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### Abstract

Every citizen have the same rights at the same time in law and government, we called it equality before the law. In Indonesia this is recognized in the Indonesian Constitutional 1945. Constitution of the State of the Republic of Indonesia which is currently undergoing changes until the fourth change (4th amendment). However, the implementation of the rights before the law on women issues often faced difficulties. This paper is intended to analyze how women have no protection of their rights in the issue of female circumcision. This paper based on research in 2 areas in East Java Province, that were 1) Bangkalan Regency, and 2) Situbondo Regency. The research was a qualitative research supported with quantitative data. The data collection was using indepth interview to 20 informants and interviews using questionnaires to 200 respondents. The research reveals that there were many things affect women's ability to access for the constitutional rights in the issue of female circumcision. This was effect the health condition of girls and women as the impacts of practices of female circumcision.

**Keywords:** female circumcision, women 's rights, law and women issues, qualitative research

## Stigma of HIV Patients in NAN Province

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### Abstract

The research on “Stigma of HIV patients” was conducted in Nan Province. The objective of this research is to find out; (1) perceptions on social stigma of the HIV patients; (2) Demographic characteristics and chronology of illness associating with stigma Quantitative method was utilized for obtaining the finding results with 340 respondents. It was found that the society looked at HIV patients as unclean persons, less social space, offensive and outcasts.

Statistical analysis of the relationship among related factors such as stigma, demographic characteristics, and chronology of Illness revealed that stigma was significantly associated with prejudice and social interaction. The results disclosed that stigma still exists in the community and the family as well. This evidence reflects the fact that patients with HIV have expressed negative self-devaluation causing the refusal to receive treatment from government health care services.

**Keywords:** Stigma

### Abstract (Thai)

การศึกษาการตีตรา ผู้ติดเชื้อเอชไอวี ในจังหวัดน่าน มีวัตถุประสงค์ 2 ประการ ได้แก่ (1) การรับรู้การตีตราทางสังคมต่อผู้ติดเชื้อเอชไอวี (2) ลักษณะทางประชากรและประวัติความเจ็บป่วยที่มีความสัมพันธ์กับการตีตรา พฤติกรรมสุขภาพและการเข้าถึงแหล่งบริการสุขภาพ ศึกษาในผู้ติดเชื้อเอชไอวี จำนวน 340 ราย ผลการศึกษาพบว่า สังคมมองผู้ติดเชื้อเอชไอวีว่าเป็นบุคคลที่มลทิน ไม่มีพื้นที่ทางสังคม น่ารังเกียจ ไร้คุณค่า

จากการใช้สถิติวิเคราะห์ความสัมพันธ์ระหว่างตัวแปรด้านการตีตรา ซึ่งมีความสัมพันธ์กับตัวแปรด้านลักษณะประชากร และประวัติความเจ็บป่วย เช่นเดียวกันพบว่า การตีตรา มีความสัมพันธ์กับด้านความรังเกียจเดียดฉันท์ และการมีปฏิสัมพันธ์ทางสังคม โดยภาพรวมพบว่าการตีตรายังมีอยู่มากในชุมชน รวมทั้งในครอบครัว ทำให้ผู้ติดเชื้อเอชไอวีให้คุณค่าตนเองในเชิงลบ จึงเป็นสาเหตุหนึ่งที่ปฏิเสธการรักษาจากสถานบริการสาธารณสุขของภาครัฐ

## 1. Introduction

AIDS (Acquired Immune Deficiency Syndrome: AIDS) is considered to be a disease causing severe consequences could threaten the country's economic and social entanglement, Thai because it is a disease that occurs with the population of reproductive age. One of the problems is a major issue in all countries around the world. Both direct and indirect i.e. direct loss from expenses on medical treatment. Medication and lost labor. The indirect loss from the loss of revenue to occur also affect ourselves. Per family. Communities and society with AIDS patients and people infected with scattered all over the world. Thailand has been detected in patients with AIDS. The first in September 1984, a male homosexual Thailand. From the US Thereafter, There was an outbreak of HIV infection (HIV or Human Immuno - deficiency Virus) in Thailand to population groups with no restrictions on age, class, gender and occupation because HIV can also contact each other in many ways, such as blood, semen, vaginal sex, semen, etc. and persons at risk for infection include people who have sex with multiple partners. Individuals with unusual sexual behavior people who use injection drugs (Department of disease control, Ministry of Public health, 2012)

Since Thailand found HIV/AIDS first and subsequent loss of life until today. It must suffer from the spread of AIDS and the HIV/AIDS issue on the impact of the issue, which is recognized around the world that the crisis of AIDS as a major threat to human life, so quickly because of the spread of AIDS. Not limited in group gender or drug injecting, but AIDS has spread from the men who was had sex with working women and germs from infecting their wives until with the fetus. (Department of disease control, Ministry of public health, 2012) the family institution, the family must be added the burden of care, HIV and AIDS. Some families was faced collapse due to this disease over the past two decades. Situation of AIDS appear in Thailand is still the social issues that are not yet able to control the spread of the disease while, the problems of patients remains a social and psychological problems that require therapy and close supervision because of family, friends, relatives, community and society.

Currently there are no drugs that can cure AIDS. But there is antiretroviral HIV inhibition which increase the amount of HIV virus in the cell (Simoni, Ho & Karim, 2006; Warnke, Barreto & Temesgen, 2007) Antiretroviral of therapy for HIV share many powerful called HAART (Highly Active Antiretroviral Therapy) is intended to reduce the level of HIV RNA in plasma (Viral load), as much as possible until you reach a level where a measurement cannot be measured (Undetectable level) or lower level than 50-400 copies/ml (Bartlett & Lane, 2009) and maintain it, for as long as possible to rejuvenate or to maintain the functioning of the immune system. Result in enhanced quality of life for patients and reduce illness or death caused by opportunistic infections to which

antiretroviral therapy for HIV it. People infected with HIV or AIDS patients need to eat antiretroviral HIV regularly and continuously throughout life. (Plernjan Chetchotisak 2003; The Department of disease control, Ministry of public health, 2007)

The social problems that explains HIV/AIDS is a man nasty, malicious, embarrassing behavior that is not acceptable for people in the social immorality and harm society (Pimpawan Bunmongkol, 1994) because of the discovery of AIDS, the first in the group, including a group of homosexuals, groups addiction and providers of sexual services lead to prejudice and discrimination which is reflected from the terror mistreats rejected the discrimination against the deprivation of benefits and the opportunity to receive services from the society of people around, from family, members Health personnel and even HIV itself. (Peangpim Chaipibansakik, Padit Panipak, Somsong Wong-U-Lai and sittochai ekorramaipol, 2010) with the AIDS prevention campaign is presented in such a way that is the ugly, frightening. Nasty, such as AIDS, and then die. There is no way to treat needle. Sex me Deadly AIDS, or even stream the idea to isolate infected people and AIDS patients to live in separate communities, because they do not want to live with other people, such as Watphrabatnamphu where is therapy and treatment of HIV and AIDS patients. Leader of HIV and AIDS care together. As a result, is infected and AIDS patients abandoned disgust from family, relatives, and neighbors. There are no shelters to be ejected, change jobs, lack of revenue, loss of time and money to study the relationship between the person and the loss of losing someone so people infected with AIDS, so it is not only faced with the threat of the disease only. But also face stigma from society simultaneously, and the social stigma is also a factor affecting their patients. More than the physical appearance of illness. (Saylor, 1990)

The problem of AIDS in the NAN province occurred in conjunction with several provinces in the country from the situation of HIV/AIDS information. Group of the province public health office of NAN since 1988 to 2012 of HIV infection and the cumulative number of AIDS patients is a list of 4,089 male 2,766 female 1,323 death list 1,395, the proportion of males per female patient equal to 2:1 still alive 2,694 list split into AIDS patients all 422's HIV infection total number of 2,272 list.

The primary health insurance rights of AIDS patients and people infected with the medical treatment that is found in every detail with 2,694 primary medical insurance covered 100 percent, and from the report of The national health security office fiscal 2012, found that the rate of access to the site's health, AIDS patients are the lowest level. In the North, at a rate of 1.63 times per year per person, with composed a report on the results of operations in the primary system, the universal 2011 of the national health security office 1 Chiang Mai found that limitations in the development of the province's public health work is (1) The rate of access to sources the financial health of AIDS

patients and HIV/AIDS. Lowest in the North (2) Difficult transportation routes. Distance from the site, and the small number of health (National health security Office District 1 Chang Mai, 2012) (3) The rate of fragmentation of most patients in the North, and from the study of Kantichon pinchairat.(2018) Report,survey of health behaviors of AIDS patients and people infected with HIV in NAN province, explains that HIV/AIDS when their public disclosure is also a social stigma Neighbors and relatives, which makes another HIV awareness yourself infected do not reveal themselves. Disguise yourself and do not accept the condition of illness. Make myself no good behavior in health promotion and disease prevention from such a reason so researchers are interested to study stigma. People infected with HIV in the province, as well as to bring their studies to a preliminary data In the management of AIDS control agencies to understand the problem of HIV/AIDS. In the area effectively.

## **2. Method**

### **The population of the study**

Population infected with HIV in Nan province of 340 people.

## **3. Places**

The researchers choose in Nan province because (1)The rate of access to health care of AIDS patients and people infected with HIV lowest in the North. (2)Route of transportation difficulties distance away from the health service and a small amount. (National health security Office District 1 Chang Mai, 2012) and (3)The distribution of the patient, Most in the North.

## **4. Tools**

Researchers have created a tool that is used in the research is the query. The stigma and HIV/AIDS trend questions comments and suggestions on HIV/AIDS issues and questions are consistent with the objectives of the study are to examine the direct linear content (Content validity) validates the content of the questions met to see internal consistency (Internal consistency), find the connection of tools by queries that get revised, and then to perform the experiments. (Try out) with a group of examples with the samples used in the study in a group of HIV infection at the Phayao Hospital,Thailand. The number of 30 people to analyze the contents of the query quality. Queries

that have to find confidence (Reliability), using the coefficient by Cronbach'Alpha Coefficient. The results of the analysis showed that stigma has a confidence value of 0.93.

## **5. Advocacy**

Researcher was researched proposal to the Committee on Ethics Mae Fah Luang University for the rights of the data. In the process of gathering information the researcher clarified the rights of the data by first introduced to clarify the purpose of research benefits of the research, the value of the information obtained from an informant and clarify the process of gathering detailed information. The clarification about the manner in which the information in question is free to not answer questions on the subject hampered and confidentiality.

## **6. Analysis of Data**

The research data were analyzed by the inquiry average (Mean) percent and interpretation costs. The average score for each item and each aspect of the question. The relationship of the statistical analysis of the relationship with a correlation coefficient of Pearson's Product Moment Correlation Coefficient.

## **7. Results**

### **General characteristics of the population**

The study generalization Of those infected showed that the most of women of 53.20 between the ages of 41-50 years, the highest percentage of 47.40, followed by the age of 31-40 percent year 32.90 mainly Buddhist percent, 97.10, and most graduate. Primary education, 47.90 percent, 50.59 percent, workers are married and 45.29 percent for the income of the average family for the range of 5,001 to 10,000 baht percent 55.29 monthly income of the average family of 10,713.71 baht, but when questioned the adequacy of income were found to have inadequate income and liabilities of 52.06 for joining the health insurance system. Exercise Health insurance 79.41 percent of the total sample.

## **The perceived social stigma against people infected HIV**

Asking the stigma of HIV is subjective. Researchers have questioned the valuation method based on the reaction of the society and the estimated value of the infections from four aspects: (1) Prejudicial scale (2) Social interaction scale (3) Self -evaluation scale and (4) Interpersonal evaluation scale As follows:

Prejudicial scale, Overview there is a stigma is moderate, which measure the level of research questions have been defined, such as family members of infected people or relatives express their disgust at the time, met with the infected people are boring. No need to infect nearby and there is a sense touch, such as do not want to snuggle is the meat. In the field of eye vision questions who does not want to look those infected acknowledgement and recognition, as well as understanding about HIV that are correlated with a behavior and value. Asking to comment on whether the common people also understand that infection as people behaved badly or wrongful conduct by the impact and make friends do not want to fellowship or talking, which include not wanting to explore finding a home. The inquiry also includes feeling to stay aloof, not daring to look infected people, such as a pretend invisible. Therefore follows that the infection continues to be jealous and show the boredom. From someone within the family, relatives and others, the General.inquiry also feel the need to stay away to look to HIV, such as pretending to be invisible. It can be concluded that HIV continues to be disgusted disgust me and show boredom. From the people within the family. Relatives and others in general.

The Social interaction scale, there is a stigma to a lesser degree. The level of questions that the researchers have defined as infected if they do not reveal themselves. No symptoms of the body to the family, relatives or people in society and anyone does know if it was infected? It will not be offensive, insulting or abusing others make when living in a community like normal people and social interaction, such as eating together between relatives, friends and a shared bathroom or a phone call saying. You have to come to each other. According to the admitted doctor, nurse or other health staff to treat themselves do not differ from patients. Therefore, it was concluded that the stigma of social interaction with HIV at a low level. Show that HIV also interact with the community and society.

Self-evaluation scale of the stigma was high. As measured by the questions that were defined as affected by the spirit of those infected receive from society is no society, no neighbors to come to the same. The infection for themselves. It is unfortunate, poor, nasty society's useless fool scary as unwise, immoral deeds are sinful and negligent in living. Create a burden to others the infection was excluded and alienated from society and a sense of a self that they are not equal to



other normal person. As a result, feel shame Self-hate and self-reproach Therefore, it was concluded that the majority of those infected have no self-esteem. It is a crisis that caused a sensation and perception of self.

Evaluation from others Overview of the stigma moderate. As measured by the questions that were defined as infections that people see themselves as harmless. No adverse effects on others in society that is socially accepted. The ones that society should forgive Be Valuable But some people still believe that HIV is a nasty society. Negligence of life as a result, self-derogatory Believe from others Sometimes I want to drive them away or is that an infected person to a person of the society. Therefore, it was concluded that the majority of people infected with the perception that they are seen by others as someone who is lazy society. Negligence in life is immoral.

## 8. Demographic characteristics were associated with the stigma of those infected with HIV

### Demographic characteristics associated with the stigma

Relationship with the stigma of those infected with HIV. The classified nature of the population infected. Is associated with stigma. The researchers tested the statistical significance level of 0.01 and 0.05 and the correlation coefficient. ( $r$ )

**Table 1** correlation between metrics and demographic characteristics stigma

INFORMATION		SM 1	SM 2	SM 3	SM 4
SEX	Pearson Correlation	0.023	0.079	0.036	0.121*
	Sig.(2 tailed)	0.667	0.148	0.511	0.026
	N	340	340	340	340
AGE	Pearson Correlation	0.014	0.054	0.009	0.037
	Sig.(2 tailed)	0.791	0.319	0.867	0.493
	N	340	340	340	340
EDUCATION	Pearson Correlation	0.040	0.004	0.049	0.082
	Sig.(2 tailed)	0.791	0.944	0.366	0.131
	N	330	330	330	330
CAREER	Pearson Correlation	0.012	0.045	0.000	0.023
	Sig.(2 tailed)	0.827	0.405	0.998	0.670
	N	332	332	332	332
MARITAL STATUS	Pearson Correlation	0.019	0.030	0.103	0.093
	Sig.(2 tailed)	0.721	0.578	0.059	0.087
	N	340	340	340	340

The average monthly income of the family	Pearson Correlation	0.142**	0.152**	0.014	0.102
	Sig.(2 tailed)	0.009	0.005	0.793	0.060
	N	340	340	340	340
The adequacy of income	Pearson Correlation	0.169**	0.192**	0.058	0.132*
	Sig.(2 tailed)	0.002	0.000	0.287	0.015
	N	340	340	340	340
The health insurance system	Pearson Correlation	0.019	0.048	0.024	0.079
	Sig.(2 tailed)	0.729	0.380	0.653	0.145
	N	338	338	338	338

Relationship Significant at 0.05 are interrelated. The significance level 0.01

the SM 1 = Prejudicial scale and SM 2 = Social interaction scale

SM 3 = Self -evaluation scale SM 4 = Interpersonal evaluation scale

Table 1 showed the correlation between metrics and demographic characteristics stigma that (1) the average monthly income of the family and the adequacy of income Stigma associated with Prejudicial scale (SM1) significant at 0.01 ( $r = 0.142$  and  $0.169$ ), respectively, (2) the average monthly income of the family and the adequacy of income Is associated with the stigma of the Social interaction scale (SM2) significant at 0.01 ( $r = 0.152$  and  $0.192$  respectively) (3) sex is associated with the stigma of evaluation by others (SM4.) significant at 0.05 ( $r = 0.121$ ), and (4) the adequacy of income. The stigma associated with the evaluation of others (SM4) significant at 0.05 ( $r = 0.132$ ).

## 9. Discussion and Conclusion

1. In the context of the treatment in the infirmary of the Government as the main patient rights and insurance keep but could not deny health, HIV treatment in the last sequence. Although, will go before the other ones which generate violence different from rejection. Create an awkward and regrets to those infections because those infected been known why we have to be different from those of general practice.

2. The stigma and discrimination within the family, communities, both consciously and subconsciously. In the diabetic appear blurry or gossip to condemn and some infected individuals are barred from participation in community activities, or if you have a ritual, it will reduce the process or signing ceremony, in which a group of people who believe the world after death, it will have the feeling that the soul of the dead person will not go into the hereafter.

3. The stigma is very high outside the group of friends who is a group of HIV discrimination. The infectious sense of shame, self-blame, depression worthless, which is what people think of HIV or make your own. The value of a man is not being solved but the tight knot of people infected with it.

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## Gender Perspectives of Drafting Students on the 21<sup>st</sup> Century Paintings

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### Abstract

A painting is known to be a product or a process of applying paint to a canvass. It is expressed by the painter's thought and emotion. The paintings may be perceived differently by individual due to gender differences. The perspectives of individual are categorized into male or female perspective.

The purpose of this research is to determine the perspective of BSTTE-DT students towards 21<sup>st</sup> century paintings pertaining to their gender differences. A questionnaire was created to examine the socio-economic profile of the students, their gender perspective towards 21<sup>st</sup> century paintings. The questionnaire was distributed and completed by 81 students that were categorized according to their gender: male and female from Bachelor of Science in Technology Teacher Education major in Drafting Technology of the Department of Technology Teacher Education at the College of Education, MSU-IIT. The Pearson Moment Correlation was used to inspect the relationships of the study variables. The methodology and evaluation process of the study are described in complete detail, so that this chapter represents the outcomes of the applied survey executed by the researchers. The findings are presented with interpretation and discussions regarding the result of the survey. The outcome of the study suggested that both male and female gender in terms of their perspective on 21<sup>st</sup> century paintings are similar. Overall, the findings of the study is positive with both male and female respondents, without considering gender differences, have similar thoughts, comments and perception on 21<sup>st</sup> century paintings.

**Keywords:** Gender painting, Gender perspective, Perspective on painting

## Introduction

Every day, a person is bombarded with different illustrations and images from posters, streamers, especially mobile phones and computers, upon seeing these images a person will make a quick judgment of what he or she has seen, these judgments are influenced by different factors and gender is one. Gender differences are social constructs, inculcated on the basis of specific society's particular perceptions of the physical differences, assumed tastes, tendencies and capabilities of men and women (FAO, 1999).

Gender affects everyone in many levels, in perceiving, processing and interpreting what has been seen and observed; men think differently from women, it has been found that there are some key differences that could explain why males and females think and behave in characteristic ways (Lisa Collier Cool, 2016). Having these differences in thinking means that men and women will interpret or perceive differently from what they see.

Painting is the art process of applying paints to a surface such as canvas, to make a picture or other artistic composition (Collins, 1991). Paintings are product of its artist self-expression with the use of paints as medium, it portrays emotions and meanings felt or understood by the painter. The painter may want to reveal his/her certain idea or feeling through painting, but it does not mean that the audience will have the same thought of the painter toward a painting does having different thoughts and understanding. And in terms of the audience although observing the same painting each gender may be interpreting the same painting differently because of different thinking process, the painting may evoke a certain idea but with the perception they may perceive it differently.

This study is focused on how male and female of Drafting Technology students of the MSU-IIT perceive the paintings of 21<sup>st</sup> century, how they felt and understood these paintings that are sold in auctions that worth millions of dollars, paintings that are made by the international artist from 2001 to present.

## Theoretical Framework

Painting is a form of art that has been present since old times. From realistic to abstract, many are astonished by their beauty and uniqueness. Each and every one of us has their own perspective of these painting from male to female and generates understanding or feelings from them. The Influence and impact of these painting are determined by different genders. These study is anchored by these theories; Sigmund Freud's Identification Theory (1897) cited in by (Bloomfield, 2015), Sandra Bem's Gender Schema Theory (1981) and Judith Butler's Postmodern Feminism theory (1990) cited in by (Ashba, 2008).

Identity is important to a person's life; identity defines who a person is. In the basis of Sigmund Freud's theory on Identification (1897) it stated that during the phallic stages of a person's life, this is where identification takes effect and the child would begin to model their behavior towards the same sex of their care taker which is the parents. "Freud also portrayed the gendered behaviors acquired in early childhood as fixed and stable over time" (Renzetti & Curran, 2003). This theory supports the study due to how gender will affect their perception of the paintings, stereotyping whether they would enjoy the painting due to what they interpret of the painting due to their gender or what they understood based on their knowledge.

Sandra Bem's Gender schema theory (1981) refers on the theory that children who have formed their own gender identity would start to develop gender schemas according to what their society portrays gender. This schema states that children adjust their behavior based on the norms of their particular culture or environment (Williams, 2016). Gender schema theory has been supported by many studies and explains stereotyping and why it still exists in the society. This theory supports the study due to the influence of the viewer based on their culture, environment or what society they live in and if that affects their judgment on the painting. It would influence the perspective of respondent regarding their gender whether they would love or hate the paintings presented to them.

Judith Butler's Postmodern Feminism was first propounded in her 1990 book "Gender Trouble" wherein she had an argument that what we conventionally regard as 'feminine' is only a reflection of what is constructed as 'masculine' (Gutting, 2005). Postmodern feminism is a modern branch of feminism where it strives for equality of all gender. It seeks to correct the old feminism purpose of elevating woman above men but postmodern feminism only strives for equality of all gender. In today's society it is highly viewed by some woman that feminism is no longer needed due to the society being in the postmodern feminism age (Ashba, 2008). This theory supports the idea of the study, since the perspectives of not only males but of females are needed. Since society has been changed to a more modern time, then the perspective of female respondents would be greatly appreciated.

### Statement of the problem

This study aims to determine the gender perspectives on 21<sup>st</sup> century paintings of the Bachelor of Science in Technology Teacher Education- Drafting students in Mindanao State University- Iligan Institute of Technology, Iligan City. The following questions were presented in the study:

- 1.) What are the socio-economic profiles of the respondents?
  - Age
  - Gender
  - Family Income
  - Background towards paintings
- 2.) What is the gender perspective of the respondents towards 21<sup>st</sup> Century paintings?
- 3.) Is there a significant relationship between the gender differences of the respondents and their perspective towards 21<sup>st</sup> Century paintings?
- 4.) What recommendations can be proposed based on the findings of the study?

### Null Hypothesis

Ho: There is no significant relationship between the gender differences of the respondents and their perception towards 21<sup>st</sup> Century paintings.

### Scope and Delimitation

This study aims to determine the perception of drafting students towards the 21<sup>st</sup> century paintings considering their gender differences. The paintings in the study are limited to the 21<sup>st</sup> century paintings created or auctioned by 21<sup>st</sup> Century International artist. Not all

of the paintings in the study were auctioned but some were exhibited in different places. This study is also limited among the Drafting Students in MSU-IIT specifically the second and fourth year student in the College of Education. The instrument used in the study is a non-standardized test in which was created by the researchers which were administered to the selected respondents. The study was undertaken on the second semester School Year 2016-2017.

## **Methods**

This chapter deals with the process of the research, how the researchers gather the data and how they can be interpreted.

### **Research Design**

This study is conducted in order to distinguish and compare the two perceptions of male and female towards the 21<sup>st</sup> Century made by the international artists that are sold in auctions. The research will interpret the difference or likeness of the two genders' cognitive process in perceiving and interpreting illustrations through the gathered data by survey method.

The researchers utilize descriptive correlational method, using both qualitative and quantitative approaches that deal with interpreting relationships between variables. This research is anchored on the distinguishing and contrasting the different perspective of the two genders, the male and female of the Drafting students on the paintings of the 21<sup>st</sup> Century.

### **The Respondents**

The Respondents are the second year, third year and fourth year students of BSTTE-DT. All the respondents' information and identity will be kept private between the researchers and the researchers' adviser unless requested by the panel to disclose for valid purposes with the respondent's consent.

## **Results and Discussion**

This chapter presents the results, discussion and evaluation about the data gathered on the gender perspective of the BSTTE-DT students towards 21<sup>st</sup> Century paintings.



**Table 2. Summary of the responses and perceptions of drafting students on the 21st century paintings.**

Question	Male			Female		
	Mean	Degree of Response	Quality of Description	Mean	Degree of Response	Quality of Description
1.) 21 <sup>ST</sup> Century paintings evoke ideas and thoughts	3.48	Strongly agree	Very good perceptions	3.30	Strongly agree	Very good perceptions
2.) 21st Century Paintings show an excellent contrasts (or combination) of colors	3.38	Strongly agree	Very good perceptions	3.28	Strongly agree	Very good perceptions
3.) The use of solid lines and thin lines are excellent.	3.24	Agree	Good Perceptions	3.13	Agree	Good Perceptions
4.) Brush strokes are excellent with regards to the subject.	3.33	Strongly agree	Very good perceptions	3.27	Strongly agree	Very good perceptions
5.) 21st Century Paintings are pleasing to the eyes.	3.43	Strongly agree	Very good perceptions	3.20	Agree	Good Perceptions
6.) I can relate or I can feel the emotions portrayed in the paintings.	2.95	Agree	Good Perceptions	3.02	Agree	Good Perceptions
7.) 21st Century Paintings deserve their corresponding prices.	2.71	Agree	Good Perceptions	3.08	Agree	Good Perceptions
8.) 21st Century Paintings portray dark meanings.	3.24	Agree	Good Perceptions	2.98	Agree	Good Perceptions
9.) 21st Century Paintings portray recent issues in society.	3.48	Strongly agree	Very good perceptions	3.22	Agree	Good Perceptions
10.) 21st Century Paintings are excellent(overall rating)	3.48	Strongly agree	Very good perceptions	3.30	Strongly agree	Very good perceptions
<b>Overall</b>	<b>3.27</b>	<b>Strongly agree</b>	<b>Very good perceptions</b>	<b>3.18</b>	<b>Agree</b>	<b>Good perceptions</b>

Table 2 shows the summary of the responses and perceptions of both genders tabulated from the gathered questionnaires filed by the Drafting Students. On the first column listed are the ten (10) questions answered by the respondents, second and last column are the



Genders (Male and Female) with both having three sub columns, the Mean, Degree of response and the Quality Description of mean and degree of response.

### **Male summary on response and perceptions on 21<sup>st</sup> Century Paintings**

The second column shows the Male summary of response having an overall mean of 3.27, an overall Degree of Response with Strongly Agree, meaning the Male respondents have a Very Good Perceptions on the 21<sup>st</sup> Century Paintings.

### **Female summary on response and perceptions on 21<sup>st</sup> Century Paintings**

The third column shows the Male summary of response having an overall mean of 3.27, unlike the male respondents, the female respondents in overall Agree in their Degree of Response does having Good Perceptions on the 21<sup>st</sup> Century Paintings.

### **Male and Female comparison on response and perceptions on 21<sup>st</sup> Century Paintings**

On the first question both Male and Female have a Very Good Perceptions with a mean of 3.48 for the Male and 3.30 for the Female, both Strongly Agreed on the first questions that paintings evoke ideas and thoughts, does for both gender the 21<sup>st</sup> Century Paintings make sense and meaning.

With this result, the researchers can determine that the respondents both male and female both strongly agree on the first question item having a very good perception. This claim can be supported by Humairah (2010) "Painting has contained more meaning than one might imagined. For every color, every shape and every texture contains a story, a message or simply an emotion to the artist". For centuries, paintings have been different perspective, ideas or thoughts that one might see in a canvass. According to one the male respondent which is respondent # 6, "21<sup>st</sup> century paintings for me are artistic with unique ideas and at the same time relatable to the society". And according to one of the female respondents which is respondent # 25, "21<sup>ST</sup> century paintings give ideas and thought about the feeling of young generations".

On the second item both gender still Strongly Agreed that the 21<sup>st</sup> century Paintings show an excellent contrasts of colors with male having a mean of 3.38 and 3.28 for the Female.

With this result, it shows that majority of the respondents' male and female strongly agree on the excellent contrast of color on the 21<sup>st</sup> century paintings. This can be supported by Benvil Conway, (cited in The Science behind Color and Emotion by Carrie Cousin, 2014) an artist, used his research to know and determine how the brain impacts color and our feelings about it. His study found out that in monkey's brain, there are globs of specialized cells that reacted to different colored stimuli. According to one of the male respondents which is respondent # 12, "It's Attractive". And for one of the female respondents which is respondent # 34, "Some of them are abstract and hard to understand but when it comes to the color, it's very catchy & attractive".

In questions 3 and 4 both Gender still have the same perception in terms of the paintings' technical aspects, both agreed that 21<sup>st</sup> Century Paintings have an excellent use of solid lines and thin lines (3.24 for male and 3.13 for the Female) and both Strongly Agreed that the brush strokes are excellent with regards to the subject.

This result can be associated with the fact that majority of the respondents either male or female strongly agree on the brush strokes being excellent. This can be supported by Table 1.4 on background on paintings. Since majority of the respondents also have background on

paintings then they can confidently have their own criteria if the brush strokes are done excellent due to their background knowledge on painting. According to one of the male respondents, “21<sup>ST</sup> century paintings are magnificent” (respondent #16) and for one of the female respondents, “Artist have their own style of their painting whether it's weird for some people as long as you understand your painting. Even some people don't know your art, some people will do” (respondent #9).

On the fifth question Male and Female have different perceptions that 21<sup>st</sup> Century Paintings are pleasing to the eyes, Male Strongly Agreed (3.43) while Female just Agreed (3.20).

With the result given, it can be supported by A study of Elizabeth Bloomfield (2015) entitled “Gender Role Stereotyping and Art Interpretation”. The respondent may have different interpretation or perception in regards to being pleasing to the eyes. The researchers can determine that the number of male respondents who find it pleasing to the eye far exceeds the number of female respondents who did. This too can be connecting to Bloomfield (2015) research, it is all about how perception of genders roles affect or see their world and the image of art presented to them.

Many of the 21<sup>st</sup> century painting contain color or figures that one might have different perception on. For instance one particular painting called Pie Face by Lisa Yuskavage (2008) portrayed a young naked woman with pie smudge on her face. Maybe for the eyes of some male or female respondents it was not as pleasing to the eyes as the others might see them. As support one of the male respondent state that “it is very pleasing, you will feel relieved from stress” (respondent #19) and for the female respondents, “The 21<sup>st</sup> century paintings are very attractive and pleasing to the eyes. It can be clearly seen that those artworks are made through the emotions/feelings of the artist” (respondent #32).

On items 6-8, both Gender have the same responses, both Agreed that they can relate and feel the emotions portrayed in the paintings (2.95 for the Male and 3.02 for the Female), the same to item 7 that paintings deserve their corresponding prices, both still Agreed (2.71 for the Male and 3.08 for the Female), and on the item 8, both still Agreed that 21<sup>st</sup> Century Paintings portray dark meanings (3.24 for the Male and 2.98 for the Female).

With these results, we can determine that majority of the respondents either male or female agreed on the item question. In terms of relation and feeling of emotions on the paintings, It can be supported by Johann Wolfgang von Goethe, a German poet, artist and politician as cited in Goethe on the Psychology of Color and Emotion by Maria Popova. He published a theory on colors that deals with the nature, function and psychology of colors. We can determine that majority of the respondents feel the emotions portrayed. In terms of corresponding prices, this can be supported by Table 1.3 on family income, majority of the respondents family income are on the range of 5,000-10,000 and above 15,000. According to Michael Findlay (2012) on his article entitled “The Value of Art: Money, Power and Beauty, one of the reasons as to why many people tend to continue to be amazed or be at rage whenever a particular painting or artwork has been sold for a large amount of money is because they believe that they find it to be utterly useless or has no necessary purpose. In connection to respondents' background on painting, they would agree that the paintings have corresponding prices due to the materials and hard work used to create the paintings shown to them. For additional support in terms of emotions, one of the male respondents stated that “It's amazing for it displays the thoughts of painter, their feelings and their ideas: (respondent #14)

for female respondents, “It is very interesting it depicts emotion and conveys message” (respondent #21). In terms of corresponding prices, one of the male respondents stated that “21<sup>ST</sup> century paintings are quite interesting because the painting itself is expensive despite it only a painting. It serves no purpose what so ever in one’s life” (respondent #21) and for female respondents, it stated that “Extraordinary paintings which is costly but it is worthy. The paintings are nice” (respondent #38).

On item number 9, Male respondents strongly agreed that 21<sup>st</sup> Century Paintings portrayed recent issues in the society with a Mean of 3.48 while the Female respondents just agreed to the question with a Mean of 3.22. As support the both male and female respondents commented that the 21<sup>st</sup> century painting portrays recent issues in the society. For the male, Respondent #17 stated “Unique and awesome. It shows interesting issues about our society right now. And for the female, Respondent # 17 “It is relevant to our scenario nowadays. Compared to the last century paintings, the 21<sup>st</sup> century are more emotional and lies deep meanings”. Both the male and female respondents believed that these 21<sup>st</sup> century paintings portray recent issues in the society.

On the last item both Gender Strongly Agreed that 21<sup>st</sup> Century Paintings are excellent (3.48 for the Male and 3.30 for the Female).

**Table 3. Significant Relationship between gender differences of the respondents and their perspective towards 21<sup>st</sup> Century painting.**

Variables	N	Correlation	Sig.	Decision		Interpretation
Male Perception	21	-.299	.189	Not Significant	Accepted	No relationship
Female Perception	60	-.299	.189	Not Significant	Accepted	No relationship

\*Correlation is significant at the 0.05 level (2-tailed)

Table 3 shows the significant relationship between gender differences of the respondents and their perspective towards 21<sup>st</sup> Century painting vary in male and female perception. Both the relationship of male and female perception is not significant at 0.05 level ( $p\text{-value}=.189>0.05$ ). Thus, we are 95% confident that the perception of male and female towards 21<sup>st</sup> Century painting will not be influenced by gender differences. With the result, the researchers can determine that there is no relationship between gender differences of the respondents towards their perspective on 21<sup>st</sup> century paintings which can be supported by an article entitled “How much does gender influence the art world” by Professor Griselda Pollock (2013) it talks about how the male and female gender has real impact on output and perception in the art world. With both male and female participating in art due to modernization in the 20<sup>th</sup> century, with female capable of doing art as much as male do which would make them equal. Also as following support for the respondent’s response towards 21<sup>st</sup> century paintings, both male and female agreed on the same comments. Both agreed on the color, style and technique used were interesting, even the thought and meaning of the 21<sup>st</sup> century paintings. The result showed that there is no significant relationship between gender difference and their perspective towards 21<sup>st</sup> century paintings.

## **Conclusions and Recommendations**

The following conclusions are made based on the findings of the study:

- 1.) Most male respondents implied a positive response on the 21<sup>st</sup> Century paintings thus having a Very Good perception about the paintings while most female respondents have a Good perception about the 21<sup>st</sup> Century paintings thus still having a positive response about the paintings.
- 2.) The research concluded based on the findings that the gender does not effect on how the 21<sup>st</sup> Century paintings are perceived by the Drafting students.

## **Recommendations**

Based on the results and findings, the following are the offered recommendations:

- The professors/lecturers of the Drafting students should not in all times distinguish male and female perceptions.
- To the future researcher, this study on Gender Development about Gender Perspectives of the Drafting Students towards 21<sup>st</sup> Century Painting could be used or cited for other research purposes relating to Gender Development, perspectives, perspectives affecting Gender.
- Future researchers can research on what favourable painting can affect an individual's perspective.
- Future researchers can expand the research on gender perception towards paintings of famous artist in the past like Leonardo da Vinci, Vincent Van Gogh, Claude Monet, etc.
- Future researchers can do research on gender perception of 21<sup>st</sup> Century paintings made by local artist (Filipino Artists) to have appreciation and perspective towards Filipino made paintings.

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## Aeropel Exercise: Its Effect To Dysmenorrhea Pain Level Among Students

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### Abstract

Aeropel exercise is designed for dysmenorrhea patients; it is a combination of cardio and floor exercises. “Aero” means air; it is believed that cardio respiratory exercises are the most effective form of exercise that alleviates the pain cause by dysmenorrhea, “pel” stands for pelvis, exercises that stretches and affects the abdomen, hips, lower back, and thighs. This exercise is accompanied with music to make it lively and spontaneous. It composes of a warm up exercises that is more on developing the cardio like marching and jogging. The second part is the work out proper; these are the floor exercises of the mid part of the body specifically in the lower back, abdomen, pelvic, and thighs. And the third part is the cool down composes on relaxing and some stretching exercises. The exercise is good for 40 - 50 minutes work out.

Results showed that Aeropel Exercise program has significant effect on the post menstrual level of pain among the respondents. The moderating variables such as age, BMI, Pelvic size, physical activity participation, attendance to the exercise protocol, and length & regularity of cycle significantly related between the pre – menstrual level of pain and post – menstrual level of pain among the respondents.

**Keywords:** Aeropel, Dysmenorrhea, Exercise



## 1. Introduction

### Rationale

Adolescence is a period of transition between childhood and adulthood. One of the major physiological changes that takes place in adolescent girls is the onset of menarche - first menstrual bleeding of females human body for both social and medical perspectives, it is often considered the central event of female puberty, as it signals the possibility of fertility. Many adolescents are healthy, but a significant proportion of them face a range of problems which may have implication for adolescent health, this is often associated with irregular menstruation, dysmenorrhea and other related problems. According to Sharma P. about 67.2% of adolescent females are affected with dysmenorrhea.

Dysmenorrhea can be literally translated as "difficult monthly flow." Although it's normal for most women to have mild abdominal cramps on the first day or two of their period, about 10% of women experience severe pain. The main symptom of dysmenorrhea is pain. It occurs in your lower abdomen during menstruation and may also be felt in your hips, lower back, or thighs. Other symptoms may include nausea, vomiting, diarrhea, lightheadedness, or general achiness (<http://www.medbroadcast.com/condition/getcondition/dysmenorrhea>).

Exercise relieves cramps because it helps release beta-endorphins, which are internal opioids -- your own "human morphine," According to Gustavo Rossi, MD, "It produces analgesia - one's own body pain reliever and helps to burn the prostaglandins which are the chemicals released during menstruation that cause muscle contractions much faster."  
(<http://www.webmd.com/women/features/exercise-easesmenstrualcramps>)

Thus, the researcher is a physical education instructor at the same time a dysmenorrhea patient designed a personal exercise known as the "Aeropel exercise" that is believed to ameliorate the pain caused by dysmenorrhea.

Aeropel exercise is designed for dysmenorrhea patients; it is a combination of cardio and floor exercises. "Aero" means air; it is believed that cardio respiratory exercises are the most effective form of exercise that alleviates the pain cause by dysmenorrhea, "pel" stands for pelvis, exercises that stretches and affects the abdomen, hips, lower back, and thighs. This exercise is accompanied with music to make it lively and spontaneous. It composes of a warm up exercises that is more on developing the cardio like marching and jogging. The second part is the work out proper; these are the floor exercises of the mid part of the body specifically in the lower back, abdomen, pelvic, and

thighs. And the third part is the cool down composes on relaxing and some stretching exercises. The exercise is good for 40 - 50 minutes work out.

It is said that a women who suffers dysmenorrhea misses and performs low in class. Therefore, preventing the pain is the best solution. This study will help young women with dysmenorrhea cases to alleviate the pain intensity felt during ones period – dysmenorrhea, to make them feel better, comfortable and can function normally during their menstrual period every month through constant participation in the aeropel exercise program.

### **Statement of the Problem**

This study aims to know the effectiveness of aeropel exercise intervention program and its effect to the dysmenorrhea pain level of the respondents.

Specifically, this study will answer the following questions:

1. What is the profile of the respondents in terms of:
  - 1.1 Age
  - 1.2 BMI
  - 1.3 Pelvic Size
  - 1.4 Physical activity participation
  - 1.5 Attendance to the exercise protocol
  - 1.6 Length and regularity of cycle
2. What is the pre –menstrual pain level and post –menstrual level among the respondents of the study?
3. Is there a significant correlation between the pre – menstrual level of pain and post menstrual level of pain?
4. Is there a significant correlation between the pre – menstrual pain level and post – menstrual pain level when respondents are grouped according to age, BMI, pelvic size, physical activity participation, attendance to the exercise protocol, attendance, and length & regularity of cycle of the respondents?



5. Is there a significant difference between the pre – menstrual level of pain and post – menstrual level of pain?

6. What advocacy program can be added on the basis of the results of the study?

## **Hypotheses**

The following null hypotheses are tested at 0.05 level of significance:

Ho1: The Aeropel Exercise program has no significant effect on the post menstrual level of pain among the P.E 2 and 4 students of Capitol University.

Ho2: The moderating variables such as age, BMI, Pelvic size, physical activity participation, attendance to the exercise protocol, and length & regularity of cycle does not significantly related between the pre – menstrual level of pain and post – menstrual level of pain among the respondents.

## **Significance of the Study**

This study provides a wide array of determining the effectiveness of the aeropel exercise intervention program as bases of encouraging women who suffers dysmenorrhea to take the intervention program. Through this research, it was able to provide information and have a better understanding on the effectiveness of aeropel exercise program in helping the women in relieving the pain during their menstruation.

Furthermore, this study contributed knowledge and additional information for PE teachers, women who suffers dysmenorrhea, and fitness instructor to promote exercise and fitness literacy as the best medicine in many types of diseases particularly dysmenorrhea.

## **Theoretical Framework**

Exercise is one of the best remedial measures to overcome this pain. It helps by stretching the lower back muscles and maintaining good abdominal muscle tone. Women with dysmenorrhea have contracted ligamentous bands in the abdomen and a series of exercises could have a high rate of symptom relief for about 41% (Daley A, 2009).

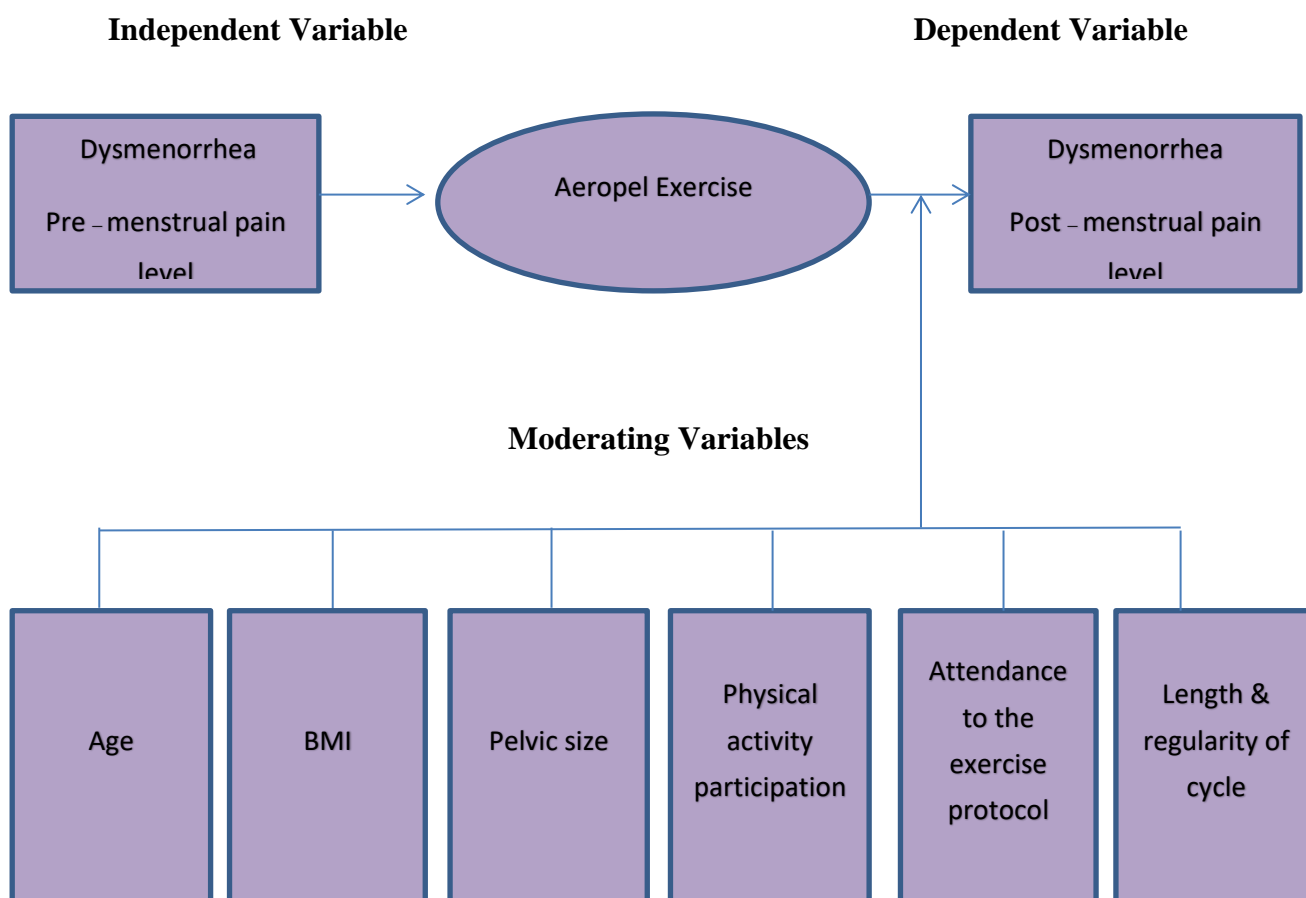
In addition, physical exercise has been suggested as a non-medical approach for managing the symptoms of dysmenorrhea. It has been found useful to affect menstruation on many ways. Billig's exercise is one of the big plus for adolescents, to relieve menstrual as "difficult monthly flow." Primary dysmenorrhea is more probable to affect girls during their adolescence. Fortunately for many women, the problem eases as they mature,

mostly after a pregnancy. Although it may be painful and sometimes draining for brief periods of time ([http://chealth.canoe.ca/channel\\_condition\\_info\\_details.asp?disease\\_id=225&channel\\_id=16&relation\\_id=55900](http://chealth.canoe.ca/channel_condition_info_details.asp?disease_id=225&channel_id=16&relation_id=55900)).

According to the Modern Theories of Dysmenorrhea by D.J Cannon M.B states that the precise mechanism of visceral pain, of which dysmenorrhea is a classic example has been the subject of much research with in recent years. Finally after a long and careful analysis, there was a success in separating out the characteristic features of a genuine dysmenorrhea. The pain is characteristically intra-menstrual, although at times it may be pre-menstrual as well. It is essentially spasmodic or tetanic in character, but never a dull ache. Sometimes it is accompanied by painful spasm in the bladder and the rectum. It is generally agreed that undue muscular contractions constitute the appropriate stimulus to the production of spasmodic visceral pain, the fundamental cause of dysmenorrhea, is the nature of the pain would suggest that the proximal or immediate cause is a spasmodic or disordered contractility of the uterine musculature(<http://onlinelibrary.wiley.com/doi/10.1111/j.14710528.1936.tb14057.x/abstract>)

## Conceptual Framework

The conceptual framework of this study is presented in Figure 1. It presents the effectiveness of aerobel exercise program in relation to the pain intensity due to dysmenorrhea. Thus, this section shows the variables used in this study: Dysmenorrhea pre – menstrual pain level as the independent variable and Dysmenorrhea post – menstrual pain level as the dependent variable. Whereas, the moderating variables are age, BMI, pelvic size, physical activity participation, attendance to the exercise protocol, and length and regularity of cycle, are the factors that influences aerobel exercise and the dysmenorrhea pain level.



**Figure 1. Conceptual Framework of the Study**

### Scope and Limitations

This study determines the effectiveness of aeropel exercise and its relationship to dysmenorrhea pain level among the respondents. Furthermore, this study aims to determine whether the select variables of age, BMI, pelvic size, attendance to the exercise protocol, and length and regularity of cycle affects the relationship. However, because of other factors which the researcher had encountered, the researcher hereafter set a delimitation in this study.

The respondents of this study where the PE 2 and 4 students of Capitol University with dysmenorrhea cases in Cagayan de Oro city and officially enrolled during the 2st semester S.Y. 2014 – 2015 of which were given a pre – assessment questionnaire (Appendix C) to identify those who have dysmenorrhea. Before identifying the respondents, the researcher asked permission to

the chairman of the Physical Education Department of Capitol University to conduct the said study which was approved.

Prior to the conduct of the exercise protocol the researcher had a hard time plotting the schedules due to the different vacant time of the students depending on their course and number of load enrolled in that semester, but then after how many attempts and consolidation the researcher was able to set the schedules by batches, one group in the morning and another in the afternoon, which was done every Tuesday, Thursday, Friday, and all together every Mondays since Monday is called “activity day” usually no classes is scheduled.

Attendance to the exercise protocol is one of the variables which is believe to affect the effectiveness of the Aeropel Exercise thus attendance was religiously check and logged every session, some respondents who misses a session may attend the other schedule with the other group to fill in the missed session. Since there were 2 sessions for a day the researcher felt tedious in repeating the demonstration or exercises for each group in every session. Time constraint cannot be controlled by man, thus the study was conducted in 3 months’ time only from January to March because the researcher cannot hold the respondents anymore after the semester for they will have their summer vacation.

On the other hand, the exercise protocol for each session is held in the gymnasium however PE classes were prioritized to use the said venue as well as Dance Troupe in the afternoon, and so the venue for every session is flexible depending on the availability of the area.

### **Definition of Terms**

For a better understanding of the terms used in this study, terms are conceptually and operationally defined.

**Aeropel exercise.** Is conceptually define as a personally designed exercise program for dysmenorrhea patients, it is a physical activity that is focus on developing cardiorespiratory endurance and pelvic exercises specifically concentrated in the lower back, hips and thighs. In this study it is operationally define as intervention program exercise designed for dysmenorrhea patients that will help lessen the pain caused by dysmenorrhea.

**Dysmenorrhea.** Conceptually defined as the medical term for a painful cramps that may occur immediately before or during the menstrual period (<http://www.webmd.com/women/menstrual-cramps>). In this study it is operationally defined as the severe menstrual cramps and pain in the lower abdomen during menstruation or period.

**Exercise.** Is a subset of physical activity that is planned, structured, repetitive, and purposeful in the sense that improvement or maintenance of physical fitness is the objective as defined by Thompson, Paul D, et al found in the site <http://atvb.ahajournals.org/content/23/8/e42.full>. In this study, it is operationally define as the exercise protocol which named as “aeropel exercise” to be done by the respondents during the conduct of the study that is believed to lessen the pain intensity cause by dysmenorrhea.

**Length of cycle.** Conceptually defined as the length of a woman's cycle during menstruation, it includes the days when you have your period usually ranges from three to five days (<http://www.babycenre.co.uk/x553473/whats-a-normal-menstrual-cycle-and-whats-not#ixzz33OvQvLlh>). In this study it refers to the number of days the respondents have their menstrual flow.

**Menstruation.** Is conceptually defined as the monthly shedding of the lining of a women's uterus (more commonly known as the womb), also known by the terms menses, menstrual period, or period. The menstrual blood—which is partly blood and partly tissue from the inside of the uterus—flows from the uterus through the cervix ([http://my.clevelandclinic.org/anatomy/female\\_reproductive\\_system/menstruation/hic\\_normal\\_menstruation.aspx](http://my.clevelandclinic.org/anatomy/female_reproductive_system/menstruation/hic_normal_menstruation.aspx)). In this study it is categorize into two the pre-menstrual pain which refers to the pain intensity level of the respondents before the conduct of the intervention program and the post-menstrual pain intensity level of the respondents after the conduct of the intervention program. This will be the basis of the effectiveness of the intervention program - aeropel exercise.

## Review of Related Literature

Primary dysmenorrhea is usually treated by medication such as an analgesic medication. There are other non-medicinal treatments for the pain of dysmenorrhea includes: lying on the back, supporting the knees with a pillow, holding a heating pad or hot water bottle in the abdomen or lower back, taking a warm bath, gently massaging the abdomen, doing mild exercises like stretching, walking, or biking - exercise may improve blood flow and reduce pelvic pain, and getting plenty of rest and avoiding stressful situations as your period approaches (MedBroadcast Clinical Team downloaded from [http://chealth.canoe.ca/channel\\_condition\\_info\\_details.asp?channel\\_id=16&](http://chealth.canoe.ca/channel_condition_info_details.asp?channel_id=16&)

relation\_id=55900&disease\_id=225&page\_no=2#Treatment). These are the other beliefs and practices that may lessen the pain of dysmenorrheal.

According to Paige Bierma, 2010, there are alternative lifestyles to help lessen the pain cause by dysmenorrhea; Regular aerobic exercise (like walking or swimming for 20 minutes three times a week) has been shown to decrease menstrual pain in some women. Daily calcium supplements appear to lessen symptoms of PMS, including cramping. And, a 2005 study found that diets high in calcium and vitamin D may even reduce your risk of getting cramps in the first place.

### **Synthesis**

Dysmenorrhea is highly prevalent during adolescence, ranges from 60% to 93%. About 15% of adolescents describe their dysmenorrhea as severe and seek medical advice for menstrual pain. Many adolescents report that dysmenorrhea affect limitation of daily activities such as missing school, sport events and etc. There are some alternative methods for treating dysmenorrhea, Such as pharmacological and non-pharmacological treatments. But prevention is the best management for treating dysmenorrhea. Preventive measures include exercises, massages, and meditation (Beausang, 2000).

A Study from Johnson J. 2010, reported that the women had been exercising for significantly correlated with reduced menstrual symptoms. A methodological study to assess the menstrual pain and exercise was administered to 654 university students. After analyzing, the results showed that 91.3 % are reported to have an alleviation of menstrual symptoms. It shows the association between participation in exercise and primary dysmenorrheal.

Hence, a research entitled the effects of core strengthening on dysmenorrhea found out that core strengthening exercises improve lumbar stability and decrease the symptoms of dysmenorrhea. Experimental groups participated in core stabilization exercises twice a week. The control group did not participate in the core stabilization exercises. The control group had a .5 second increase in the side bridge test while the experimental group had a 20.5 seconds increase. 62% of the control group experienced an increase in symptoms, 15% had a decrease and 23% stayed the same. 100% of the experimental group had a decrease in symptoms (Light, N. et al, October 2006).

## 2. Method

### The Research Design

The research design used in this study is a Quasi – Experimental type which aims to find out the effectiveness of aeropol exercise program in relation to dysmenorrhea pain level among the PE 2 and PE 4 of Capitol University who are officially enrolled in 2nd semester S.Y. 2014-2015.

The independent variable of this study is the Dysmenorrhea pre – menstrual pain level while the dependent variable is the Dysmenorrhea post – menstrual pain level. Whereas, the moderating variables are age, BMI, pelvic size, physical activity participation, attendance to the exercise protocol, and length and regularity of cycle of the respondents that is believed to influence aeropol exercise and the dysmenorrhea pain level.

### Respondents of the Study

The respondents of this study were the one hundred thirty seven (137) select P.E. 2 and P.E 4 students from the different departments of Capitol University, Cagayan de Oro city with dysmenorrhea cases and is officially enrolled during the 2nd semester S.Y. 2014-2015. All P.E 2 and P.E 4 female students from the different class sections were given a pre- assessment questionnaire (Appendix C) the students with dysmenorrhea cases are identified as the respondents.

### Purposive Sampling Procedures

The respondents of this study were the select students enrolled in PE 2 and PE 4 S.Y. 2014-2015 of Capitol University from the different department that suffers dysmenorrhea.

All female PE 2 and 4 students from the different departments with a total population of 476 were given a pre – assessment questionnaire for them to fill up, the researcher collected the questionnaire and identified 137 students who have dysmenorrhea cases.

### Research Instruments Used

The research instrument used in this study is a set of questionnaire and a designed exercise program – Aeropol exercise. A Pre- assessment questionnaire which undergoes a pilot testing from the other school in Cagayan de Oro were given to all female PE 2 and PE 4 students enrolled during 2nd semester S.Y. 2014 – 2015. The pre-assessment questionnaire is composed of two parts; the first part is the respondents' profile which includes the name, age, mobile No., course, PE Instructor and PE class schedule, BMI, and pelvic size. The second part is the Dysmenorrhea Assessment, which

composes of five (5) questions related to the signs and symptoms of dysmenorrhea and the type of physical activity participation. (See Appendix C)

And to measure the pain intensity level caused by dysmenorrhea a Period Pain Tracker from the Boston Children's Hospital was utilized, it is use to keep track on one's period, when it started, stopped and a good way to see if there is a pattern to the menstrual cycle. Likewise, keeping track on the menstrual cramps, pelvic pain, and other symptoms of dysmenorrhea. The researcher had thoroughly discussed the instructions on how to fill up the tracker to the respondents. The keys or codes are located in the bottom part of the page. The month must be indicated in the top most part, to fill in the blood flow in the "amount" row the code must be written that best describes the flow. As well the location of pain a code must be written in the designated row. In the "pelvic pain location/intensity" row the best number that describes the pain from 1 – 10 with 0 = no pain, and 10 = the worst pain must be written down together with the pain numerical rating scale, example: M/5. (See appendix D)

An exercise protocol called Aeropel exercise was personally made by the researcher that was applied to the respondents during the conduct of the research. The exercise protocol is good for 40 -50 minutes which composes of a warm up phase, exercise proper, and cool down phase. The select exercises are floor exercises that are focused on the development of the abdomen, lower back, and thighs which are common exercises that have been used, other exercises were designed and made by the researcher. To make it lively and colorful the exercise protocol is accompanied with an upbeat music.

### **Data Collection Method**

To guarantee better results of the data of this study, the researcher personally conducted the exercise protocol and collected the monthly pain tracker after each month. The researcher led, demonstrated and facilitated each session of the exercise protocol.

As a gesture of respect, a letter of request was given to the Chairman of the department of Physical Education in Capitol University, as well as to the respondents – students requesting them to allow the researcher to conduct the study.

During the conduct of the study, there are 2 sessions in a day with different groups or batch depending on the vacant time of the respondents since they came from different departments, each group have done the same exercise following the Aeropel Exercise that was designed and led by the researcher. The schedules of the exercise protocol are every Monday, Tuesday, Thursday and



Friday. 11:30 – 12:30 for the morning session, and 4:30 – 5:30 in the afternoon session. The respondents are also encouraged to perform the aerobel exercise during weekends or continue their physical activity participation during their free time. During Mondays there is only one session every 3:00 – 4:00 in the afternoon because all students are free during this day since Monday is set as the university's "activity day". Attendance was checked every session.

The data gathered was analyzed and interpreted using appropriate statistical tools. Descriptive statistics were employed to interpret the profile of the respondents in terms of age, BMI, Pelvic size, physical activity participation, attendance to the exercise protocol, and length & regularity of cycle. Inferential statistics was employed to analyze the effectiveness of Aerobel Exercise. The same statistics was employed to determine the acceptability of the hypotheses presented in this study.

### **Statistical Treatment**

The data was gathered, tabulated, tallied and treated using the following statistical tools. Frequency and percentage analysis was employed in presenting the data of the profile of the respondents. A descriptive statistics weighted mean was used in showing the pre – menstrual level of pain and post – menstrual level of pain among the respondents.

Pearson correlation coefficient was utilized in revealing the relationship between the pre – menstrual level of pain and post – menstrual level of pain of the respondents.

On the other hand, a Paired Sample test was employed to test the difference between the pre – menstrual level of pain and post – menstrual level of pain among the respondents.

Finally, Covariance Analysis was used to assess the effectiveness of aerobel exercise on the menstrual pain level in terms of age, BMI, pelvic size, physical activity participation, attendance to the exercise protocol, and the length and regularity of cycle of the respondents.

### 3. Results

The data obtained were statistically treated and correspondingly interpreted to give meaning to the findings disclosed in this study. Discussions of the results were supplemented with related literatures to put findings of this study in context.

#### Respondent's Profile

The profiles of the respondents in this study are the following: age, BMI, pelvic size, physical activity participation, attendance to the exercise protocol, and length and regularity of cycle.

#### Respondent's Age.

The respondent's age is presented in Table 1 which is found in 31. Table 1 shows the total number of respondents and frequency distribution belonging to each category.

Table 1.Distribution of Respondents Age

Age Bracket	Frequency	Percent
15 – 19	100	73.0
20 – 24	29	21.1
25 – 29	7	5.1
30 – above	1	.7
Total	137	100.0

Table 1 shows that out of 137 respondents, the age bracket of 15-19 years old has the highest frequency of 100 or 73.0 % of the total population. Followed by the age bracket of 20 -24 years old with a frequency of 29 or 21.1%, 5.1 % or 7 respondents belongs to the age bracket of 25 – 29, and there is only 1 with .7% of the population belongs to the 30 and above years old. Note that the age bracket of 15 – 19 years old has the highest frequency which shows that 100 respondents are mostly teenagers since they are 1st year and 2nd year college students.

According to Simon, 2013, age plays a key role in menstrual disorders. Girls who starts menstruating at age 11 or younger are at higher risk for severe pain, longer periods, longer menstrual cycles and women who have never given birth have a higher risk of dysmenorrhea that is why majority of the respondents with a frequency of 100 that belongs to the age bracket of 15 – 19 years old who suffers dysmenorrhea have a higher number compared to respondents that ages 25 and above.

The age brackets of 25 – 29 and 30 and above are usually returnees, working students, or students who pursued college late.

### Respondent's Body Mass Index (BMI)

Body Mass Index (BMI) is one of the moderating variables in this study. Figure 1 in page 32 shows the distribution of the respondents in terms of their BMI.

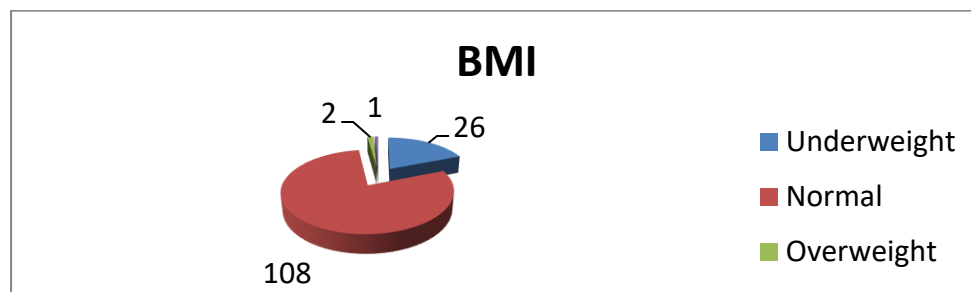


Figure 2 shows that majority of the respondents belongs to a normal category with a frequency of 108 or 78.8% followed with frequency of 26 or 19.0% that belongs to the category of underweight, then a frequency of 2 or 1.5% are overweight, while a percentage of .7 or 1 respondent belongs to obese I.

According to Chauhan, 2012, young women with low BMI – underweight in particular is prone to dysmenorrhea, thus as shown in the pie graph that majority of the students who have dysmenorrhea have normal BMI therefore it does not necessarily follows that only underweight adolescents have dysmenorrhea.

### Respondents Pelvic Size

Figure 3. Distribution of the Respondents Pelvic Size

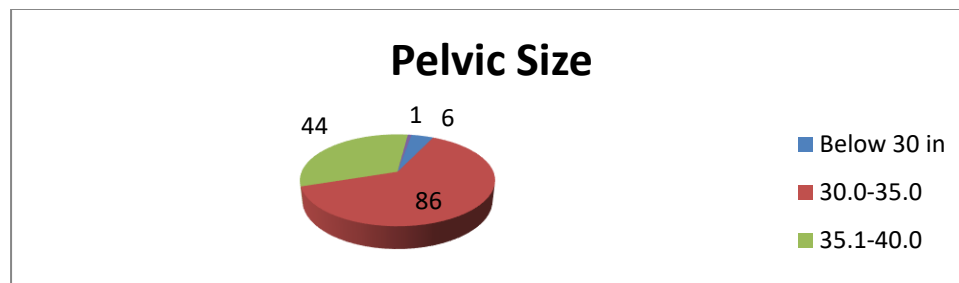
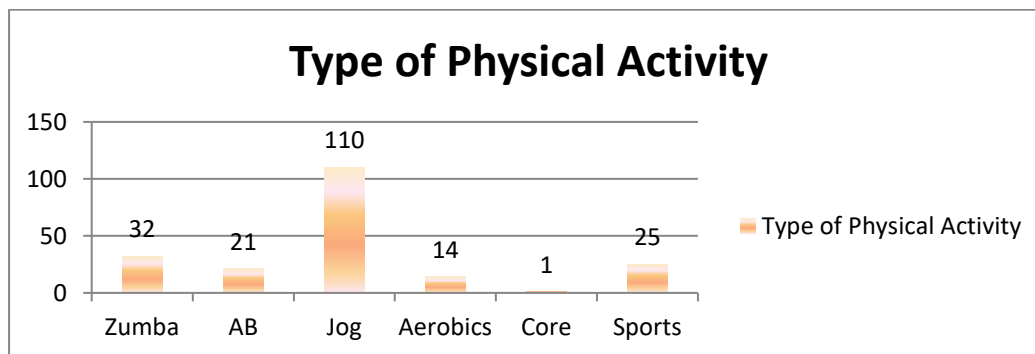


Figure 3 shows the Pelvic sizes of the respondents, majority of the respondents have 30.0 – 35.0 inches pelvic size with a frequency of 86 or 62.8% followed by a pelvic size of 35.1 – 40.0 inches at 31.9%(44), below 30 inches pelvic size and above 40.0 inches have 4.4% (6), and .7% (1) respectively to complete the 137 respondents.

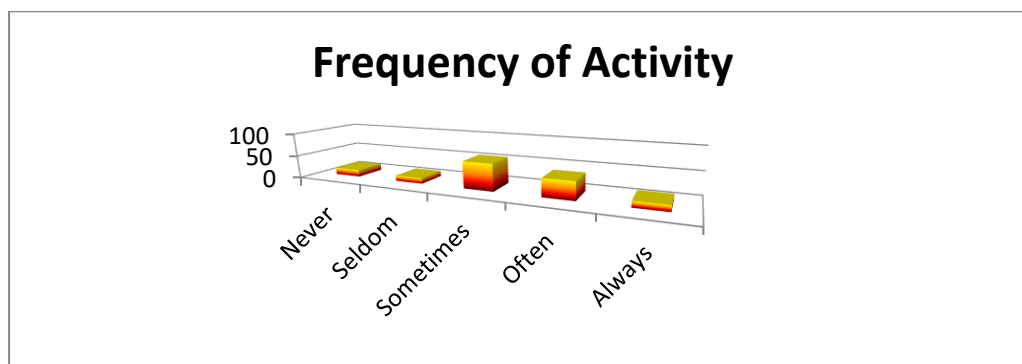
The severity of dysmenorrhea matters on the waist and hip circumference or pelvic size, is more prone to dysmenorrhea since being overweight increases biosynthesis of the prostaglandin which consequently increases the severity of pain caused by dysmenorrhea, (Haidari F. et al, 2011). With this, a wider or bigger waist and hip circumference are more prone to dysmenorrhea but as shown in figure 3 there is only 1 respondent who have above 40.0 inches.

### Respondents Physical Activity Participation

Graph 1a. Distribution of the Respondents by Type of Physical Activity



Graph 1b. Distribution of respondents by Frequency of Physical Activity Participation.



Graph 1a presents the type of physical activity participation of the respondents where 54.2% (110) participated in jogging followed with 15.8% (32) participated in zumba, 12.3% (25) engage in different sports, 10.3% (21) in aero-boxing, 6.9% (14) in aerobics, and .5%(1) in core – strength training.

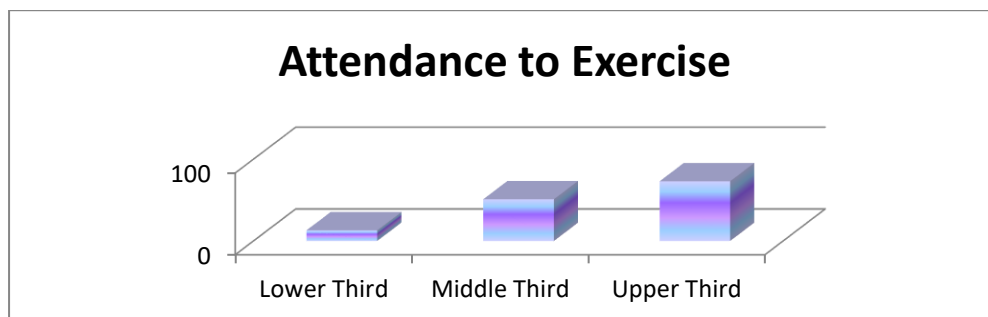
In Graph 1b, it can be seen that majority of the respondents sometimes participated in physical activity with a frequency of 58 or 42.3% followed with a frequency of 39 or 28.5% which often attends, then never with 10.9% or a frequency of 15, always (13) or 9.5%, and seldom (12) or 8.8% accordingly.

According to Gustavo Rossi, 2008, exercise relieves cramps because it helps release beta – endorphins, which are internal opioids or known as “human morphine”, and the best form of exercise for relieving menstrual pain is aerobic exercise, and majority of the respondents engage in jogging which is a type of aerobic exercise.

But in contrary, despite the prevalence that exercise reduces period related discomfort, a study by O’Callaghan, 2009, suggest that exercise doesn’t reduce menstrual pain, it indicates that how much you work out may not necessarily impact the severity of menstrual cramps, 650 college – aged women with 28% of whom reported having regular menstrual pain. When researchers analyzed frequency and duration of exercise did a little to reduce the pain.

### Respondents Attendance to the Exercise Protocol

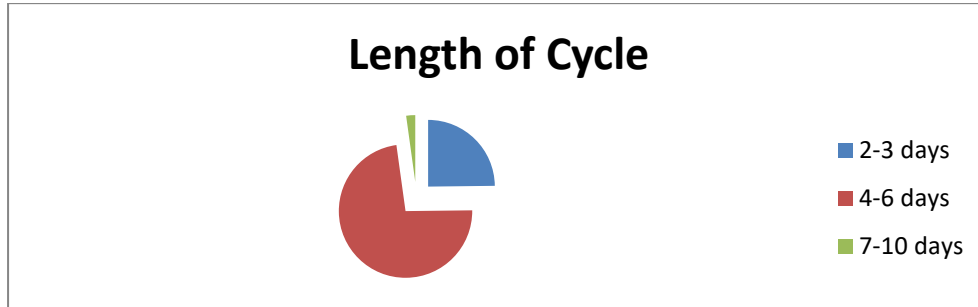
Graph 2. Distribution of Respondents by Attendance to the Exercise Protocol.



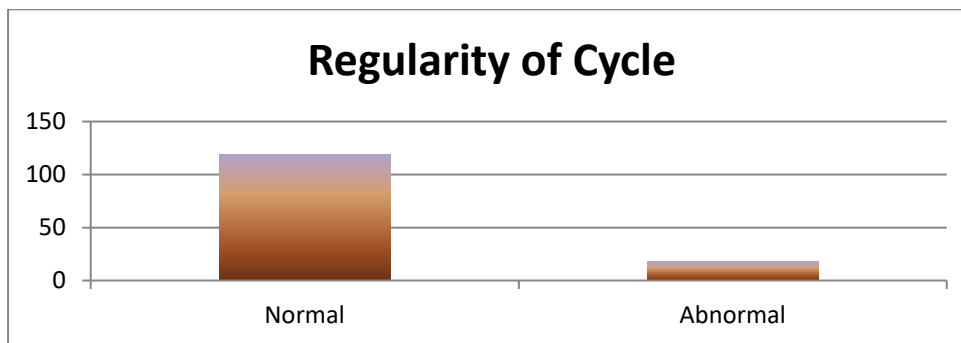
Graph 2 shows the respondents attendance in the exercise protocol where it was grouped by lower third with 0 - 14 attendance, middle third with 15 - 29 attendance, and upper third of 30 – 44 attendance accordingly. As shown in the graph majority of the respondents attended the exercise protocol religiously where a frequency of 73 or 53.2% belongs in the upper third, followed with a frequency of 51 or 37.1% under the middle third, and a frequency of 13 or 9.4% belongs to the lower third.

## Respondents Length and Regularity of Cycle

Graph 3A.



Graph 3B



## 4.2. Mean Values and Description of Pre - menstrual Level of Pain

### 4.2.1 Pre - menstrual Level of Pain for the month of January

Pre data on January	Mean	Description
JP1	5.8321	Moderate
JP2	4.5036	Moderate
JP3	2.5109	Mild
JP4	.1387	No pain
JP5	.0292	No pain
Mean	2.6029	Mild

0 – 1.99, no pain; 2.0 – 3.99, mild; 4.0 – 5.99, moderate; 6.0 – 7.99, severe; 8.0 – 10.0, worst

#### 4.2.2 Pre – menstrual Level of Pain for the month of February

Post data on February	Mean	Description
FP1	4.9927	Moderate
FP2	3.4307	Mild
FP3	1.5328	No pain
FP4	0.3285	No pain
FP5	0.0511	No pain
Mean	2.0672	Mild

#### 4.2.3 Pre – menstrual Level of Pain for the month of March

Post data on March	Mean	Description
MP1	3.6642	Mild
MP2	2.2336	Mild
MP3	0.4599	No pain
MP4	0.1898	No pain
MP5	0.0370	No pain
Mean	1.3168	No pain

4.3 Is there a significant correlation between the pre-menstrual level of pain and post menstrual level of pain?

	r	P value	interpretation	Decision on Ho
PRETFEB	0.866	0.000	Significant	Reject
POSTMAR	0.604	0.000	Significant	Reject
Mean	0.808	0.000	Significant	Reject

4.4 Is there a significant correlation between the pre-menstrual level of pain and the post menstrual level of pain when respondents are grouped according to the moderating variables?

	Partial r	P value	interpretation	Decision on Ho
Age	0.803	0.000	Significant	Reject
BMI	0.809	0.000	Significant	Reject
Pelvic size	0.807	0.000	Significant	Reject
Physical activity	0.807	0.000	Significant	Reject
attendance	0.817	0.000	Significant	Reject
Length of cycle	0.808	0.000	Significant	Reject
Regularity of cycle	0.807	0.000	Significant	Reject



4.5. Is there a significant difference between the pre-menstrual level of pain and post menstrual level of pain?

Paired variable	Paired Differences		t	Sig. (2-tailed)	interpretation
	Mean	Std. Deviation			
PRE - POSTFEB	.5358	.67385	9.306	0.000	Significant
PRE - POSTMAR	1.2861	1.12140	13.424	0.000	Significant

Data reveals that pre – menstrual level of pain is significantly different from the post menstrual level of pain both during the months of February and March.

#### 4. Conclusion

Since most adolescents have dysmenorrhea and is considered as one of the most common gynaecologic disorders and believed to be the greatest single cause of lost work, absences in school, and performs low in class therefore preventing the pain is the best solution, exercise is the recommended physical activity. This study will help young women with dysmenorrhea cases to lessen the pain felt during ones period – dysmenorrhea, to help them feel better, do not miss their class anymore, be comfortable and can function normally during their menstrual period every month through constant participation in the aerobel exercise program.

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## The Measurement of Economic Efficiency of Agricultural Co-operatives Operation in the Upper-Middle Part of Thailand

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### Abstract

The research objectives were to 1) study the Agricultural Co-operatives performance in the upper- middle part of Thailand and 2) measure the economic efficiency of Agricultural Co-operatives operation in the upper-middle part of Thailand.

The study population was the whole number of Agricultural Co-operatives Limited in the upper-middle part of Thailand which were 197 operated Agricultural Co-operatives Limited. The purposive sampling technique was applied as the sampling technique which came up with 86 individual Agricultural Co-operatives Limited. The raw data were collected from the Co-operatives Auditing Department data base. Statistical methodology was comprised of descriptive statistics--- arithmetic mean and standard deviation. The Data Envelopment Analysis Model (DEA Model) was applied as an economic efficiency measurement of Agricultural Co-operatives operation.

The research findings were 1) the performance of Agricultural Co-operatives in the upper-middle part of Thailand expressed as financial status of average value of asset, debt, and capital were \$3,401,062.77, \$2,252,854.39, \$1,149,064.51 respectively. The expenditure of Agricultural Co-operatives in the upper-middle part of Thailand expressed as the average value of income expenditure, profit, and operational capital which were \$211,243,223.37, \$207,654,109.86, \$4,083,953.49, and \$217,347,796.17 respectively. For economic measurement of Agricultural Co-operatives operation, the research expressed that there were 86 individual Agricultural Co-operatives Limited measured. As research result, there were 46-individual Agricultural Co-operatives met the standard of economic efficiency while there were 40-individual Agricultural Co-operatives met inefficiency of economic efficiency.

**Keywords:** Economic Efficiency, Agricultural Co-operatives Limited, the Upper-Middle Part of Thailand.

## 1. Introduction

Over the last four decades, Thailand has made remarkable progress in social and economic development, moving from a low-income country to an upper-income country in less than a generation. As such, Thailand has been one of the widely cited development success stories, with sustained strong growth and impressive poverty reduction, particularly in the 1980s. However, average growth has slowed to 3.5 percent over 2005-2015. The government has embarked on an ambitious reform program to raise Thailand's long-term growth path and achieve high-income status. (<http://www.worldbank.org/en/country/thailand/overview>)

Historically, economic growth has been the key driver of poverty reduction in Thailand. However, GDP grew by less than 2.5 percent a year in 2014 and 2016. Looking ahead, the World Bank forecasts growth to pick-up 3.2 percent for 2017.

Long-term economic aspirations are laid out in Thailand's recent 20-year strategic plan for attaining developed country status through broad reforms. The reforms address economic stability, human capital, equal economic opportunities, environmental sustainability, competitiveness, and effective government bureaucracies. Progress on reforms has already been made. These include the implementation of multi-year large public infrastructure projects, setting up of a State Enterprise Policy Committee to improve state-owned enterprise governance, transfer of supervisory oversight of specialized financial institutions to the Bank of Thailand, approval of progressive inheritance and property taxes and the launch of the National Savings Fund, a retirement safety net for informal workers.

(<http://www.worldbank.org/en/country/thailand/overview>)

In terms of economic development, the Royal Thai government has been considered the philosophy of Co-operatives as economic development tool of Thai economy.

Cooperatives in Thailand have been initiated by the government since 1915 with the prime aim of being as a means of improving the livelihood of small farmers. This is due to the increasing debt problem resulting from farmers suffering from the shift from self-sufficient economy to trade economy. Natural disasters such as droughts and flood have further worsened the debt situation for the farmers. Consequently, they lost their farmland and become laborers, leaving their debts unpaid (Department of Co-operatives Promotion of Thailand, 2017).

The first cooperative in Thailand was named Wat Chan Co-operative Unlimited Liability was established by the government on February 26, 1916, in Phitsanulok province, the middle part of Thailand. It followed the Raiffeisen credit cooperative type with the single purpose of providing farm credit and being organized as a small village credit cooperative to help severely indebted farmers. The success of this type of cooperative preventing many farmers' land from being foreclosed by the money-lenders led to the increasing number of small village credit cooperatives all over the country. Small credit cooperatives had prevailed in the country until 1938 when other types of cooperative were then established in response to the people's needs.

In 1966, the government-cum-credit cooperative-owned Bank for Cooperatives was reorganized as the “Bank for Agriculture and Agricultural Cooperatives” a state enterprise, functioning as a financial center of agricultural cooperatives including lending directly to individual farmers. In 1968 with the objective to strengthen the cooperative movement, the Government enacted the Cooperative Act, 1968, which allowed the establishment of the Cooperative League of Thailand, functioning as the apex organization of the cooperative movement. The said Cooperative Act also allowed for the amalgamation program which combined the neighboring small village credit cooperatives, paddy and marketing cooperatives, land improvement and land settlement cooperatives into a large scale cooperative at district level performing multipurpose functions and which were officially categorized as agricultural cooperatives (Department of Co-operatives Promotion of Thailand, 2017).

Cooperative, according to the Cooperative Societies Act, B.E. 2542, means a group of persons who jointly conduct affairs for socio-economic interests on the basis of self-help and mutual assistance, and are registered under the Act. So, we organize cooperatives for solving common pressing problems we, each, cannot solve separately. Or they are organized to serve the interests of their members in earning their living much more advantageous than they act individually (The Royal Thai Government, 2017).

A cooperative is an association of persons facing the same or common problems, who accordingly and automatically better know the problems than others. Therefore, the best problem solution is to unite those who have the common problems themselves to come together in unison to solve them. Being recognized by legislation, a cooperative is legal entity and an independent organization. Government gives support only when necessary. The Cooperatives adopt fair methods of sharing, among their members, the economic results arising from their operations. This is unique of the cooperatives that the members are co-owners.

Cooperatives are based on the values of self-help, self-responsibility, democracy, equity and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others. The main objective in organizing a cooperative is to unite a concerted effort of the people to solve the problems in life they cannot solve individually. A cooperative upholds the principle of voluntariness of the persons who join the cooperative. They enjoy equal rights in the operations of the cooperative, and share all the benefits derived from them. As a cooperative is a business organization with specific characteristics, it has to strictly follow, in its operations, the following seven principles accepted universally as the Cooperative Principles, Voluntary and open membership, as followed 1) democratic member control, 2) member economic participation, 3) autonomy and independence, 4) education, training and information, 5) cooperation among national and international cooperatives, and 6) concern for community. Cooperatives carry on business under the laws of the country, including the Cooperatives Act and their by-laws, which prescribe their power of operations as follows:

1. to carry on a business, production, commerce, services and industry for members' benefits;
2. to receive saving or fixed deposits from their members or other cooperatives in accordance with the regulations of the cooperatives;
3. to acquire or dispose of ownership or real rights in property in accordance with the Civil and Commercial Code;
4. to grant loans or credit, to lead, to let, to let on hire-purchase, to take mortgage or pledge of property to the members;
5. to grant loans to other cooperatives in accordance with the regulations of the cooperatives;
6. to provide welfare or relief to the members and their families;
7. to give technical assistance to the members;
8. to apply for or accept technical assistance from the government, foreign agencies or other persons;
9. to carry on all other affairs in connection with, or relating to the fulfillment of the objectives of the cooperatives.

A cooperative is based on democracy. All cooperative members are its owners; but not all of them can administer a cooperative. Therefore, they have to elect, among themselves, a board of directors to carry on the administration on their behalf. According to the Cooperatives Act, B.E. 2542, a board of directors comprises not more than 15 directors, being authorized to execute all the affairs and representing the cooperative for the affairs related to the third parties. In order for a cooperative to carry on its affairs extensively and serve all or most of all its members, the board of directors employs a manager to carry out businesses of the cooperative. The manager, in turn, employs and supervises the cooperative employees to perform the day-to-day operations of the cooperative on the basis of an appropriate volume of businesses and economy. There are 7-types of Cooperatives in Thailand--1. Agricultural Cooperatives, 2. Fisheries, Cooperatives, 3. Land-Settlement Cooperatives, 4. Consumer Cooperatives, 5. Thrift & Credit Cooperatives, 6. Service Cooperatives, 7. Credit Union (Department of Co-operatives Promotion of Thailand, 2017).

Agricultural cooperatives are established to enable farmer members to engaging in business together, thus helping one another in times of crisis as well as gaining a better livelihood and quality of themselves. Agricultural Co-operatives in Thailand steamed from small credit cooperative named Wat Chan Cooperative Unlimited Liability established at Mueang district, Phitsanulok on 26 February 1916 was the first agricultural cooperative in the country. From then on, the number of small credit cooperatives steadily increased until the promulgation of the Cooperative Act, B.E. 2511. Several of these small cooperatives then amalgamated together, forming agricultural cooperatives at the district level. Larger and stronger cooperatives are, then, expected to provide a wider scope of services to members.

Agricultural cooperatives are generally formed to meet the members' needs as follows: 1. To provide loans to members for productive and providential purposes at affordable interest rates; 2. To encourage members' thrift through savings and deposits; 3. To provide agricultural products and daily necessities for sale to members at reasonable prices; 4. To promote appropriate farm practices and disseminate technical know-how aimed to help members reduce production costs and

obtain higher yields. With government assistance, members are introduced to proper cropping techniques as well as the use of fertilizers and insecticides. Another service is in the form of farm equipment (e.g., tractors, water pumps, etc.) made available to members at reasonable charges; and 5. To enable members to market products together, thereby obtaining higher prices for their products and maintaining fairness in terms of weights and measures.

At present, agricultural cooperatives engage in various types of business in responding to their member's needs. Generally, the five main areas are loans, savings and deposits, sale of consumer and farm supplies, joint marketing, and agricultural extension and services. Through the assistance of the government, the Bank for Agriculture and Agricultural Cooperatives, various foundations, and other lending agencies, agricultural cooperative members are now in a better position in accessing loans at low interest rates with grace periods appropriate to their business. Thus loans are generally classified into three categories -- short-term, medium-term and long-term loans. With sufficient loans, members can gain the utmost benefit, enabling them to purchase seedlings, fertilizers, insecticides, farm machineries, buy or improving the land etc.

Agricultural cooperatives promote thrift because accumulation of savings can help in improving the living standard of members. Savings can also be used to carry out cooperative businesses that yield profit for both cooperatives and their members. Currently members can have savings and make deposits at their cooperatives. Sale of Consumer Goods and Farm Supplies Along with the credit business, agricultural cooperatives also procure quality products for sale to their members and the general public. The buyers are assured of fair prices and measures when they order large quantities through the cooperatives. Through the joint sale of products, members can obtain not only good prices but also fairness in weights and measures. With government assistance some cooperatives have been developed market centers for members' product distribution not only locally but also abroad. A successful example is that of chemical-free Hom Thong bananas from agricultural cooperatives now being exported to abroad. Cooperatives provide agricultural extension and services to members at reasonable fees. Examples are in the areas of plowing, land improvement, irrigation, demonstration farms, etc. Costs are made affordable using the expense-sharing principle (Department of Co-operatives Promotion of Thailand, 2017).

Agricultural cooperatives are generally organized among people earning their livings in agriculture with varying kinds and degrees of need, thus resulting in various agricultural cooperative types. Besides the general agricultural cooperatives, there are some special types of agricultural cooperative such as: Water Users Cooperatives. Members of this cooperative type are farmers living in the same area along a canal or other water source which they jointly use. Joint utilization and maintenance of this valuable resource is the main purpose of this cooperative type. Land Reform Cooperatives. This cooperative type is established as part of the government's land reform program in land reform areas. The main purpose is to assist farmer members in agricultural production as well as to enable them to gain access to capital, agricultural necessities, marketing, saving facilitating and improving members' living conditions.



Special Cooperatives. These are formed among farmers who raise animals such as cattle, swine, etc. Joint marketing of these products enables members to obtain good prices and fairness in trading. Dairy cooperatives are among these. They either process milk for sale in the general market or sell raw milk to private firms producing dairy products. Rubber Cooperatives. Rubber Cooperatives are organized among rubber planters. Through their cooperatives, the members share various aspects of rubber production and marketing, including product development, processing and managing of the cooperative business. Cooperatives in the Border Patrol Police School. This special cooperative types under the auspices of Her Royal Highness Princess Maha Chakri Sirindhorn who believes in cooperative method of self - help and mutual help which would provide the youth with a meaningful way of future living.

The upper middle part of Thailand is one of the main agricultural productions areas. It is a main stem of agricultural production to produce foods and raw materials for Thai economy. Agricultural co-operatives performances are established as a group of farmers following the philosophy of co-operatives. There are 8 provinces of the upper middle part of Thailand which are Chinat, Nontaburi, Phatuntani, Ayuthaya, Lopburi, Saraburi, Singburi and Ongthong.



Fig 1. The Map of Thailand, The study area of upper middle part of Thailand

Source: [www.thailandmap.com](http://www.thailandmap.com)

The upper middle part of Thailand has 197 agricultural co-operatives shown in table1:

Area of Study	Numbers of Agricultural Co-operatives
1. Chinat Province	28
2. Nontaburi Province	8
3. Phatumtani Province	12
4. Ayuthaya Province	27
5. Lopburi Province	39
6. Saraburi Province	41
7. Singburi Province	25
8. Ongthong Province	17
Total	197

Source: Department of Co-operatives Promotion, Ministry of Agriculture and Co-operatives, the Royal Thai Government, 2017.

In this research, researcher tried to measure the efficiency of agricultural co-operatives performance and factors that influenced on its efficiency.

## 2. Method

Data collection: the secondary data were collected from the data base of Co-operatives Auditing Department, the Ministry of Agriculture and Co-operatives, the Royal Thai Government from 2010 to 2016.

Data analysis: the descriptive statistics was applied for basic data analysis which comprised of arithmetic mean, and standard deviation. The efficiency of agricultural co-operatives performance was measured by Data Envelopment Analysis Model (DEA Model) which could be expressed as:

$$\text{Efficiency} = \frac{\text{output}}{\text{input}} \text{-----}(1).$$

$$\text{Relative efficiency} = \frac{\text{weighted sum of outputs}}{\text{weighted sum of inputs}} \text{-----}(2).$$

$$\text{relative efficiency} = \frac{\sum_j^n \mu_r y_{rj}}{\sum_i^m \omega_i x_{ij}} ; i=1, \dots, m, r=1, \dots, s, j=1, \dots, n \text{-----}(3).$$

Where  $X_{ij}$  = Inputs  
 $y_{ij}$  = Outputs  
 $\mu_r$  = The Weight Value of Outputs  
 $\omega_i$  = The Weight Value of Inputs  
 $n$  = Numbers of Agricultural Co-operatives  
 $s$  = Numbers of Outputs  
 $m$  = Numbers of Inputs

Factors affected on efficiency of agricultural co-operatives performance was estimated by the order probit model which could be expressed as:

$$Y_i^* = \beta' X_i + \mu_i \text{-----}(4).$$

Where  $Y_i^*$  = Outputs

$X_i$  = Inputs

$\beta$  = Estimated Parameters

$\mu_i$  = Error Term

### 3. Results

According to the research objectives, researcher would like to express the research results following the research objectives as below:

#### Part 1: the Agricultural Co-operatives performance in the upper-middle part of Thailand

1. The financial status of agricultural co-operatives of upper middle part of Thailand expressed as table 1.

**Table 1.** Financial Status of Agricultural Co-operatives of Upper Middle Part of Thailand (Unit = \$)

Agricultural Co-operatives	Asset	Debt	Capital
Chinat Province	5,265,194.40	3,682,740.66	1,582,459.20
Nontaburi Province	7,303,273.22	4,846,318.60	2,456,954.61
Phatumthani Province	4,351,278.16	3,489,746.85	861,531.30
Ayuthaya Province	2,208,200.84	1,328,202.31	879,998.53
Lopburi Province	2,364,248.32	1,352,729.55	1,018,362.39
Saraburi Province	2,481,261.18	1,648,788.19	832,472.98
Singburi Province	1,385,259.31	650,569.75	734,689.55
Ongthong Province	1,849,786.72	1,023,739.21	826,047.51
Maximum	7,303,273.22	4,846,318.60	2,456,954.61
Minimum	1,385,259.31	650,569.75	734,689.55
Average	3,401,062.77	2,252,854.39	1,149,064.51
Standard Deviation	2,050,052.34	1,531,044.31	591,226.23

Source: Calculated from Data Base of Co-operatives Auditing Department, Ministry Agriculture and Co-operatives, the Royal Thai Government, 2017.

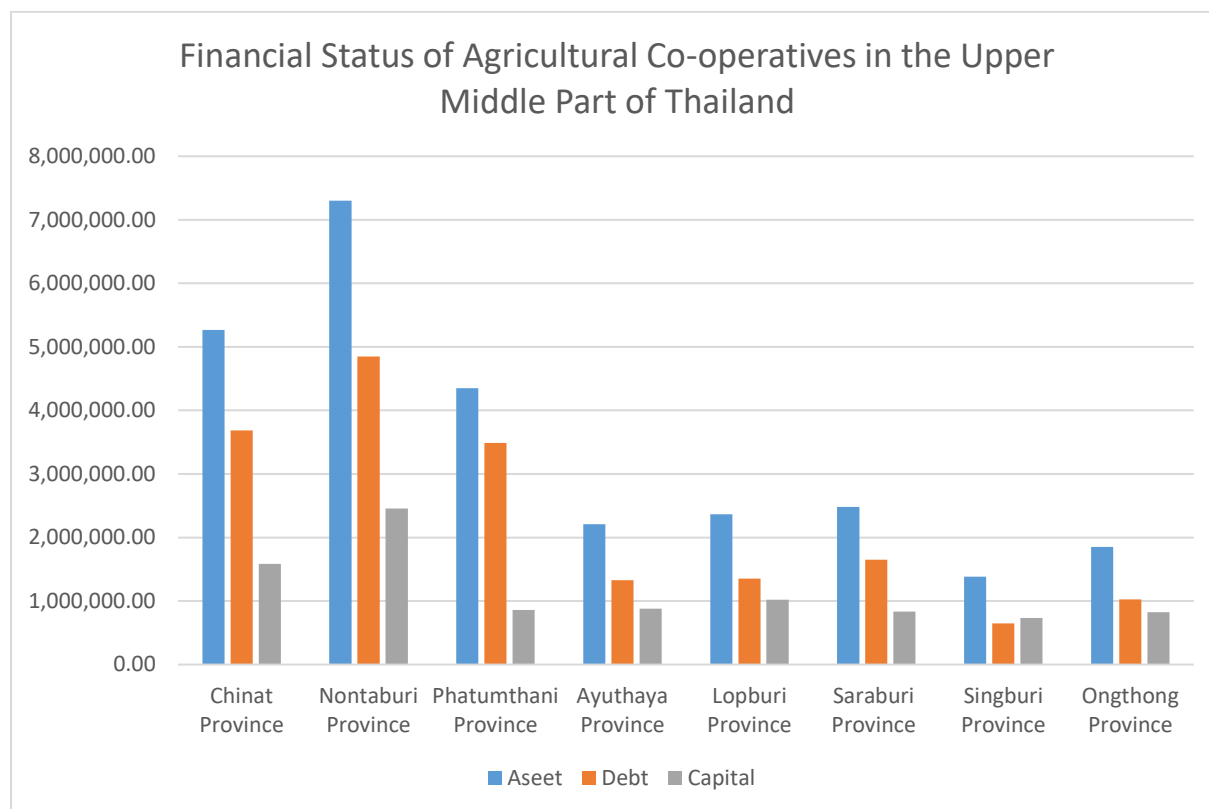


Fig 1. Financial Status of Agricultural Co-operatives in the Upper Middle Part of Thailand

Source: Co-operatives Auditing Department, Ministry of Agriculture and Co-operatives, the Royal Thai Government, 2017.

According to table 1. The maximum value of asset, debt and capital among 8 provinces in the upper middle part of Thailand is agricultural co-operatives in Nontaburi province with the value of 7,303,273.22\$, 4,846,318.60\$, and 2,456,954.61\$ respectively while the minimum value of assets, debt and capital is agricultural co-operatives in Singburi province with the value of 1,385,259.31\$, 650,569.75\$, 734,689.55\$ respectively. The average value of asset, debt and capital of agricultural co-operatives in the upper middle part of Thailand is 3,401,062.77\$, 2,252,854.39\$, and 1,149,064.51\$ respectively. In addition, the standard deviation of asset, debt and capital of agricultural co-operatives in the upper middle part of Thailand is 2,050,052.34\$, 1,531,044.31\$, and 591,226.23\$ respectively.

## 2. Agricultural Co-operatives Performance in the Upper Middle Part of Thailand expressed as table 2.

Table 2. Agricultural Co-operatives Performance in the Upper Middle Part of Thailand (Unit =฿)

Agricultural Co-operatives	Income	Expenditure	Profit	Operational Capital
Chinat Province	46,570,172.92	42,546,383.30	4,020,468.93	173,751,415.26
Nontaburi Province	34,468,301.28	30,384,347.80	4,083,953.49	217,347,796.17
Phatumthani Province	127,021,487.81	124,750,171.20	2,321,772.55	143,592,179.14
Ayuthaya Province	40,061,183.56	38,127,998.71	1,933,184.85	84,689,364.44
Lopburi Province	92,292,450.32	89,875,998.26	2,507,182.84	82,462,786.75
Saraburi Province	211,243,223.37	207,654,109.86	3,589,113.51	93,647,536.96
Singburi Province	22,080,897.13	20,206,932.90	1,873,964.23	45,765,235.49
Ongthong Province	41,241,462.87	39,200,439.71	2,041,023.16	61,042,961.64
Maximum	211,243,223.37	207,654,109.86	4,083,953.49	217,347,796.17
Minimum	22,080,897.13	20,206,932.90	1,873,964.23	45,765,235.49
Average	211,243,223.37	207,654,109.86	4,083,953.49	217,347,796.17
Standard Deviation	80,064,418.22	79,637,483.99	1,008,880.99	70,260,500.19

Source: Calculated from Data Base of Co-operatives Auditing Department, Ministry Agriculture and Co-operatives, the Royal Thai Government, 2017.

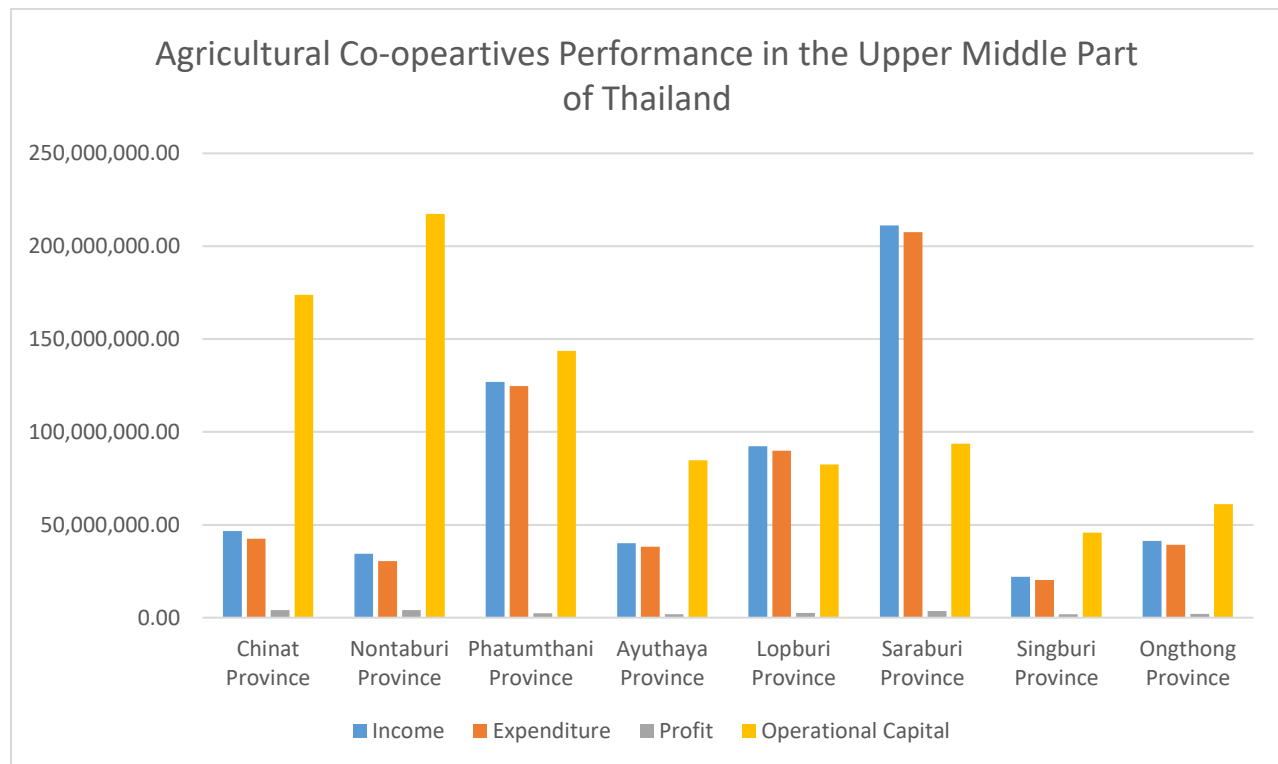


Fig 2 Agricultural Co-operatives Performance in the Upper Middle Part of Thailand

Source: Co-operatives Auditing Department, Ministry of Agriculture and Co-operatives, the Royal Thai Government, 2017.

According to table 2. The maximum value of income and expenditure among 8 provinces in the upper middle part of Thailand is agricultural co-operatives in Saraburi province with the value of 211,243,223.37\$, and 207,654,109.86\$ respectively while the maximum value of profit and operational capital is agricultural co-operatives in Nontaburi province with the value of 4,083,953.49\$, and 217,347,796.17\$ respectively. The minimum value of income, expenditure, profit and operational capital among 8 provinces in the upper middle part of Thailand is agricultural co-operatives in Singburi province with the value of 22,080,897.13\$, 20,206,932.90\$, 1,873,964.23\$, and 45,765,235.49\$ respectively. The average value of income, expenditure, profit, and operational capital of agricultural co-operatives in the upper middle part of Thailand is 211,243,223.37\$, 207,654,109.86\$, 4,083,953.49\$, and 217,347,796.17\$ respectively. In addition, the standard deviation of agricultural co-operatives income, expenditure, profit, and operational capital is 80,064,418.22\$, 79,637,483.99\$, 1,008,880.99\$, and 70,260,500.19\$ respectively.

## **Part 2: The economic efficiency of agricultural co-operatives performance in the upper middle part of Thailand**

1. The Measurement of Efficiency of Agricultural Co-operatives Performance in the Upper Middle Part of Thailand expressed as table 3.

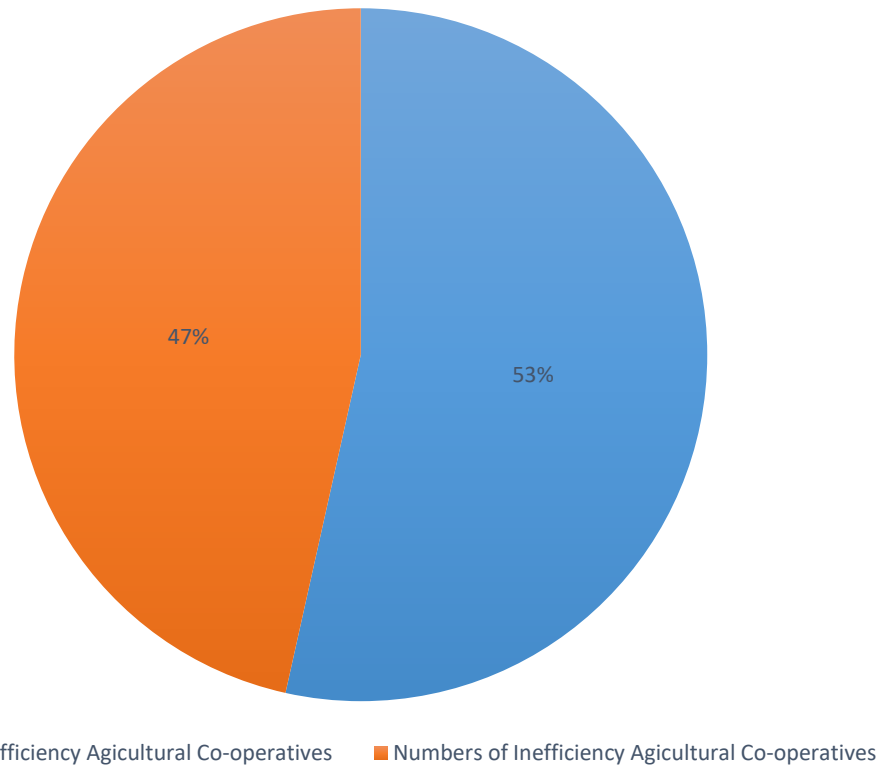
Table 3. The Measurement of Efficiency of Agricultural Co-operatives Performance in the Upper Middle Part of Thailand.

Agricultural Co-operatives	Total Numbers of Agricultural Co-operatives	Numbers of Agricultural Co-operatives Measured the Efficiency	Numbers of Agricultural Co-operatives un-measurement	Numbers of Agricultural Co-operatives with Efficiency	Numbers of Agricultural Co-operatives with Inefficiency
Chinat Province	28	13	15	5	8
Nontaburi Province	8	5	3	5	0
Phatumthani Province	12	4	8	3	1
Ayuthaya Province	27	13	14	6	7
Lopburi Province	39	17	22	2	15
Saraburi Province	41	10	31	4	6
Singburi Province	25	15	10	14	1
Ongthong Province	17	9	8	7	2
Total	197	86	111	46	40

Source: Calculated from Data Base of Co-operatives Auditing Department, Ministry Agriculture and Co-operatives, the Royal Thai Government, 2017.



### Efficiency Measurement of Agricultural Co-operatives Performance in the Upper Middle Part of Thailand



Pig 3. Efficiency Measurement of Agricultural Co-operatives in the Upper Middle Part of Thailand.

Source: Calculated by Data Envelopment Analysis Model based on the Co-operatives Auditing Department Data Base, Ministry of Agriculture and Co-operatives, 2017

According to table 3. In the upper middle part of Thailand covering 8 provinces, there are 197 agricultural co-operatives. It is only 86 agricultural co-operatives were efficiency measured because of the conditions of Data Envelopment Analysis Model (DEA Model) which are 1) there is no missing data, 2) any number for DEA calculation in could not be negative or zero numbers. There are 46 out of 86 agricultural co-operatives meet the requirement of performance efficiency while 40 out of 86 did not meet the standard of performance efficiency. This means 40 agricultural co-operatives in the upper middle part of Thailand need performance improvement themselves.

#### 4. Discussion and Conclusion

According to the research results, researcher would make the conclusion as followed:

1. Thailand, one of the countries in South East Asia, has been the main agricultural production country. Due to the economic background of Thailand, the upper middle part of Thailand is an important agricultural production. Agricultural Co-operatives is one of the economic development tools especially in the upper middle part of Thailand. At the present time, there are 197 agricultural

co-operatives. Because of DEA conditions, 86 agricultural co-operatives were measured efficiency performance. 46 out of 86 agricultural co-operatives have their performance efficiency while others need their performance improvement.

2. In terms of agricultural co-operatives management, they should focus on factors affecting on efficiency of agricultural co-operatives performance which are agricultural co-operatives income, capital, operational capital, debt as well as asset.

3. Agricultural co-operatives in Thailand has been the tool for economic community development following the philosophy of co-operatives in order to empower their own community especially in the upper middle part of Thailand.

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