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Table of Contents

Biometric and General Health Assessment for Employees: Basis for a Workplace Health Promotion Program

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Abstract

The employees of a workplace are important for an organization to succeed. Their nature of work, performance, and general health are interrelated that if taken for granted may consequently cause loss of employer's resources due to health costs. The study justified the need to conduct a workplace health promotion program (WHPP) among university employees. This descriptive study was conducted among 82 employees of a university in Laguna, Philippines. Two instruments were used such as the biometric assessment tool in which data were collected and recorded by trained individuals, and a modified employee health assessment questionnaire survey from the Centers for Disease Control and Prevention (CDC) which was supervised by one of the human resource secretaries. Prochaska and Di Clementi's Trans Theoretical Model (TTM) was utilized as the theoretical basis of this study. Results were analyzed using descriptive statistics and showed that 55% of the participants are in pre-hypertension or hypertension stage. The overall Body Mass Index (BMI) suggests that 60% are overweight or obese. Moreover, 88.5% have high body fat percentage. Lifestyle Practices assessment revealed that 86.6% of the employees are non-smokers, and 59.3% drink alcoholic beverages. Majority of the employees have low consumption of fruits, vegetables, fried foods, and sweetened beverages; 59.5% said they sometimes experience stress. Nearly half of the employees are considering or are ready to make healthier choices. Furthermore, about 49.2% of the participants preferred their health coaching sessions after their work. The findings helped the researchers identify the appropriate health-related topics to be used by further studies that aims to develop the WHPP.

Keywords: *workplace wellness, biometric assessment, employee health assessment*

Employees are important assets of an organization that may determine its success or failure. The nature of work, performance and health are interrelated and if taken for granted may lead to decline in employee's health status (Boles, Lynch, & Pelletier, 2004). Absenteeism occurs when employees habitually do not come to work due to personal or health reasons (Singh, 2017). This consequently may cause annual loss of company resources amounting up to $1,685 per employee (CDC, 2019). Moreover, it has been found that chronic diseases, aging workforce, stress, fatigue and depression has a detrimental effect on the company income (HBR, 2004). Presenteeism occurs when employees come to work even if they are not feeling well (Singh, 2017). This also costs employers about $150 billion to $250 billion or 60% of the cost of the employees' illness (HBR, 2004). Taking meticulous attendance records and follow-ups on employees' absences are among the recommended solutions for absenteeism while for presenteeism, an attempt by the organization to know the health status of the employees is recommended (Munro, 2007). Moreover, literature reviews suggest that WHPP may positively affect presenteeism (Cancelliere, Cassidy, Ammendolia, & Côté, 2011). As

workplaces are among the priorities of the World Health Organization (WHO) in promoting occupational health, they have implemented a Global Plan of Action on Workers' health 2008-2017 that aims to create policies on workers' health, provide health promoting workplaces and improve occupational health services (WHO, 2007). As part of this Global Plan of Action on Workers' health, this research has been conducted to assess the general health of the employees of a university in Laguna, Philippines particularly its non-teaching staff. The study was done using descriptive research design and aims to justify the need to conduct a workplace health promotion program among its employees and the findings of the study will be the basis for creating the contents of the said program.

Methodology

To be able to justify the need to conduct a workplace health promotion program among the employees, two assessments were done. The assessment helped the researchers determine the areas of health in which the employees need to improve. Moreover, the results allowed the researchers to determine which stage the employees are in with regards to the Prochaska and Di Clementi's Trans Theoretical Model (TTM) which would help in the development of a workplace health promotion program if needed. All information gathered during data gathering were handled considering the importance of data privacy as it is one of the important values of the university.

Employee Health Assessment Questionnaire

The survey was designed for CDC national healthy worksite program (NHWP) to assess the current health status, health behaviors, readiness for health behavior change, and health interests (CDC, 2018). The survey was modified meeting the local workplace condition in the Philippines including demographic questions, current health status, preventive services, lifestyle practices, mental well-being, readiness for health behavior change and last, their interested wellness opportunities. The readiness for behavior change was investigated by asking whether they are satisfied with their current behaviors such as healthy eating, weight loss, physical activity, tobacco use, stress reduction, sleep, and alcohol use. Lastly, several topics were given for the participants to select based on their interest. Sixty-eight questions were included in the survey. Eighty-two out of a hundred and thirty surveys given out were collected for further analysis. The survey forms were distributed to the specific departments by one of the human resource secretaries and were collected after a few days.

Biometric Assessment

The biometric assessment was designed to record the height, weight, waist circumference, hip circumference, waist-to-hip ratio, and blood pressure. Furthermore, using a Karada scan, BMI, body fat percentage, visceral fat, muscle percentage and body age were recorded. This assessment was performed by five individuals who were trained to properly conduct and record the biometric measurements. The data collection was done in one afternoon wherein 61 employees participated.

Results and Discussion

In total, 82 individuals participated in the survey assessment while only 61 of them participated in the biometric assessment. All data were analyzed using descriptive statistics. The missing data were automatically excluded in the statistic. Valid percentages were drawn only from the existing data. Only the significant data findings are taken into consideration for intervention.

Demographics

Out of the 82 individuals, 63% are female. The participants were primary from the administration office, building cares, cashier, computer studies, electronics, engineering, human resource

department, housekeeping, information technology service, library, security, etc. The average age of the participants is 40.3 (40 years and 4 months) years old. Table 1 shows the numbers and percentages of the sex of the participants.

Table 1
Sex

Sex	Frequency	Valid Percentage
Male	30	37
Female	51	63
Missing	1	

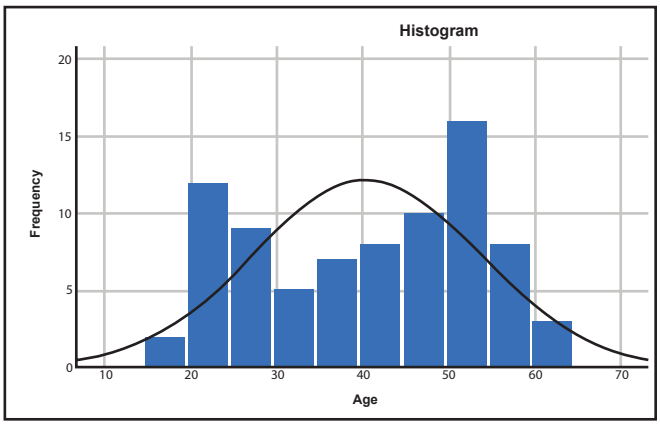

Figure 1. Age

Figure 1 shows the age frequency of the participants. The youngest aged 17 while oldest aged 64. The average age is around 40.3 years old indicates that 50% of the participants are considered to be older workers with 30% of them over 50 years old.

Seventy-three percent of the participants are parents to at least a child. Other than that, 70% of them have an educational level of college degree with roughly 10% ongoing college students or not graduate.

Out of all the employing staffs, 90.8% of them are permanent-fulltime workers. They worked for the university for average years of 12.58 (12 years and 7 months). This indicates that health coverage or services for the employees is essential as they contributed a long period of time for the university.

Health Status

As the participants were asked of their health condition, 78.7% graded themselves to be good, very good or even excellent. Sixty percent of them had a routine body checkup within a year. However, the biometric assessment shows quite the opposite results of their health condition.

The statistic shows that 28.3% of the participants are in the prehypertension stage, having risk of hypertension while 26.7% are currently having hypertension. Figure 2 shows the blood pressure comparison between male and female. In comparison, male have higher percentage of hypertension than female. However, both male and female are suffering from hypertension.

In overall BMI for both male and female, 47.5% are overweight and 13.1% are obese indicating that 6 out of 10 employees are overweight or obese. Figure 3 shows the BMI of both male and female. Besides, 34.4% of the participants have a high waist-to-hip ratio. Female are having much higher percentage in high WHR than male with a 57.1% while only 4.2% among male. More-

over, 88.5% of the participants have high or very high body fat percentage. Figure 4 shows the body fat percentage of both male and female. 38.3% of them are either high or very high in visceral fat.

Interestingly, 55.7% of the participants are low in muscle percentage while 41% are very high in muscle percentage leaving only 3.3% are normal. Figure 5 shows the large difference between muscle percentage among male and female. Obviously, females' lack of physical activities resulted in high body fat and low muscle percentage.

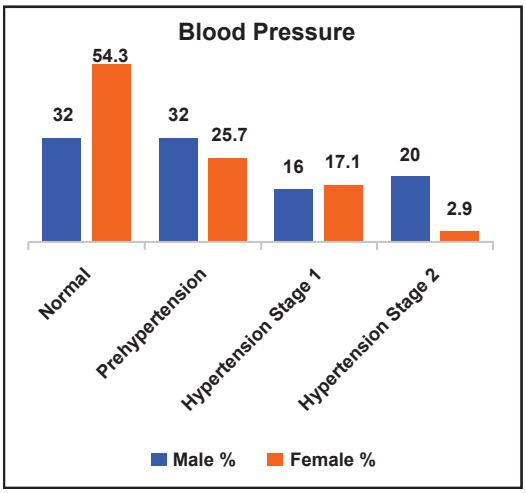

Figure 2. Comparison of both male and female's blood pressure

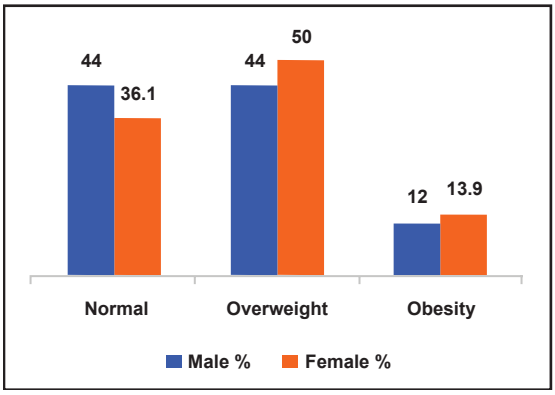

Figure 3. Comparison of male and female's BMI

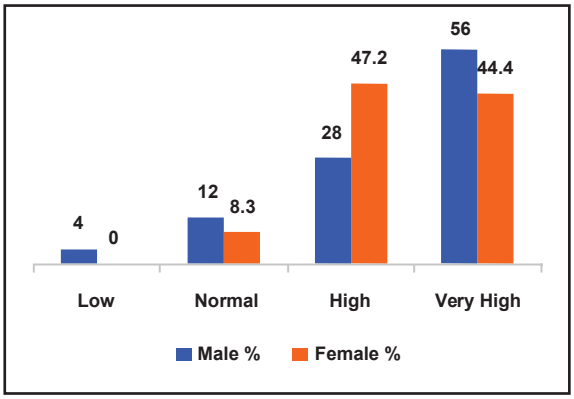

Figure 4. Comparison of male and female's body fat percentage

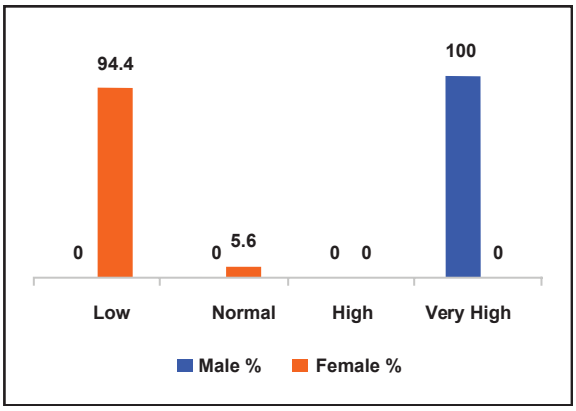

Figure 5. Comparison of male and female's muscle percentage

All these data of blood pressure measurement, BMI, body fat and muscle percentages showed that the participants have rather poor body health status, as directly opposite of what they have considered.

Lifestyle Practices

Smoking is not a major issue according to the statistic. 86.6% of the participants do not smoke. 59.3% said that they drink alcoholic beverage. However, the finding shows that the participants are not regular drinkers. 70% did not drink any alcoholic beverage in the past 30 days while 22.86% did once or less in a week in the past 30 days.

Food intake was assessed through questions asked regarding the frequency of the consumption of fruit, vegetable, fried food and sweetened beverages in the past 30 days by either answering how many times a week or how many times a month. 54.3% eat only once or less vegetable in a week. Only 21.4% eaten vegetable frequently at least 3 times a day. 73.2% ate or drank fruit or fruit juice once a day or less. Other than that, there is no other concern of the fried food and sweetened beverage consumption. The summary of food intake may be found in Table 2.

Table 2
Food Intake

Food Intake	Percentage (%)			
	<1 a day	1/day-2/day	2/day-3/day	3/day or more
Vegetable	50.0	15.7	12.9	21.4
Fruit	64.8	11.2	12.7	11.3
Fried food	61.8	20.6	8.8	8.8
Sweetened Beverage	72%	16.1	7.5	4.4

Mental Well-being

On an average night, 60.8% of the participants get 7 or more hours of sleep. However, 42.5% of them often feel unrefreshed or still feeling tired when they wake up in the morning indicating that they do not get enough quality sleep. Besides sleep, 59.5% answered that they sometimes experience stress while 14.9% experience stress always or most of the time. Fortunately, 28.8% get the emotional and social support they need to cope with stress while 39.7% get the support sometimes. In reflecting their stress level, 5.5% had previously thought of hurting themselves. Even though it is only 5.5%, this may be alarming that five out of a hundred staffs may be hurting themselves or are even at risk of committing suicide.

Readiness for Behavior Change

In considering the satisfaction of the participants on their diet practices, 15.7% are satisfied with the way they eat; 42.9% have considered even seriously considered to make healthier choices and ready to make a change. 17.1% of them have started making heathier choices while 20% have already made healthier changes for their diet. Focusing on the readiness, 46.4% are considering losing weight as the biometric assessment shows that 47.5% of them are overweight and 13.1% are obese. Other than that, 43.6% consider having physical activities. The rest of the data concerning the consideration of making healthier choices are summarized in Table 3.

Table 3
Readiness for Behavior Change

Lifestyle behaviors	I have considered making healthier choices (%)	I have seriously considered making healthier choices and I am ready to make a change (%)	Total (%)
Sleep	29.2	18.5	47.7
Weight loss	20.3	26.1	46.4
Physical activity	23.9	19.7	43.6
Healthy eating	22.9	20.0	42.9
Stress reduction	23.3	18.3	41.6
Tobacco use	8.5	21.3	29.8
Alcohol use	10.2	14.3	24.5

Nearly half of the participants are considering or ready to make healthier choices for their sleeping behaviors and weight management. Alcohol and tobacco use are both least concerned as resonance with the relatively small percentage of participants who smoke as well as participants who drink heavily.

Interested Topics

Table 4 summarized the topics that the participants interested. The topics are arranged from the most interested topics to the least.

Table 4
Interested Topics

Topics	Percentage
Nutrition/healthy eating	98.4
Onsite fitness/physical activity opportunities	91.8
Medical self-care	91.3
Personal financial management	89.6
Weight management	89.5
Anxiety/depression awareness and management	89.1
Blood pressure reduction	88.0
Cholesterol reduction	87.3
Reducing risk of heart disease or stroke	85.7
Managing stress	84.6
Diabetes awareness and management	80.8

(table continues on the next page)

Allergy and asthma management	79.5
Women's health issues	79.1
Back/neck pain management	78.4
Ergonomics	76.9
Safe sex	76.5
Walking group	74.4
Men's health issues	69.8
How to quit tobacco	63.6
Pre-pregnancy planning	56.3

Conclusions and Recommendations

The goal of the present study was to justify the need to conduct a WHPP among the employees of the university. The results showed presence of health risks among the employees and therefore the need for a WHPP was justified. Among many other topics, risks factors were found in matters relating to hypertension, weight loss, exercise, meal planning, stress reduction, sleeping habits, social support system and mental health awareness. It may be observed that these risk factors have some degree of similarity to the risk factors found on other researches related to presenteeism and WHPP despite being done on other organization (Cancelliere, Cassidy, Ammendolia, & Côté, 2011). To cater the needs of employees, further research that aims to develop a WHPP is necessary which must consider creating activities concentrating on these topics. Moreover, having an expert health coach to oversee the program is highly recommended as there is a need to adjust from time to time the approach as the employees are in various levels of readiness for change. The Prochaska and Di Clementi's Trans Theoretical Model may be utilized in evaluating the status of employees in terms of behavioral change as well as their progress.

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Health Status of International Students in Adventist University of the Philippines

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Abstract

This quantitative, a descriptive design study investigated the health status of the international students of the Adventist University of the Philippines (AUP) through medical history and behavioral health problems, where they had been challenged with a new circumstance to maintain their health as an essential component in pursuing education. One hundred fifty international students were selected as the respondents through quota random sampling technique. A questionnaire was utilized to determine the respondents' medical history, and behavioral health problem. The study utilized *frequency, percentage, mean and standard deviation* for statistical treatments using Statistical Packages for Social Science (SPSS). The results showed that the most common health-related problems experienced by the students are eye problem (24.7%), musculoskeletal problem (14.7%), ear, nose, and throat problems (12.2%). Further, results show that social media addiction is the most common behavioral health problem among the respondents (32%) which is followed by sleep disturbance (30.7%). The health status among international students in AUP can be interpreted as *moderate* with *high priority* of their health goals. The findings could be a result of the type of health environment that AUP campus provided. Healthy social interaction, healthy source of food, adequate physical workout facilities, and adequate spiritual attachment are supported by *high level* of health goal among international students. It is recommended that further survey of the health status among AUP local students be done.

Keywords: *health status, international students, health problem, health quality*

Health status has been an essential component in pursuing education. International college students who study aboard should adjust themselves with the new circumstances to maintain their health, such as source of food, environment, culture, weather, companions, and academic challenges. As Ramirez, Baker, and Metzler stated that "Social determinants of health are life-enhancing resources, such as food supply, housing, economic and social relationships, transportation, education, and health care, whose distribution across populations effectively determines length and quality of life" (2008, p. 6).

College international students of Adventist University of Philippines (AUP) has been challenged with a lot of new situations differ from their own countries. For example, different kind of culinary and flavor, various culture in one domain, English speaking and academic challenge, and occasionally extreme weather. For this reason, those factors may affect their health status, aside their own inherited medical history.

Moreover, the root problem of young adult is the insufficiently to practicing a healthy behavior. Indeed, for college students, during their age group, the tendency to engage and be

persuaded by other friends are susceptible. Certainly, for such impressionable person, they were placed in a choice to choose the right or wrong for their habitual action. Therefore, their choice will determine their daily habit. Consequently, if it has been repeated continuously, it becomes their behavior.

This study aimed to survey the health status of international students of AUP. Specifically, this study set the following objectives: What is the demographic medical history among international students in Adventist University of the Philippines, what is the demographic behavioral health problem among international students in Adventist University of the Philippines, and what is the health status level among international student in Adventist University of the Philippines in terms: physical life, mental or emotional state, stress evaluation, life enjoyment, quality of life, health symptoms, and health goal.

Methodology

This study used quantitative research study, a descriptive design to survey the health status among international student of Adventist University of the Philippines (AUP). This quantitative study performed an experimental method. A self-constructed checklist was utilized to determine the respondents' demographic profile, medical history, and behavioral health problem. Health goal was utilized with 5 scale of priority. Questionnaire had been used to determine health status respondents identified by health life and symptoms variables.

Population and Sampling Technique

A total number of 150 international students from various countries utilized this study. Quota random sampling technique was utilized in the study conducted among international students enrolled during the second semester of academic year 2016-2017 in Adventist University of the Philippines, Philippines.

The total number of respondents in this study was 150 consist of 26 countries as in table 1 with the percentage and the courses in table 2 with the percentage. The respondent consists of 67(44.7%) male and 83 (55.3%) female. Nine students (6%) age of 17 and below, 95 (63%) age of 18-22, 46 (30.7%) age of 23 and above. Ninety-two students (61.3%) live outside the campus and 58 (38.7%) live inside the campus. Ten students (6.7%) are part-time student and 140 (93%) are full-time student. Their religion 123 (82%) are Seven Day Adventist (SDA) members and 27 (18%) are non SDA members. Further, year level of students 29 (19.3%) in first year, 47 (31.3%) in second year, 22 (14.7%) in third year, and 52 (34%) in forth year.

Research Instrument

A questionnaire used to measure the variables indicated in the study which is encompassed of five sections, namely demographic profile, medical history, behavioral health problem, health life and symptoms, and health goal. Demographic section is used to obtain information on the participants' demographic profile such as nationality, age, gender, course, student category, religion, residence, and year level. There were 13 descriptions of physical systems with its problems of medical history and 12 problems of behavioral health problem with checklist model. Seven-part questionnaire of health status, which is health life and symptoms consists with Likert scale with five scale measurement. Lastly, 10 descriptions of health goal according to 5 scale of priority. The illustrates of the scoring questionnaire can be describe as the following.

Data Gathering Procedure

The research instrument, the self-constructed questionnaire was constructed, validated and reproduced in the previous studies. After permissions obtained from the institution authorities, the final data gathering followed. Random sampling method was employed. The research-

ers performed face to face collecting data with the respondents and have been waiting during questionnaire filling. Consent form has been requested from the participants. Finally, the data collected, encoded, and tabulated to investigate the result of the study. Data was collected for a month in AUP.

Statistical Treatment

The tabulated and encoded data were analyzed through the use of the Statistical Packages for Social Science (SPSS) and Microsoft Excel 2010 computer software programs. The statistical treatments applied in the study were: descriptive statistics, frequency, percentage, mean and standard deviation.

Results and Discussion

Medical History

Medical history consists of what students have experienced before and recently related to their health status. Table 4 presents the descriptive statistics of each participants' medical history with frequency and percentage value.

The data show that the most medical history experienced by the students are eye problem with percentage occurs from all respondent are 24.7% follow by musculoskeletal problem with 14.7% and ear, nose, and throat problem with percentage 12.2%. The findings supported by Bitonte (2012) that the more time spent on study period indoor and less time for outdoor activity will affect the vision of the student. Therefore, in Asia, 90% student were left their school due to suffered from vision problem.

The data show that social media addiction is the largest behavioral health problem among international students in Adventist University of the Philippines with percentage 32% from all participants follow by sleep disturbance with 30.7%.

This finding supported by Kittinger et al. (2012) stated that a lot of student experience problem related to internet use and internet addiction contribute to the severity of the symptoms. Further, according to Koc and Gulyagci (2013) that internet addiction positively supported by severe depression, anxiety, and insomnia.

Health Status of International Students in Adventist University of the Philippines in Term of Physical Life

As reflected in table 6, the grand mean for the health status in term physical life is 2.56 and the standard deviation is 0.65. This suggests that the respondents' physical life was moderate. Further, the respondents answered item number 1 "Ability to work out or engage in activity" and it had the highest mean (M = 3.57, SD = 1.08), and interpreted as high. This finding shows that the respondents are convenient to have an activity or workout. The result of this study is consistent with the study that was conducted by Vankin and Nelson (2013) that students who enter college can balance physical life with hard time for study. They can maintain the physical health due to the age of college student could choose the best physical activity for the body. Physical activity is the preferred way among college students.

Health Status of International Students in Adventist University of the Philippines in Term of Mental or Emotional State

Table 7 reveals that grand mean of health status in term mental or emotional state is 2.57 and standard deviation is 0.80. Based on the result, the respondents' mental or emotional state is moderate. Item number 1 which state "Being overly worried about small things" has the highest mean (M = 2.88, SD=1.15), but just interpreted moderate. This finding suggests that most of the international college student in AUP were normal both in mental and emotional condition.

The finding of this study show contrary with study conducted by Keyes et al. (2012) that college is the time that students can be positively affected in mental health, and prediction of the most suicidal behavior performance.

Indeed, AUP was facilitated with supportive environment and performed various interesting activities surround the campus that assist the students in their learning time that might reduce their stress level which contributing mental health.

Health Status of International Students in Adventist University of the Philippines in Term of Stress Evaluation

Table 1 reveals that grand mean of health status in term stress evaluation is 2.59 and standard deviations 0.82. Based on the result, the respondents' stress evaluation is moderate and all the items have level moderate and low. This finding suggests that stress level of international students in AUP are in normal level.

The finding in this study contrary with Mahmoud et al (2012) that the study indicates young adult college students experience increasing level of depression, anxiety, and stress. Therefore, the institution needs optimal strategies to decline the stress level of the students in order to achieve learning goal.

Table 1
Health Status of International Students in Adventist University of the Philippines in Term of Stress Evaluation

No	Stress Evaluation	Mean	Std. Deviation	Scale	Verbal Interpretation
1	Coping with daily problems	2.88	1.09	Sometimes	
2	Personal Issues	2.84	1.07	Sometimes	
3	Family	2.62	1.16	Sometimes	
4	Finances	2.62	1.24	Sometimes	
5	Peers/Roommates	2.29	1.13	Rarely	
6	Health	2.46	1.16	Rarely	
7	Relationships	2.62	1.10	Sometimes	
8	Work	2.43	1.14	Rarely	
	Grand Mean	2.59	0.82	Sometimes	Moderate

Legend 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49 = Moderate; 3.50-4.49 = High; 4.50-5.00 = Very high

Health Status of International Students in Adventist University of the Philippines in Term of Life Enjoyment

Table 2 reveals that grand mean of health status in term life enjoyment is 3.42 and standard deviation is 0.79. Based on the result, the respondents' life enjoyment is moderate. But Item number 5 which state "Time devoted to things you enjoy" has the highest mean (M = 3.51, SD = 1.10), and interpreted as high. This finding suggests that international student in AUP were delighted living in the campus.

The result of this study supported by Arambewela and Hall (2012) that internal learning such as teaching, learning, and support service affect enjoyment in student's life. Similarly, environment of external community might be used to relish their academic life.

Table 2
Health Status of International Students in Adventist University of the Philippines in Term of Life Enjoyment

No	Life Enjoyment	Mean	Std. Deviation	Scale	Verbal Interpretation
1	Confidence in your ability to deal with adversity	3.31	0.99	Moderate	
2	Compassion and acceptance of others	3.44	1.02	Moderate	
3	Experiences of relaxation, ease, or well-being	3.43	1.01	Moderate	
4	Interest in maintaining a healthy life style/diet	3.48	1.02	Moderate	
5	Time divoted to things you enjoy	3.51	1.10	Considerable	
6	The level of recreation in your life	3.35	1.05	Moderate	
	Grand Mean	3.42	0.79	Moderate	Moderate

Legend 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49 = Moderate; 3.50-4.49 = High; 4.50-5.00 = Very high

Health Status of International Students in Adventist University of the Philippines in Term of Quality of Life

Table 3 reveals that grand mean of health status in term life enjoyment is 3.41 and standard deviation is 0.67. Based on the result, the respondents' quality of life is moderate. However, item number 2 which states "The way you adjust to changes in your life" has the highest mean ($M = 3.60$, $SD = 0.91$) and interpreted as high. This finding suggests that international student in AUP were having normal quality of life.

The finding of this study contrary with study conducted by Rodriguez (2012) that early depression that might lead college students present depression and stress during plentiful requirement and examination as class activities. Most of them were detected having to suicidal.

Table 3
Health Status of International Students in Adventist University of the Philippines in Term of Quality of Life

No	Quality of Life	Mean	Std. Deviation	Scale	Verbal Interpretation
1	The handling of the problem in your life	3.40	0.99	Moderately Satisfied	
2	The way you adjust to changes in your life	3.60	0.91	Satisfied	
3	The work you do	3.41	0.89	Moderately Satisfied	
4	Your personal life	3.53	1.02	Satisfied	
5	Your Physical Appearence	3.28	1.09	Moderately Satisfied	
6	Your spouse/ significant other	3.10	1.15	Moderately Satisfied	
7	Making decision	3.46	0.93	Moderately Satisfied	
8	Dealing with Conflict	3.37	0.92	Moderately Satisfied	
9	Asserting your self	3.32	0.85	Moderately Satisfied	
10	Getting along with people	3.55	0.93	Satisfied	
11	Living situation	3.54	0.97	Satisfied	
	Grand Mean	3.41	0.67	Moderately Satisfied	Moderate

Legend 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49 = Moderate; 3.50-4.49 = High; 4.50-5.00 = Very high

Health Status of International Students in Adventist University of the Philippines in Term of Health Symptoms

Table 4 reveals that grand mean of health status in term health symptoms is 2.05 and standard deviation is 0.70. Based on the result, the respondents' health symptoms are low. Item number 2 which state "arm or shoulder pain" has the highest mean (M = 2.48, SD = 1.03), but still interpreted low. This finding suggests that international students in AUP were in low level in health symptoms during college.

The result of this study contrary with study conducted by Davila et al. (2014) that college students are risk to have unhealthy condition. Indeed, being busy with requirement is the factor that effect health status of the students. There is study that support this result, according to Unwin et al. (2013) the biggest problem of the college student in the mental health, whereas less of physical problem due to immune system and physically fit during their young age.

Table 4

Health Status of International Students in Adventist University of the Philippines in Term of Health Symptoms

No	Health Symptoms	Mean	Std.Deviation	Scale	Verbal Interpretation
1	Abdominal ain	2.00	0.94	Rarely	
2	Arm or sholder pain	2.48	1.03	Rarely	
3	Breathles-Slight exertion	1.92	1.00	Rarely	
4	Cough up blood	1.61	1.04	Rarely	
5	Chest pain	2.08	1.03	Rarely	
6	Dizziness	2.36	1.11	Rarely	
7	Fatique with normal activity	2.09	0.99	Rarely	
8	Feel faint	1.88	0.94	Rarely	
9	Leg pain	2.24	1.09	Rarely	
10	Low-back pain	2.28	1.09	Rarely	
11	Palpitation or fast heart beat	2.05	1.09	Rarely	
12	Swollen joints	1.62	0.88	Rarely	
	Grand Mean	2.05	0.70	Rarely	Low

Legend 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49 = Moderate; 3.50-4.49 = High; 4.50-5.00 = Very high

Health Status of International Students in Adventist University of the Philippines in Term of Health Goal

Table 5 reveals that grand mean of health status in term health goal is 3.77 and standard deviation is 0.78. Based on the result, the respondents' health symptoms are high. Likewise, item in number 8 which state "Maintain a cheerful, hopeful outlook on life" has the highest mean (M = 4.21, SD = 0.98), which is interpreted as high.

This finding suggests that international college students in AUP are high healthy Goal during college. The result of this study is contrary with the study that had been conducted by Traci et al. (2013) that the desire among college student to achieve health goal effected by the place of school and the environment surround the student that might give temptation and distraction. Therefore, a proper psychological environment that contribute delight working can be an instrument in order to gain the health goal.

Table 5
Health Status of International Students in Adventist University of the Philippines in Term of Health Goal

No	Health Goal	Mean	Std. Deviation	Scale	Verbal Interpretation
1	Get adequate rest daily	3.68	1.16	Higher Priority	
2	Get Regular physical activity	3.60	1.07	Higher Priority	
3	Eat more plant based foods	3.66	1.00	Higher Priority	
4	Eat more whole-grain breads and cereals	3.50	1.05	Higher Priority	
5	Achieve/Maintain a healthy weight	3.76	1.13	Higher Priority	
6	Choose healthy fats	3.45	1.13	Moderate Priority	
7	Be free of dependence tobaco, illicit drugs, or alcohol	3.70	1.50	Higher Priority	
8	Maintain a cheerful, hopeful outlook on life	4.21	0.98	Higher Priority	
9	Spend quality time with family	4.09	1.14	Higher Priority	
10	Take time daily for spiritual renewal	4.06	1.07	Higher Priority	
	Grand Mean	3.77	0.78	Higher Priority	High

Legend 1.00-1.49 = Very Low; 1.50-2.49 = Low; 2.50-3.49 = Moderate; 3.50-4.49 = High; 4.50-5.00 = Very high

Conclusions and Recommendations

The health status among international students in AUP can be interpreted as *moderate level* with *high priority* of health goal. It can be affected from health environment that AUP campus provided. Health social interaction, healthy source of food, adequate physical workout facility, and adequate spiritual attachment are supported by high level of health goal among international students.

This study recommends for further survey of the health status among AUP local students. This result can be used to compare the health status between international students and the local students of AUP. It also suggests for further studies to be done among the teacher as an awareness and prevention of disease.

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Work Environment as a Correlate of Nurses' Compassion Fatigue: A Basis for a Proposed Intervention Program

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Abstract

The nature of the nursing profession is to provide compassionate care. In the cause of providing compassionate care, nurses experience compassion fatigue due to their exposure to overwhelming situations in their work environment. This study sought to find out if a relationship exists between the work environments to the nurses' compassion fatigue. It also determined a significant difference of compassion fatigue, considering the nurses area of assignment, educational attainment, and nurse-patient ratio. A descriptive-correlational research design was used in this study. A modified questionnaire based on literature reviews was developed and answered by 300 purposively sampled nurses from three teaching hospitals in Ghana. SPSS Version 22, Pearson correlation and ANOVA were used as statistical treatment to analyze the data. Findings revealed that there is a low negative significant relationship between the nurses' work environment and their compassion fatigue. This means that improvement in the work environment will cause a reduction in the nurses' compassion fatigue. There was no significant difference in the compassion fatigue of the nurses in terms of their area of assignment, educational attainment and nurse-patient ratio. The study recommends that nurse managers and hospital administrators should strengthen the work environment of nurses for compassion fatigue to reduce. A proposed intervention program was developed based on the results of the study.

Keywords: *nurses, compassion fatigue, work environment*

The philosophy of the nursing profession is to provide empathetic and supportive clients care (Matey, 2016). Nurses provide compassionate care and support to patients, families and entire communities (Harris and Quinn Griffin, 2015) and as a result nurses stand at greater risk of compassion fatigue (Delaney, 2018). Nurses provide care to clients with critical illnesses, involvement in palliative care, surgical wounds, bleeding profusely, traumas and resuscitation, post mortem care, multiple deaths of patients, events that are often unexpected, and life threatening (Wallace, 2015). The accumulation effects of providing compassionate care to clients with discomforts itself result to compassion fatigue (Emergency Nurses Association (ENA), 2014; Makic, 2015).

Compassion fatigue is the frequent loss of ability to nurture and provide quality care to clients as a result of diminished emotional response to care (Hinderer et al., 2014). According to Jarrad, Hammad, Shawashi, and Mahmoud, (2018), compassion fatigue of nurses is the progressive absorption pain and discomforts of patient obtained during caring interactions with patients and their families.

Compassion fatigue affects the physical, emotional, spiritual, social and organizational thereby threaten the existential integrity of the nurse (Saberya, Hosseini, Tafreshi, Mohtashami & Ebadi, 2017). Jarrad, et al. (2018) admonished health institutions to create a conducive work environment that prevents and reduces compassion fatigue for quality wellbeing of both nurses and patients.

In Turkey, about 60.1% of nurses stood a greater risk of compassion fatigue (Dikmen, 2016). Similarly, nurses recruited in the pilot study in Texas recorded moderate to high risk of compassion fatigue which could affect their practice (Carter, Dyer & Mikan, 2013). A study revealed

that the nursing tone of Florence Nightingale has reduced among nurses (Adu-Gyamfi, & Brenya, 2016). In Ghana a study revealed that nurses are physically fatigue (Sarfo, Awuah-Pearson, Acheampong & Asamoah, 2013) but failed to consider emotional fatigue as well, hence compassion fatigue. However there is dearth of studies and literature that examines work environment and compassion fatigue of nurses in Ghana.

This study aimed to determine the influence of work environment on compassion fatigue of nurses in the teaching hospitals of Ghana. Specifically, this study answered the following questions:

1. Is there a significant relationship between work environment and compassion fatigue?
2. Is there a significant difference in compassion fatigue of respondents considering the moderating variables: Area of assignment, educational attainment and nurse-patient ratio?

The study will provide information on how work environment affects compassion fatigue of nurse and ways to improve.

According to ANA (2017), work environment is an authorized place, free from harmful threats to fulfill the health desires of the society. Ulusoy and Polatkan, (2016) defines a healthy work environment as surroundings that support quality and decent work, ensure the general well-being of the staff, promote safety and appropriate patient care that improve the motivation, efficiency and performance of workers and organizations. Researcher considered facilities supplies and equipment, work satisfaction, interpersonal relationship and institutional policies and support in terms of work environment.

Compassion fatigue is defined as feelings, conducts, and physical conditions associated with ongoing contact to overwhelming job stressors (Joison, 1992). Compassion fatigue was described by Nolte et al. (2017) as a state of tiredness or distress that is influenced by a compassionate relationship with loss of coping desires. According to Nimmo and Huggard (2013) compassion fatigue is a state of physical or psychological distress among health care providers in caregivers, as a result of consistency and snowballing process are in a demanding relationship with clients.

In the study of Giarelli et al. (2016) examined the quality of nurses' work environment and their risk of experiencing compassion fatigue. The study revealed that unhealthy work environment is a major contributing factor that triggers compassion fatigue of nurses. Lynch and Lobo (2012) emphasized that work environment puts physical and emotional demands on nurses which sets them at risk of compassion fatigue. Hunsaker, Chen, Maughan, and Heaston (2015) conducted a study to determine the factors that affects compassion fatigue. Their findings showed that challenging work environment contributes to experience of nurse' compassion fatigue. Drury, Craigie, Francis, Aoun and Hegney (2014) conducted a study in Australia which noted that, there a significant relationship between work environment and compassion fatigue. They recommended that infrastructure that supports the delivery of quality nursing care should be provided and admonished nurses to support each other.

Nolte, Temane, and Hastings-Tolsma, (2017) study found out that poor work environment of nurses triggered compassion fatigue. Finley and Sheppard, (2017) obtained that oncology, emergency, intensive care units, pediatric units and hospice care nurses stands a higher risk than any other specialty unit as nurses bond well with patients and families and over relate with them during patients admission and high traumatic and mortality rates contributes eventually to compassion fatigue.

Kelly, Runge and Spencer, (2015) also showed no level of significance in all nurse specialties and general units. As reported by Sacco et al. (2015) comparison of nurses' area of assignment and educational attainment revealed no significant differences based on the means of compassion fatigue. However, the findings of Abbaszadeh, Elmi, Borhani, and Sefidkar, (2017) as it revealed that there was a difference in the area of assignment as nurses assigned in emergency department stood a greater risk of compassion fatigue than nurses working in Intensive Care Units and surgery room but no significant difference in the educational attainment among nurses. Smart et al. (2014)

suggested that the more the number of nurses holding bachelor's degree in an institution increases there is the likelihood of reducing the levels of experiencing compassion fatigue. Upton, (2018) revealed a statistically significant difference that nurses with nursing degree are more susceptible to compassion fatigue.

Rivaz, Momennasab, Yektatalab, and Ebadi, (2017) reported that inappropriate nurse-patient ratios was a contributing factor of nurses experiencing compassion fatigue. According to Lachman, (2016), high nurse-patient ratios and unfair staffing assignments contributed to compassion fatigue of nurses. The study conducted in Pennsylvania also admits that nurses believe they experience moderate level of compassion fatigue and was as a results of increased nurse-patient ratios (Russell, 2016).

Methodology

Correlational research was employed to establish the relationship between work environment and compassion fatigue of nurses. A modified questionnaires based on literature review were answered by 300 purposively sampled nurses from three teaching hospitals in Ghana. The data obtain showed that 18% of respondents were from the medical ward, 18% from surgical ward, 15% from emergency unit, 11% from oncology/dialysis unit, 15% obstetrics and gynecology unit, 12% from pediatric unit and 11 from the intensive care unit of the hospital. Majority of the respondents were diploma (61%) holders and 36% were Bachelor and Master's degree holders. The data also indicated the nurse-patient ratio which showed that majority of the respondents have 1-4 patients per shift (36%), followed by 5-8 (26%), and then 13 and more (22%). However, few of the respondents have 9-12 (16%) patients on duty.

SPSS version 22, Pearson correlation and ANOVA were used as statistical treatment to analyze the data.

The research hypotheses are:

1. There is no significant relationship between work environment and compassion fatigue.
2. There is no significant difference in compassion fatigue considering their area of assignment, educational attainment and nurse-patient ratio.

Results and Discussion

The study revealed that there is a statistically negative significant relationship between work environment and compassion fatigue $r = -0.152$, $p = 0.008$. The findings rejected the hypothesis that there is no significant relationship between work environment and compassion fatigue. This implies that a good work environment reduces the level of compassion fatigue. This study corresponds to Giarelli et al.'s (2016) and Drury et al.'s (2014) studies which showed a significant relationship between work environment and compassion fatigue of nurses. Similarly Nolte et al. (2017) affirm a negative significant correlation between work environment and compassion fatigue.

Table 1
Relationship Between Work Environment and Compassion Fatigue

	Compassion Fatigue		
	r	Sig	Verbal Interpretation
Facilities, Supplies and Equipment	0.000	0.998	Not Significant
Work Satisfaction	-0.201	0.000	Significant
Interpersonal Relationship	-0.137	0.000	Significant
Institutional Policies and Support	-0.150	0.010	Significant
Work Environment	-0.152	0.008	Significant

Correlation is significant at 0.01 and 0.05 level

The study revealed that there was no significant difference in compassion fatigue considering area of assignment $p = 0.198$, educational attainment $p = 0.646$, and nurse to patient ratio as $p = 0.252$. This findings should accept the hypothesis that there is no significant difference in compassion fatigue considering their area of assignment, educational attainment and nurse-patient ratio. This implies that nurses experience compassion fatigue irrespective of their area of assignment, educational attainment and nurse-patient ratio.

Table 2
Difference in Compassion Fatigue Considering the Area of Assignment

	Compassion Fatigue				
Variable	Mean	*SD*	*F*	p-value	VI
Medical Ward	2.8762	0.69411	1.444	0.198	NS
Surgical Ward	2.8773	0.75078			
Emergency Care Unit/Others	2.9946	0.85247			
Oncology/Dialysis Unit	2.8516	0.59922			
Obstetrics and Gynecology ward	2.6250	0.65696			
Pediatric Unit	2.7031	0.75569			
Intensive Care Unit	2.6996	0.72075			

Table 3
Educational Attainment

	Compassion Fatigue					
Educational Attainment	Mean	*SD*	*t*	*df*	Sig	VI
Diploma	2.7988	0.69357	-0.460	297	0.646	NS
Bachelor/ Masters	2.8381	0.76358				

Table 4
Difference in Compassion Fatigue Considering the Nurse-Patient Ratio

	Compassion Fatigue				
Variable	Mean	*SD*	*F*	*p*-Value	VI
1-4	2.8312	0.78558	1.371	0.252	NS
5-8	2.6795	0.61240			
9-12	2.9063	0.68222			
13 or more	2.8785	0.74943			

The study supports Finley and Sheppard, (2017) and Kelly, Runge and Spencer, (2015) who confirm that there is no significant difference in compassion fatigue when area of assignment was considered. However, the study contradicts with the findings of Abbaszadeh, Elmi, Borhani, and Sefidkar, (2017) who revealed a significant difference in the area of assignment as nurses assigned in emergency unit stood a greater risk of compassion fatigue than nurses working in Intensive Care and surgical unit.

The study is similar to Sacco, et al. (2015) and Smart et al. (2014) as they showed no significant differences in compassion fatigue when educational attainment was considered but contradicts Upton, (2018) who revealed a statistically significant difference in compassion fatigue when educational attainment was considered.

The findings contradicts Rivaz, Momennasab, Yektatalab, and Ebadi, (2017) and, Gutsan, Patton, Willis and Coustasse-Hencke, (2018) and as their results indicated significant differences in compassion fatigue considering nurse-patient ratios.

Intervention program

Based on the results a program was developed to strengthen the work environment and also reduce and prevent compassion fatigue. The title of the program is "Caring for the Carers: Dealing with Compassion Fatigue" with the slogan *"Who Cares for the Carers"*

Caring For the Carers: Dealing with Compassion Fatigue

Table 5

"Who Cares For the Carers?"

Activities	Target Audience	Topic	Subtopics
Nurses Forum	Nurses and Nursing Leaders	Compassion Fatigue	-Define compassion fatigue (CF) of nurse -Compassion fatigue in nursing and the reason for its occurrences State of the CF and expectation by the world health organization -The signs & symptoms associated with compassion fatigue. -Importance of CF reduction or prevention -Intervention to reduce or prevent compassion fatigue -Work environment factors that affects compassion fatigue
Nurses Workshop	Nurses (in groups of 5-10)	Creating a support systems for nurses using a preamble and solving it as a team of nurses	-Define compassion fatigue (CF) of nurse -Compassion fatigue in nursing and the reason for its occurrences State of the CF and expectation by the world health organization -The signs & symptoms associated with compassion fatigue. -Importance of CF reduction or prevention -Intervention to reduce or prevent compassion fatigue -Work environment factors that affects compassion fatigue
Nurses Seminar	Nurses, Nursing Leaders	Work environment	-Defining work environment. -The state of the work environment and the expectation by WHO -Importance of strengthening work environment of nurses -Ways to improve the work environment of nurses. -The influence of work environment on clinical performance and compassion fatigue

(table continues on the next page)

Nurses Workshop	Maintenance of hospital facilities, supplies and equipment	5S consist of Sort, Set in Order, Shine or Clean Up, Standardize, Sustain Training and demonstration of 5S Practical training of all nurses

Recommendation

The study recommends that hospital administrators and nurse managers to improve the work environment of nurses to cause reduction in compassion fatigue. Nursing leaders should also organize and invest into program that enlightens mechanisms to reduce and prevent compassion fatigue. The study also recommends nursing managers to use implement the intervention program in their various units and organizations to manage and prevent compassion fatigue and as well strengthen the work environment of nurses.

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Nurses' Attitude and Pain Assessment Practices on Non-Pharmacologic Pain Management Among Patients with Cephalalgia

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Abstract

Cephalalgia (migraine) is one of the most prevalent pain disorders of the nervous system that affects a large population and has been described by the European Headache Federation and World Headache Alliance in 2006 as a forgotten epidemic. The increase of polypharmacy amongst migraine patients has caused a paradigm shift to the use of non-pharmacologic pain management. This descriptive-correlational study aimed to examine the extent of nurses' attitude and practices in the application of non-pharmacologic pain management of cephalalgia. The study also measured the relationship between attitude and practices on non-pharmacologic pain management of cephalalgia. Significant differences of the attitude and practices on non-pharmacologic pain management of cephalalgia in terms of sex, educational level and years of clinical experience was also considered. Fifty (50) qualified nurses at the Adventist University of the Philippines (AUP) were conveniently sampled to answer a constructed survey questionnaire. The statistical treatment used were the mean and standard deviation, t-test, Pearson Correlation, and ANOVA. The study showed that there is a low significant relationship between attitude, practices, and non-pharmacologic pain management. The application of non-pharmacologic pain management infers no difference in terms of sex, educational level, and years of clinical experience. Also, non-pharmacological pain management approach of physical therapy is used when the pain is mild. Non-pharmacologic therapy is a complementary approach and should be implemented with pharmacologic interventions when the patient's pain is also moderate or severe to promote comprehensive pain management. The study recommends health-care institutions to provide pain assessment and non-pharmacologic pain management education for nurses.

Keywords: *attitude, practices, non-pharmacologic, migraine, cephalalgia*

Pain interferes with one's quality of life, thus implying that proper management of pain is intricate. Pain complaint has become a growing factor for visits to hospitals. Although there are many pharmacological and non-pharmacological interventions, nurses being part of a collaborative team, are also responsible for undermanaged pain. Cephalalgia is one of the most prevalent nervous system pain disorders that affects a large population, also known as headache disorder.

In 2016, the World Health Organization (WHO) estimated the global prevalence of one episode of adult headache to be 50% within one year. Approximately 30% of the 18-65 year-old adult population reported migraine episodes within one year. Although headache disorder is a global phenomenon affecting people of all races, ages and geographical location, it is nevertheless underestimated, under-recognized and under-treated worldwide.

The 2006 European Headache Federation and Alliance of World Headache described migraine as a "forgotten epidemic." WHO sent a message to the world's health ministries stating that there is a global neglect of headache disorder that remains a major public health problem with inadequate response from the global health system (Steiner, Stovner, Vos, Jensen, & Katsarava, 2018)

In 2010, the population of the Asia-Pacific region was estimated to be 3.85 billion. According to Peng & Wang (2014), 350 million of the Asia-Pacific regions suffers with migraine. Thus, the authors concluded that the pursuit for better headache pain management would be the next challenge for the Asia-Pacific region.

Polypharmacy was also identified among patients with primary headaches due to the global incidence of headache. A study conducted by Ferrari, Baraldi, Licata, Rustichelli (2018), shows headache patients take an average of 4.37 drugs. Polypharmacy was common in 40.7% of headache patients and reached 58.8% of chronic headache patients.

In Philippines, Adalin (2017) conducted a quantitative study investigating the nurses' knowledge, attitude and practices on pain assessment and management with a total of 235 medical-surgical and intensive care unit nurses.The study concluded that the level of knowledge and attitude was substandard amongst the nurses. Although non-pharmacologic pain management was implemented, it only included a few methods such as deep breathing exercises (79.66%), massage therapy (27.54%), and cold therapy (26.69%). There was no relationship found between nurses' knowledge and attitude and years of experience. Although the authors investigated pain management, there was no mention of the types of pain investigated. This causes the data to be non-specific. Additionally, replication of this study with additive variables was recommended.

There has been no research that provides the statistical data of primary headache disorder prevalence in Philippines. There are limited studies that investigated the nurse's attitude and practices towards the use of non-pharmacologic pain management of cephalgia.

Having identified these gaps this research paper seeks to explain the relationship between attitude and practices of nurses in applying non-pharmacologic pain management to patients with cephalalgia. Specifically, it answers the following questions:

1. What is the attitude of nurses towards non-pharmacologic pain management of cephalalgia?
2. What is the extent of nurses' pain assessment practices?
3. What is the level of applying non-pharmacologic pain management in terms of:
   a. Physical Therapy
   b. Cognitive-behavioral Therapy
   c. Environmental Therapy
4. Is there a significant relationship between
   a. attitude and non-pharmacologic pain management?
   b. practices and non-pharmacologic pain management?
5. Is there a significant difference on the utilizing non-pharmacologic pain management in terms of:
   a. Sex
   b. Educational level
   c. Years of clinical experience

1. There is no significant relationship between attitude and non-pharmacologic pain management.
2. There is no significant relationship between practices and non-pharmacologic pain management.

3. There is no significant difference between attitude and practices in utilizing non-pharmacologic pain management in terms of:
   a.Sex
   b.Educational level
   c.Years of clinical experience

The core of nursing is to restore the health of the patient and to alleviate suffering. Poorly controlled pain can affect function, appetite, sleep, mood and quality of life significantly. Importantly, by following pain treatment guidelines, about 90 percent of patients can achieve good pain control. Pain affects the patient's quality of life and therefore, pain intellection is a must to achieve these goals. The perception of pain is nuanced, and the concept has evolved, including sensory, cognitive and affective qualities (Kumar & Elavarasi, 2016).

The International Association for the Study of Pain (IASP) in 1976 (as cited in Barros & Albuquerque, 2014) defined pain as an unpleasant sensory and emotional experience associated with or characterized in terms of actual or potential tissue injury. Cephalalgia is known to be the common cause of disability as compared to other primary headache disorders as it can be classified into migraine without aura and migraine with aura. Migraine affects women twice as frequently as men and is associated with genetics. Migraine headache is an acutely exerbated chronic condition. It is characterized by headache with either nausea, vomiting or photosensitivity lasting from 4 to 72 hours. Unilateral pain, pulsating quality of pain, moderate or severe intensity of pain may be involved (Purdy-Payne & Mellick, 2018).

Increasing opioid use has focused attention on the need for an innovative approach to pain management. The joint commission agreed that the use of a multimodal approach, using both pharmacological and non-pharmacological interventions while maintaining patient-centered care, is important. Furthermore, the Center of Disease Control (CDC) recommends non - pharmacological therapies as the first line of treatment for pain excluding cancer and hospice care (Lewis, Kohtz, Emmerling, Fisher, & Mcgarvey,2018).

Non-pharmacologic pain management is an independent or additive therapy promotes a comprehensive method to pain relief. Non-pharmacological therapy, though, can not replace pharmacological methods are used in conjunction with pharmacological methods as a complementary approach to augment patient pain management.

Non-pharmacological management is pain interventions without drug use (Bicek, 2004) Non-pharmacologic is evidence-based and non-invasive human health intervention. In addition, non-pharmacological management targets the psychosocial process seen through changing behavior, cognition, and emotions in perception and response to pain (Ramasamy, 2018). While pharmacologic management the somatic aspect of pain, nonpharmacological therapy is intended to treat other dimensions of pain including affective, cognitive, behavioral, and socio - cultural.

Physical therapy promotes pain relief as it reduces tension in the muscle. The relaxation technique that includes deep breathing, according to Bicek (2004), decreases blood pressure, heart rate, and respiration. Demir (2012) added that the patient is helped and supported by positioning. Using supporting pillows, special bedding and changes in position help to reduce acute pain by increasing blood flow and preventing muscle contraction.

Cognitive behavioral therapy focuses attention on other stimuli to distract the individual from the pain. Distraction, according to Demir (2012), reduces the severity of pain. The goal is to increase tolerance of pain while reducing sensitivity to pain. This would include guided imagery, television watching, music therapy, book reading.

Environmental factors may cause headaches of migraine. This includes lights that are bright and flickering, extreme head, noise and intense smell. According to it is important to promote patient control in choosing comfortable lighting and reducing noise. Providing social support for

patients, including family and friends, is a therapeutic procedure for pain reduction due to isolation. Using familiar objects, nature and artwork is an opportunity for restoration that is classified as positive distractions (Demir, 2012).

Attitude is a multidimensional construct that includes a component of cognition, affection, and behavior. These three domains have been categorized because of attitude characteristics involving a mental state, a value or belief, and a redeliberated behavior or action. According to Altmann (2008), attitude is a reaction or response to a person, object or situation. The disposition or response to the phenomenon can be positive or negative, favorable or unfavorable, towards or against the stimulus. Therefore, it can be implied that attitude towards non-pharmacologic pain intervention is the acceptance or rejection of the practice.

Nurses are the patient's closest health personnel and as such are in a very good position to provide non-pharmacological pain control, but unfortunately, studies around the world report that nurses have poor knowledge of applying this alternative pain relief.

Kholowa, Chimwaza, Majamanda, & Maluwa, (2017) investigated nurses ' knowledge and attitude towards children's pain management in Malawi. The authors said nurses focused on the management of pharmacological pain and had to be prompted to mention non-pharmacological therapy as a pain management in the study.

Yava (2013) investigated the relationship between the nurses' knowledge and attitude towards pain management in Turkey. The authors found that the nurses did not have adequate knowledge, however, demonstrated a positive attitude towards pain management. Nimer, & Ghrayeb, (2017) evaluated the nurses' level of knowledge and nurses' attitude significantly affects the implementation and use of non-pharmacologic management. In contradiction, a cross-sectional study design was utilized in Palestine to understand the nurse's knowledge and attitude towards pain management. Findings indicated that nurses had knowledge deficit and a negative attitude towards pain management. The results of this study indicate that there are serious challenges to adequate pain management.

A study conducted by Bicek (2004) explored nurses' attitude, knowledge and utilization of non-pharmacologic pain management. The results showed that emotional support, cognitive behavioral therapy and environmental therapy were mostly used by nurses. Additionally, associate degree holder uses physical methods as a non-pharmacologic management than bachelor's degree nurses.

Song, Eaton, Gordon, Hoyle & Doorenbos, (2015) study explored the use of evidence-based pain management practice by evaluating nurses ' pain documentation using electronic documentation. The participants in this research were 37 adults who were admitted to a medical-surgical oncology ward in Pacific Northwest from April to May 2013. The authors evaluated using descriptive cross sectional method. The study concluded that the guidelines were followed by 90% of the nurse's documentation and recommended evidence-based pain management practice. However, there was a suboptimal reassessment, pharmacological interventions, nonpharmacological regimen and bowel regimen. 31% of nurses responded to pharmacological procedures and 100% of nurses used non-pharmacological pain management. However, due to lack of knowledge, the only non-pharmacological pain management used was turning.

In another study, Fatma & Serife, (2017) described the nurses' approach of pain control on post-operative abdominal surgery patients. The nurses did not employ scales for pain evaluation and did not assess the nature of the pain. The nurses used non-pharmacological pain management using calm environment (75.7%), positioning (78.6%) and hot and cold therapies (47.6%). No other non-pharmacological pain management intervention was used. The study concluded that there appear to be deficiencies regarding the identification and management of pain.

The idea of evaluating pain as a vital sign was presented by Dr. James Campbell in his presidential address to the American Pain Society in 1995 (as cited in Morone & Weiner 2013).

Having the knowledge that their patients are in pain, would often prompt clinicians to react with a response to treat the pain.

Nascimento (2011) analyzed the implementation of the assessment of pain as the fifth vital sign in a teaching hospital. Quantitative research using semi-structured questionnaire applied to 188 technicians and nursing assistants working in five inpatient units of a large teaching hospital located in municipality of Londrina-PR. Approximately 79.0% of professionals reported assessing pain as a sign of life; patient welfare was the most mentioned reason. The lack of understanding of the patient about the pain intensity scale was the main difficulty (77.6%). For 64% of professionals, the hospital encourages the assessment of pain and as a suggestion, 49% of professionals reported the need for courses and training. The inclusion of pain as the fifth vital sign was accepted by the nurses. It highlights the need for nursing work in the supervision and training, and the readjustment of the pain measurement scale.

Mundim de Oliveira (2016) study investigating neonatal unit nursing professionals on newborn pain assessment showed inadequate use of scales and pain relief measures. To evaluate pain intensity, unidimensional and multidimensional pain evaluation tools are used. The visual analog scale, numerical rating scale, verbal rating scale is one-dimensional pain assessment tool (Bendinger, & Plunkett 2016).

The visual analog scale consists of a line with endpoints, ranging from "no pain at all" to "the worst pain." The patient would mark the pain level on the line to be measured to describe the pain intensity. The most commonly used scales are the numerical rating scale. This is due to its convenience and simplicity. The numerical rating scale allows the patient to describe the pain of a 0 to 10 pain scale, zero meaning no pain at all and ten meaning the worst pain possible. The verbal rating scale makes it possible to use quantifiable adjectives to describe the different levels of pain from "no pain at all" to "extremely intense pain," using mainly a four to six - point scale (Haefeli, & Elfering, 2005).

Multi-dimensional scales include the McGill Pain Questionnaire (MPQ) which provides a broader perspective on the pain and how it affects the individual. The MPQ provides the most extensive tool to measure pain (Bendinger, & Plunkett 2016).

Methodology

This quantitative study employed a descriptive-correlational design, using a structured questionnaire, to conveniently collect a sample of 50 qualified registered nurses to determine the relationship between attitude and practices in applying non-pharmacologic pain management to patients with cephalalgia, utilizing inferential statistics. The included nurses in this study have managed patients with migraine headache.

The demographic characteristics of the 50 respondents were elucidated according to their sex, age, level of education and clinical experience. The sex group of the respondents comprised 30 (60%) females and 20 (40%) males. The age group of the participants showed 31(62%) aged between 20-30 years and 19 (38%) aged between 31-50 years. The current level of education of the respondents showed 33 (66%) had an undergraduate degree and 17 (44%) had a master's degree. The current years of clinical experience of the respondents showed that 30 (60%) has 1-4 years of experience, 17 (34%) has 5-9 years of experience and 3 (6%) had experience for 10 years and above.

The questionnaire adapted and modified Polkki, Vehvi1ainen-Ju1kunen, & Pietila, (2001) self-constructed questionnaire.

The internal validation of the instrument was done based on Cronbach Alpha which resulted that attitude 0.919, practices 0.702, physical therapy 0.735, cognitive behavioral therapy 0.738 and environmental therapy 0.774. In determining the strength of the relationship Cohen (1998) recommendation was adopted. It considered the absolute correlation values where r =.10 to .29 meaning small or low, r =.30 to .49 is medium or moderate and larger r =.50 to 1.0 is large or high.

Table 1
Scoring System Table for Attitude

Numeric Scale	Scale Average Weight	Scaled Response	Verbal Interpretation
4	>3.3-4	High Priority	Positive
3	>2.5-3.2	Medium Priority	Positive
2	>1.7-2.4	Low Priority	Negative
1	>1-1.6	Strongly Disag	Negative

Table 2
Scoring System Table for Practices and Non-Pharmacologic Pain Management

Numeric Scale	Scale Average Weight	Scaled Response	Verbal Interpreta-tion
5	>4.3-5	Always	Very Good
4	>3.5-4.2	Very Often	Good
3	>2.7-3.4	Sometimes	Fair
2	>1.9-2.6	Rarely	Poor
1	>1-1.8	Never	Very Poor

Ten self-administered questionnaires were given to registered nurses willing to participate in the study at the Adventist University of the Philippines clinic. The questionnaires were filled during their lunch break for 15-20 minutes, as not to interrupt patient care and daily duties. The researcher explained the purpose and procedure of the study prior to administering the questionnaires. The questionnaires were collected and sealed after completion.

Secondly, twenty self-administered questionnaires were given to graduate nursing students and twenty self-administered questionnaires to registered nurses in Public Health willing to participate in the study at the close of lectures to be filled in for 15-20 minutes. The researcher explained the purpose and procedure of the study before distributing the questionnaires. The questionnaires were collected and sealed after completion.

The data in the questionnaires were analyzed. After data cleaning, the remaining questionnaires were encoded into the computer and further analyzed using Statistical Package for Social Sciences (SPSS Version 22.0). Research question one to three utilized descriptive statistics, analyzing the data into mean and standard deviation. Question four employed Pearson Correlational statistical analysis, question five was answered using T test and ANOVA. Significance level was set at $p>0.05$.

Nurses' privacy was protected by providing anonymous and voluntary participation. The purpose of the study was explained, and consent would be obtained before data collection. Participants had the right to withdraw from the study at any stage. Furthermore, the identification of the participants was not disclosed, and only aggregate data were presented.

Results

Attitude measurement was done with four item questions. The respondents scaled response of their attitude towards non-pharmacologic pain management was *agree* and verbally interpreted as *positive* ($M = 3.115$, $SD = 0.6799$). In a detailed analysis, the respondents noted that they *believe non-pharmacologic pain management should be applied everyday* was the highest scored item with strongly agree which measured *positive* ($M = 3.320$, $SD = 0.8437$). The lowest scored item, although scored as agree measured as *positive* ($M = 2.920$, $SD = 0.6952$) was *clinical confidence in applying non-pharmacologic pain management*. The results of the study confirm Yava (2013) study which showed that although nurses have lack of pain management knowledge, they still poses a

positive attitude towards pain management. This implies that nurses' positive attitude is due to the belief of its benefits to towards the patient's pain.

Table 3
Attitude (N=50)

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
I believe that non-pharmacologic therapy promotes patient comfort	3.24	0.744	Strongly Agree	Positive
I am clinically confident in using non-pharmacologic pain management	2.92	0.6952	Agree	Positive
I believe that non-pharmacologic therapy reduces my patient's pain	2.98	0.742	Agree	Positive
I believe that non-pharmacologic therapy should be applied everyday	3.32	0.8437	Strongly Agree	Positive
Attitude	3.115	0.6799	Agree	Positive

Disagree-1, Disagree-2, Agree-3 and Strongly Agree-4.

Practices were quantified using eleven item questions. The respondent's practices in terms of pain assessment was scaled as very often and verbally interpreted as *good* (*M* = 3.427, *SD* = 0.4922). In an in-depth analysis of the utilization of pain assessment scales, the *numeric rating scale is always used* with verbal interpretation of *very good* (*M* = 4.280, *SD* = 0.9697), followed by *verbal rating scale* (*M* = 3.720, *SD* = 1.1073) and brief pain inventory (*M* = 3.640, SD = 1.1911) which are used very often and verbally interpreted as good. The lowest scored item was the visual analog scale which was *sometimes* used (*M* = 2.740, *SD* = 1.1747) and *McGill pain questionnaire was rarely* utilized with verbal rating of *poor* (*M* = 1.980, *SD* = 1.1747). The results of the study confirm Mundim de Oliveira (2016) study that numerical pain assessment scale is mostly used by nurses because of its convenience and simplicity.

Pain assessment findings is *always documented* (*M* = 4.360, *SD* = 0.8981) which was measured as very good. The data shows that pain assessment scale is explained very often (*M* = 4.020, *SD* = 0.9581), *pain reassessment after use of non-pharmacologic pain management* (*M* = 3.960, *SD* = 0.8562) and *the use of non-pharmacologic pain therapy when the patient pain is mild* (*M*= 3.740, *SD* = 1.1395) was respectively measured as very often and verbally interpreted as good respectively. According to the data, non-pharmacologic pain therapy was *sometimes used when patient's pain is moderate* (*M* = 3.040, *SD* = 1.1241) which is verbally interpreted as fair and rarely used when the *patient's pain is severe* (*M* = 2.220, *SD* = 1.4748) verbally interpreted as poor.

This study contradicts Song, Eaton, Gordon, Hoyle & Doorenbos, (2015) and Fatma & Serife (2017) study that documentation, reassessment and the use of pharmacologic pain management was suboptimal. This can be due to the fact that the study was done in the medical-surgical oncology ward and the method of data collection was only through the evaluation of nurses' documentation.

Table 4
Practices (N=50)

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
I utilize the numeric rating scale in pain assessment	4.28	0.9697	Always	Very Good
I utilize the visual analog scale in pain assessment	2.74	1.1747	Sometimes	Fair
I utilize the verbal rating scale in pain assessment	3.72	1.1073	Very Often	Good
I utilize the Brief Pain Inventory in pain assessment	3.64	1.1911	Very Often	Good
I utilize the McGill pain question-naire in pain assessment	1.98	1.0593	Rarely	Poor
I explain the pain assessment scale to my patient	4.02	0.9581	Very Often	Good
I reassess my patient's pain after using non-pharmacologic pain man-agement	3.96	0.8562	Very Often	Good
I document my pain assessment findings	4.36	0.8981	Always	Very Good
I apply non-pharmacologic therapy when the patient's pain is mild	3.74	1.1395	Very Often	Good
I apply non-pharmacologic therapy when the patient's pain is moderate	3.04	1.1241	Sometimes	fair
I apply Non-pharmacologic therapy when the patient's pain is severe	2.22	1.4748	Rarely	Poor
Practices	3.427	0.4922	Very Often	Good

Never-1, Rarely-2, Sometimes-3, Very Often-4 and Always-5.

The use of physical therapy was measured using four item questions. The respondent scaled response for the use of physical therapy was *very often* meaning *good*. In further analysis, *placing the patient in a comfortable position* was the highest scored item being used always and verbally interpreted as *very good* (M = 4.500, SD = 0.7890). The lowest scored item although used *very often was the use of therapeutic touch* and verbally interpreted as *good* (M = 3.780, SD = 1.0934). The results confirm that Fatma & Serife, (2017) study that the postioning were the highest therapy used by the nurses.

Table 5
Physical Therapy (N=50)

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
I encourage the patient to relax body.	3.86	0.7287	Very Often	Good
I place the patient in a comfortable position.	4.5	0.789	Always	Very Good
I teach the patient deep breathing technique	3.94	0.8668	Always	Very Good
I use therapeutic touch	3.78	1.0934	Very Often	Good
Physical Therapy	4.02	0.5688	Very Often	Good

Never-1, Rarely-2, Sometimes-3, Very Often-4 and Always-5.

The use of cognitive behavioral therapy was measured using five item question. The respondents scaled responds for the use of cognitive behavioral therapy was *sometimes*, verbally interpreted as *fair*. In further analysis, the highest scored item was the *use of reassurance* (M = 4.060, SD = 0.8430) measured as *very often*, verbally interpreted as *good*. The lowest scored

item was encouraging the patient to think of a pleasant place (*M* = 3.000, *SD* = 1.2122), scaled response as *sometimes* and verbally interpreted as *fair*. The results of the study contradict Bicek (2004) results, as the authors results showed that nurses use cognitive-behavioral therapy *nearly always.*

Table 6
Cognitive Behavioral Therapy (N=50)

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
I encourage my patient to think of a pleasant place.	3.000	1.2122	Sometimes	Fair
I encourage my patient to think of a favorite activity.	3.300	.9742	Sometimes	Fair
I try to focus my patient's thoughts by listening to music	3.020	.9581	Sometimes	Fair
I try to focus my patient's attention by talking about daily lives	3.280	.9485	Sometimes	Fair
I provide patient with reassurance	4.060	.8430	Very Often	Good
Cognitive Behavioral Therapy	3.332	.7017	Sometimes	Fair

Never-1, Rarely-2, Sometimes-3, Very Often-4 and Always-5

The use of environmental therapy was measured using four item questions. The respondents scaled response of their use of environmental therapy was *very often* meaning *good*. The highest scored item used *very often* was *providing patient's rest by minimizing noise* (*M* = 3.860, *SD* = 0.9899), verbally interpreted as good. The lowest item used scaled as *very often was encouraging family members to bring patient's familiar belongings* (*M* = 3.420, *SD* = 1.1622) interpreted as good. The results confirm Bickek (2004) study that environmental therapy is secondly mostly used by registered nurses.

Table 7
Environmental Therapy (N=50)

	Mean	Std. Deviation	Scaled Re-sponse	Verbal Interpretation
I provide a suitable room temperature	3.640	1.0645	Very Often	Good
I provide the patient to rest by minimizing noise	3.860	.9899	Very Often	Good
I encourage family members to bring some of the patient's belongings to the unit.	3.420	1.1622	Very Often	Good
I reduce bright lights in the patient's room	3.740	.9858	Very Often	Good
Environmental Therapy	3.665	.6558	Very Often	Good

Never-1, Rarely-2, Sometimes-3, Very Often-4 and Always-5

In a summary, the use of non-pharmacologic pain management by the respondents scaled response was used very often and verbally interpreted as good (*M* = 3.65, *SD* = 0.508). Physical therapy always used non-pharmacologic pain management by the respondents (*M* = 4.020, *SD* = 0.5688) followed using environmental therapy with a scaled response of very often (*M* = 3.665, *SD* = 0.6558) verbally interpreted as good respectively. Cognitive-behavioral therapy is the least used non-pharmacologic pain management with a scaled response of sometimes (*M* = 3.332, *SD* = 0.7017).

In summary, the use of non-pharmacologic pain management by the respondents scaled response was used *very often* and verbally interpreted as *good* (M = 3.65, SD = 0.508). Physical therapy *always* used non-pharmacologic pain management (M = 4.020, SD = 0.5688) followed by using environmental therapy with a scaled response of *very often* (M = 3.665, SD = 0.6558) verbally interpreted as good, respectively. Cognitive-behavioral therapy is the least used non-pharmacologic pain management with a scaled response of *sometimes* (M = 3.332, SD = 0.7017).

The study agreed to Adalin (2017) that physical therapy is mostly used by nurses. The study shows that cognitive-behavioral therapy is sub optimally applied because it demands skills to be able to distract the patient from the pain.

Table 8
Non-Pharmacologic Pain Management (N= 50)

	Mean	Std. Deviation	Scaled Response	Verbal Interpretation
Physical Therapy	4.020	.5688	Always	Very Good
Environmental Therapy	3.665	.6558	Very Often	Good
Cognitive Behavioral Therapy	3.332	.7017	Sometimes	Fair
Non-pharmacologic pain management	3.65	.508	Very Often	Good

Never-1, Rarely-2, Sometimes-3, Very Often-4 and Always-5

The relationship between attitude towards non-pharmacologic pain management showed a *low significant positive* relationship (r = 0.064, p = 0.047) at a 95% confidence interval. This implies that the nurses' attitude towards nonpharmacologic therapy correlates in managing patient pain. As a result, the study rejects the null hypothesis in that there is no significant relationship between attitude and non-pharmacologic pain management. Moreover, the result affirmed to Yava's (2013) study that nurses have a positive attitude towards pain management and contradicted Nimer and Ghrayeb's (2017) that nurses have a negative attitude towards pain management.

Furthermore, the study implicits that there is a *low significant positive* relationship between practices and non-pharmacologic pain management (r = 0.232, p = 0.045). This signifies that the respondents' practices move positively with non-pharmacologic pain management. Therefore, the study *rejects* the null hypothesis in that there is no significant relationship between practices and non-pharmacologic pain management.

Table 9
Correlations

		Non-pharmacologic pain management
Attitude	Pearson Correlation	.064
	Sig. (2-tailed)	0.047
	N	50
Practices	Pearson Correlation	0.045
	Sig. (2-tailed)	.105
	N	50
Non-pharmacologic pain management	Pearson Correlation	1
	Sig. (2-tailed)	
	N	50

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

In analyzing the differences of sex in the application of non-pharmacologic pain management, the study resulted in *a non-significant* difference (p = 0.764) on equal variance assumed. The *t-test* grouped statistics showed that the mean of female (M = 3.63, SD = 0.523) and male (M = 3.67, SD = 0.496). This implies that in terms of sex, the application of non-pharmacologic therapy is the same.

The investigation of the differences in educational level towards the application of non-pharmacologic pain management showed that there is *no significant* difference between educational level and non-pharmacologic pain management (p = 0.151) on equal variance assumed. The *t-test* grouped statistics showed that the mean of undergraduate (M = 3.79, SD = 0.513) and masters (M = 3.79, SD = 0.480).

In examining the difference between years of experience and the application of non-pharmacologic pain management, the study showed a *non-significant* difference (p = 1.35) on equal variance assumed. The t-test grouped statistics showed that the mean of respondents with experience of 1-4 years was (M = 3.69, SD = 0.587), 5-9 years (M = 3.66, SD = 3.15) and 10 years and above (M = 3.08, SD = 0.000). The results contradict Bickek (2004) study that associate nurses uses non-pharmacologic pain management using the physical method more than bachelor's degree nurses.

Therefore, the study *failed to reject* the null hypothesis that there is no significant difference in terms of sex, educational level and clinical experience in the application of non-pharmacologic pain management.

Table 10
Differences in terms of Sex, Educational Level and Years of Clinical Experience

	Sex	Educational Level	Years of Clinical Experience
F	0.161	0.06	2.092
Df	48	48	47
T	-0.302	-1.458	
P	0.764	0.151	1.35
IV	NS	NS	NS

S=Significant, NS=Not Significant

Discussion

The study concluded that nurses poses a positive attitude in using physical therapy as a non-pharmacologic pain management to treat migraine. Nurses' practices in terms of pain assessment was very good, however, the assessment scale nurses utilize to quantify pain is limited to the use of numerical rating scale. Non-pharmacologic pain management was only implemented when the patient's cephalalgia is mild. Cephalalgia mostly being characterized with a moderate to severe pain intensity, implies that nurses would rely on pharmacologic pain management. Non-pharmacologic therapy also being a complementary approach, should be implemented with pharmacologic interventions when the patient's pain is moderate or severe to promote a comprehensive pain management.

The study showed that there is a small significant relationship between attitude and non-pharmacologic pain management and a small significant relationship between nurses' practices and the application of non-pharmacologic pain management. The application of non-pharmacologic pain management infers no difference in respective of sex, educational level and years of clinical experience.

The study recommends pain assessment education with the use of both unidimensional and multidimensional pain assessment scales. Health-care institutions should provide non-pharmacologic pain management education, enhancing nurses' skills to implement cognitive-behavioral therapy.

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Sanitation and Hygiene Practices, Attitude Toward Deworming and Prevalence of Soil-Transmitted Helminthiasis Among Coastal Dwellers in Macalelon Quezon: A Cross-Sectional Study

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Abstract

Sanitation and hygiene are important factors in the growth of soil-transmitted helminthiasis (STH), which nearly affects 24% of the world population; highest prevalence is seen in developing countries and specifically among school-aged children and those living in coastal areas. The purpose of this study was to assess the need for a supplementary educational program to a deworming initiative along the coastal areas in the municipality of Macalelon, Quezon. This cross-sectional study used a stratified sampling method to select family respondents. A questionnaire and data from the barangay hall and health center were collected and analyzed using descriptive statistics such frequency and percentage. The data showed a steady increase in prevalence in the months after deworming which is congruent with an 88% participations to deworming but still have a 50.4% re-infection. Furthermore, about 28% of the houses surveyed have open defecation for toilets and 49% of the mothers mentioned that their children do not always wear shoes/slippers. Additionally, 37% of the families don't cover their water containers during storage. In conclusion, despite the deworming efforts, there is recurring helminthiasis and therefore, needs a supplementary sanitation and hygiene education program alongside the deworming efforts and installation of proper toilets.

Keywords: *Soil-Transmitted helminthiasis, Deworming, Sanitation and hygiene program, school-aged children, Coastal Dwellers*

Water, sanitation, and hygiene are important factors that can be a risk or a protective factor towards infection and specifically to soil-transmitted helminth (STH). Different species are sometimes only seen in specific areas of the world, however, the World Health Organization (2016) identified that the species that makes up STH can be seen worldwide; as long as the environment favors their development. STH can be found in tropical and subtropical areas with the highest numbers found in sub-Saharan Africa, the Americas, China and East Asia (World Health Organization, 2016). The soil-transmitted helminths are commonly composed of the roundworms, scientifically known as Ascaris lumbricoides. whipworms which are known as Trichuris trichiura, and hookworms with two common species namely Necator americanus and Ancylostoma duodenale. According to the Center for Disease Control and Prevention (2017), soil-transmitted helminthiasis is predominantly seen in poor and developing countries. Furthermore, approximately 24% of the world's population are or were at least once infected with soil-transmitted helminths (World Health Organization, 2016.

Additionally, between Sub-Saharan desert, the Americas, and Asia, the vast majority of soil-transmitted helminthiasis occurs in Asia (Pullan & Brooker, 2012). Salam and Azam (2017) found 39 studies that reported the prevalence of helminthiasis in 19 areas in India and the most

prevalent helminth was determined to be Ascaris lumbriciodes According to research and surveys, helminthiasis is mentioned to be predominantly tormenting the school-aged children (Alemu, Tegegne, Damte & Melku, 2016; Odinaka et al., 2015).

A study that covered a total of 35,573 participants from 214 barangays across the three main islands of the Philippines. The study showed that a mean observed prevalence of Ascaris lumbricoides to be 23.7% in Luzon, 38.4% in the Visayas and 21.2% in Mindanao. Then for Trichuris Trichura, the survey presented the mean prevalence as 27.9% for Luzon, 53.6% for Visayas and 16.8% for Mindanao, and mean observed prevalence for hookworm was 4.5% for Luzon, 18% for the Visayas and 11.3% for Mindanao. The study also alluded that ages 5-19 years old are more at risk of acquiring helminthiasis than those under the age of 5 years old. It also showed that 20 years old and above have a higher risk of hookworm infection than those below 5 years old (Soares-Magalhães et al., 2015).

To achieve successful prevention and control over STH there should be a harmony of interventions from a medical, environmental and educational perspective. Several studies have shown that education about the cause and mode of infection of helminths, hygiene and sanitation practices, and other health topics, are some of the strategies to combat the helminthiasis. (Alelign, Degarege, & Erko, 2015; Alemu et al, 2016; Getnet, 2015; Mengistu, Melaku, & Tesfu, 2014). It was revealed that a high incidence of helminth infection was seen in a group of people with less or no awareness of proper hygiene and sanitation (Musa, 2017). A health-education package created by a group of researchers that was tailored to the situation was able to increase students' knowledge about STH and later led to a change in practice. Consequently, the increase in knowledge and change in practice resulted in the reduction in the number of incidence of infection within the year (Bieri et al., 2013).

Researches across the world showed that a water, sanitation and hygiene program (W.A.S.H) is effective in the prevention and control of infectious diseases. It was seen to control and reduces cases of cholera infections; it was also successful to lower the odds of Schistosoma infection and had the same results in reducing the odds and controlling Helminthiasis specifically the STH (Grimes et al., 2015; Strunz et al., 2014; Taylor, Kahawita, Cairncross, & Ensink, 2015).

This cross-sectional study determined the necessity for a supplementary educational program, on sanitation and hygiene, to the deworming initiative. Specifically, the study aimed to assess the following aspects (a) Prevalence in Helminthiasis (b) attitude towards deworming (c) sanitation and hygiene and (d) other risk factors

Methodology

This cross-sectional study mainly used descriptive analysis, such as frequencies and percentages on the data.

Sampling Technique and Assessment tool

A stratified sampling technique was used to determine the respondents. The researcher randomly selected 25 parents/households from each of the five different coastal located barangays which adds up to a total of 125 families. The respondents needed to have a kid who is of school-age specifically between 6-8 years old and is enrolled in elementary. The questionnaire is composed of questions that accumulate data on the general profile of the community, sanitation, personal hygiene and attitude towards deworming. The questionnaire was used to collect primary data while the secondary data were acquired from the barangay hall's and health center's archived data. The questionnaire was validated and translated into the local language (Tagalog) through forward and backward translation. Descriptive analysis was used to assess the data collected most predominantly frequencies

Data Gathering Procedures

Initially, the researcher approached the mayor and the five barangay captains for courtesy call and permission. Then, accompanied by the local government representative, such as the tanod or barangay health worker, the researcher went house to house to survey the family and retrieve the data. The assessment lasted for two weeks considering the availability of the local government representative and due to bad weather as well.

Results and Discussion

The data were organized into bar graphs for a visual easement.

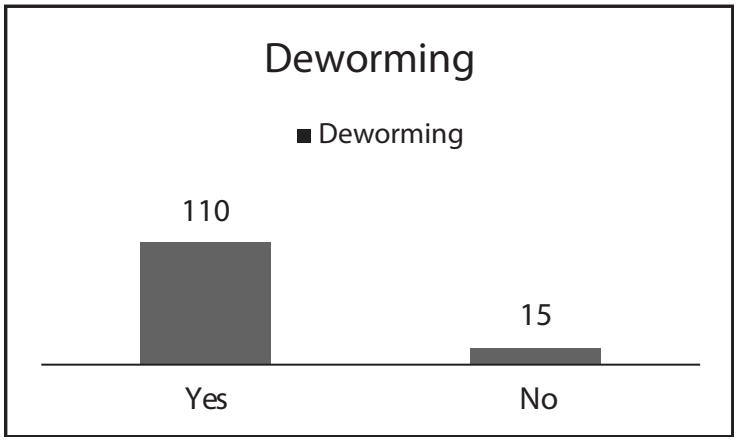

Figure 1. Number of individuals who participated in the deworming effort

Figure 1 presents that 110 out of 125, which is about 88% of the respondents have had their children participate in deworming conducted by the health center or school. Table 1 and Figure 2 show the effectiveness of the medical intervention done twice a year in the community.

Table 1
Frequency of STH Positive and Negative in the year 2017 in Macalelon

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	DEC
2	3	5	6	6	7	0	4	5	6	6	7
7	7	6	4	5	2	10	3	6	4	5	4

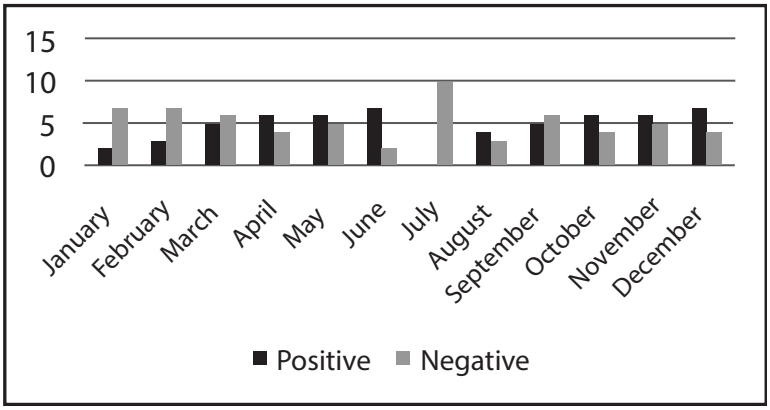

Figure 2. Visual presentation of the frequency of STH positive and negative

Table 1 and Figure 2 also shows an indirect relationship between the number of STH positive individuals and STH negative individuals. As the number of positives individuals increased from January to June the number of STH negative decreased. The same was seen in the months of July to December. The data also showed that the months of January and July had the lowest to zero number of STH positive individuals which can be attributed to the mass deworming as mentioned earlier.

Despite the high percentage of participation in deworming as seen in Figure 1, there is high reinfection among the community. Figure 3 shows that 63 (50.4%) of the parents say their children get re-infected by STH and the other 62 (49.6%) answer no.

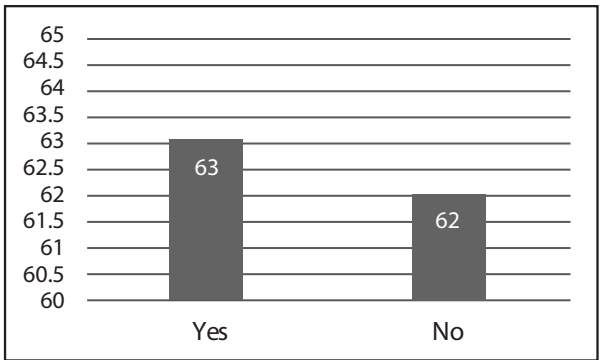

Figure 3. Number of re-infection children after being dewormed

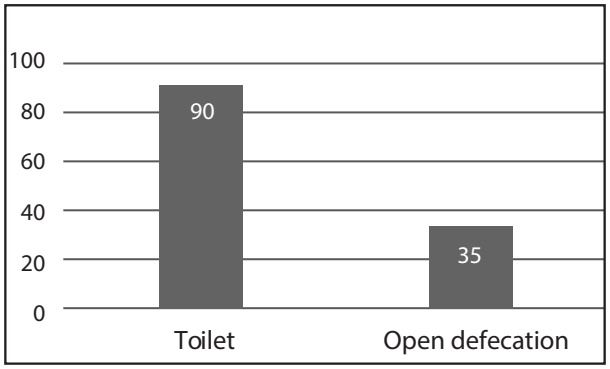

Figure 4. Defecation facility

As shown in figure 4, although the results revealed that 72% of respondents have proper toilet facilities in their homes, that still leaves 28% of homes using open defecation.

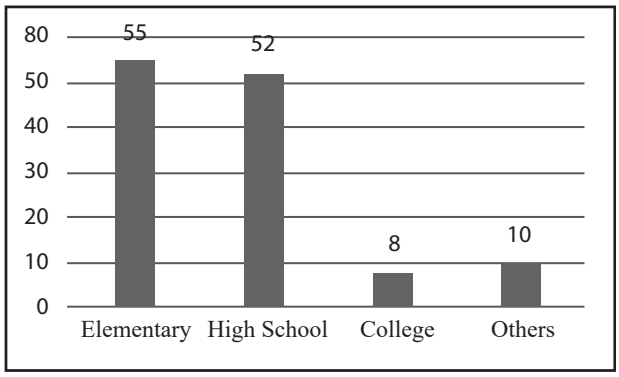

Figure 5. Educational attainment of mothers

Figure 5 shows that 55 (44%) of the mothers have accomplished elementary level or have at least accomplished 1 or more grade levels only. It also shows that 52 (42%), 8 (6%) and 10 (8%) of the mothers finished or accomplished one or more years of high school, college, and other vocational courses, respectively.

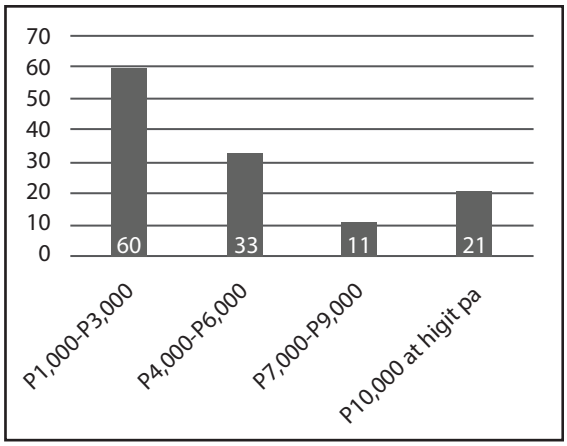

Figure 6. Monthly income of families

Moreover, Figure 6 shows that 60 (48%) of the families have a monthly income between P 1000-P 3000; 33 (26.4%) have a monthly income between P 4,000-P 6,000, and only 21 (16.8%) of the families earn more than P10,000.

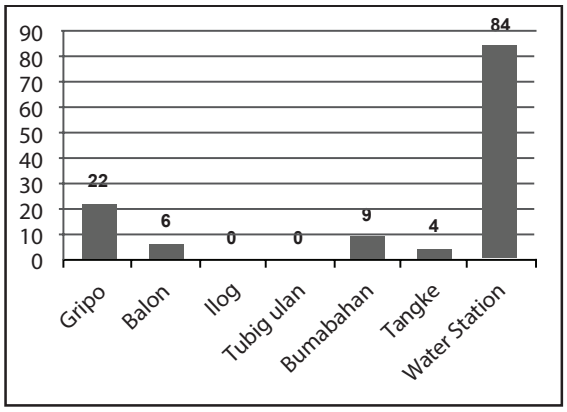

Figure 7. Source of water

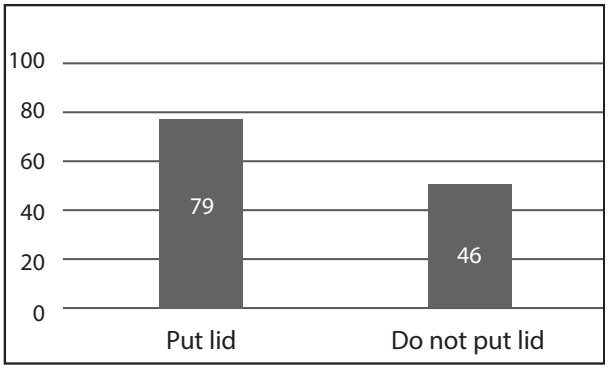

Figure 8. Water storage

Figure 7 presents that 67% of the respondents' main source of water is a water station. The remaining 33% are seen to get their water from water pumps, rivers, faucet and water well. In addition to that, Figure 8 reveals that 37% of the families don't cover their water containers during storage.

Table 2
Sanitation and Hygiene Practices of Children According to Their Mothers

	Rarely	Occasionally	Sometimes	Most of the time	Always
Footwear	1	13	32	15	64
Handwashing after using the toilet	4	4	25	28	64
Keeps nails clean and trimmed	1	2	8	18	96

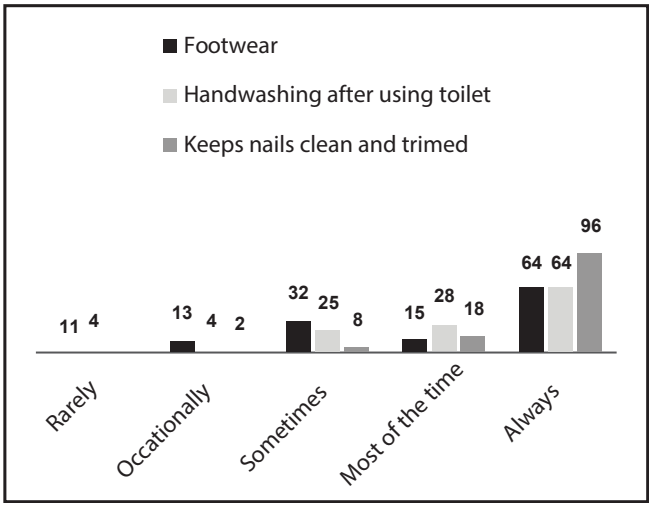

Figure 9. Visual presentation of sanitation and hygiene practices of children according to their mothers

Table 2 and figure 9 reveal that despite the high percentage of mothers choosing always in terms of footwear, handwashing after the toilet, keeping the nails clean and trimmed. The data still portrays that the remaining respondents, a total of 61(49%) for footwear, 61(49%) for hand washing after using the toilet, and 29(23%) for keeping nails clean and trimmed, were categorized into rarely, occasionally, sometimes, most of the time, that indicates that there are still relatively high number of children who do not always practice proper personal hygiene in terms of footwear, handwashing after toilet use, keeping nails clean and trimmed.

This study revealed that the community has a positive and willing attitude toward deworming. This is seen in figure 1, where 88% participated in the deworming efforts by the barangay health workers or school. Table 1 and figure 2 shows that the number of positive individuals and is at its lowest in the months of January and July, which are the months deworming is usually conducted in the area. This data was limited to the year 2017 due to the lack of record-keeping in terms of stool analysis by the health center. Nevertheless, this still implies that the deworming effort of the local barangay health workers and school is working and effective. Similar results were seen in the study by Anacio (2012), where the STH prevalence was measured and resulted in the low STH prevalence rate of 2.34% in Taublay, Benguet, Philippines. Anacio (2012) acknowledged the low results as the effect of the period the study was conducted because it followed a month after deworming.

However, the researcher also determined that, although effective, the effect of deworming is short term. Table 1 and figure 2 show a steady increase prevalence of STH as seen through the proceeding months after January and July. The survey also showed that approximately 50% of the parents mentioned their children getting re-infected despite the medical intervention. This is limited to the visual observation of the parents regarding the helminth in the stool of the child. Therefore, the number of children who are said to be re-infected could be more or less. The researcher gathered that this occurrence of re-infection and short term effects of deworming is due to the risk factors such as practice and environmental condition of the community. A study in Timor-Leste determined that anthelmintic treatment alone is insufficient to interrupt and control helminthiasis in the long run. The researchers suggest that environmental conditions and behavior that favor an infection or re-infection negate the long term prevention and control of STH infection (Campbell et al., 2017). In another study, places with high humidity and high temperature are found to be favorable conditions for helminths such as A. lumbricoides, Hookworms and T. trichuria (Chammartin et al., 2013). In other words, even when the individual gets treated with anti-helminth drugs but still of high risk due to environmental conditions and bad sanitation and poor hygienic practice still renders the individual to have a high probability of re-infection; as seen in this study. There is more to be done other than simply conducting deworming events; such as a health-education package that will deal with other risk factors (Bieri et al., 2013)

Further analysis of the data revealed risk factors that contribute to STH. It showed that 28% of houses use open defecation. This puts forward that waste is not properly disposed and contaminates the soils with ova and adult helminths. A study revealed that having open defecation or latrine is seen as a risk factor to helminth infection among the residents of the slams (Worrell et al., 2016). Pair this with the poor personal hygiene practice of the children the risk doubles. The practice is as important as knowledge. As seen in this study, the results showed that there is room for improvement in terms of the children's hygienic practices. This suggests that the risk of STH is still present and could harm the children. Several studies suggest that unhygienic practices such as not washing hands, not bathing and other studies added, untrimmed nails, eating food that fell to the ground, and walking barefoot are risk factors of helminthiasis (Mascarini-Serra, 2011; Mengistu et al. 2014). Other studies also concluded that defecation practices, and not washing hands after toilet use, are risk factors to helminthiasis as well (Getnet, 2015; Mirisho, Neizer, & Sarfo, 2017; Schmidlin et al., 2013; Suriptiastuti & Manan, 2016).

Practices such as the washing of your hand before a meal or after the use of the toilet are good but its protective factor is possibly negated by the type of water used and how it is done. Although the majority of the family's source of water is from a water station, which filters the water, the possibility of contamination is still present due to the practice of 37% of the families who do not cover their water during storage. In a particular study conducted in the slams of Kenya, Africa, it was discovered that the limited accesses and inadequate storage or poor quality of sanitation considered a risk to STH (Worrell et al., 2016). According to another study where they examined factors in washing of hands such as type of soap, the temperature of water, and lather time in terms of how these factors effectively help in reducing the presence of an organism. The researchers used E. coli as the measured dependent variable. At the end of the study the researchers concluded that factors such as water temperature and volume of soap haves no significant effect in reducing the organism (Jensen et al., 2017). That means whether you wash with cold or hot (warm) water and using a lot or little a soap, the statistical results will still have the same outcome.

However, Jensen et al. also discovered that the lather time has a significant effect in reducing the presence of organisms. An average of 16 seconds and more was determined to show the most noticeable decrease in the organism. The 16 seconds fits within the recommended handwashing duration by the Center for Disease Control and Prevention. Furthermore, a study, that examined handwashing behaviors of college students, determined that out of the 3,749 observed subjects only

5% of them wash their time more than the 15 seconds (Borchgrevink, Min cha, & Yun Kim, 2013). This highlights the importance of washing your hand for the right amount of duration. A simple wetting for a second or two is not enough.

Other indirect risk factors were also discovered during the data analysis. These factors are the educational attainment of parents and the economic status of the family. These two factors have a distinct relationship and they can be both a risk and protective factor depending on the situation. The data gathered showed that the majority of the parents have only accomplished 1 or more grade levels and earn between P1,000-P3,000 a month which categorized them as low-income citizens. Based on the data, these two factors becomes a risk factor to helminthiasis. A study stated that 90% of the helminth infections were found in families that have low economic status (Deka, Kalita & Hazarika, 2016). The low educational attainment is seen in parents, especially if the mothers have a significant effect on the children. A study concluded that the educational attainment of the parents could have a positive or negative causal effect on their children (Dickson, Gregg, & Robinson, 2016).

Conclusions and Recommendation

In conclusion, mass deworming, although effective, needs to be companied with education and community development. The community observed by the researcher is at risk of STH. This is despite of high participation by the community in deworming, however, due to the presences of risk factors it led to a 50.4% re-infection and a steady increase of prevalence after deworming. The mass deworming implemented by the health centers, schools, and the local government units is an effective tool against STH, however, as seen in data collected and other studies, mass deworming alone is not enough for long-lasting control and prevention of STH. Even more so when risk factors such as hygienic practices and environmental sanitation are not addressed. The presence of the risk factors can lead to anti-helminth drugs or medical intervention to only be a Band-Aid to the problem and which will eventually stop working.

The researcher recommends an educational health program to both parents and children be implemented and will serve as a supplementary program to the medical intervention in the form of deworming. A health program that will share knowledge and promote change in practice or behavior may also be considered. An increase in knowledge is a good start but in the end, translating that knowledge into practice is a better outcome. In most cases, the lack of proper practice is a result of a lack of knowledge. Furthermore, the installation of toilets for houses or families that may still use open defecation will help the environmental sanitation of the community.

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Illness Beliefs as a Correlate on the Quality of Life of Renal Failure Patients

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Abstract

The quality of life of patients has been an issue in the health care system in recent times. Patients may have similar health conditions. However, the quality of life that they may be experiencing may differ, especially for those who are diagnosed with End Stage Renal Disease (ESRD). The illness beliefs of the ESRD patients may affect their quality of life. The objective of the study was to determine the relationship between illness beliefs and quality of life of ESRD patients. The study employed a descriptive-correlational design. It utilized the purposive sampling technique to recruit 238 ESRD patients. These patients were conveniently selected from three government teaching hospitals in Ghana. Ethical considerations were observed during the study. The statistical treatments used were Pearson Correlation, and t-test to address the research questions. The study revealed that there is a low positively significant relationship between illness beliefs and quality of life of ESRD patients. This means that as their illness belief improves their quality of life also improves. Also, there was no significant difference in the quality of life of ESRD patients when sex was considered. The study recommends that health professionals should be culturally sensitive to the health beliefs of the ESRD clients regarding their illness; health professionals should take time to know and address the patients' misconceptions. With this, they can truly develop cultural competence as well as patient-centered plan of care, hence, a good quality of life.

Keywords: *quality of life, illness beliefs, renal failure patients, End Stage renal Disease (ESRD)*

Quality of life of patients has been an issue in the health care system in recent times. Patients may have similar health conditions. However the quality of life that they may be experiencing may differ, especially for those who are diagnosed with chronic illnesses. Karen et al. as cited in Shdaifat, and Manaf (2012), posit that quality of life is a very vital indicator of the health and well-being of an individual.

Chronic kidney disease is one of the growing worldwide public health concern characterized by an irreversible worsening of renal function. This condition could lead to end-stage renal disease and is seen as a debilitating condition which necessitates lifelong treatment or renal replacement such as renal transplant, peritoneal or hemodialysis.

Recent records by European Renal Association Stavropoulou et al. (2017) in Greece, reveals an estimated population of over a million kidney failure patients with 13,359 of them being ESRD patients. Matzo and Sherman as cited in Sapkota, Sedhain, and Rai (2013) reveals that the word's population receiving hemodialysis when projected was over a million and growing by 7% annually. Also, the incidence of patients with end-stage renal disease (ESRD) requiring dialysis (Bujang, Adnana and Hashim 2017), has been multiplying in Malaysia from 18 per million population (pmp) in 1993 to 231 pmp in 2013.

Fresenius Medical Care (2012), reports that there have been more than 27 million patients according to the global perspective report in 2011, who have been diagnosed with ERSD, with a 7% annual growth rate all over the world. However, Bamgboye as cited in Achempim-Ansong and Donkor (2012), states that there is an increasing annual rate of 8% globally. A study made by Lobo, Prabhu, Kamath, and Bhat, (2017) reveals that the incidence of ESRD is fast growing in India, the current state of the true picture is not known because of improper record keeping of registries and failure of reporting systems.

In Africa, epidemics of end-stage renal disease (ESRD) have not received much attention, hence, not well known unlike other non-communicable diseases such as diabetes and hypertension with diabetes nephropathy still remaining the leading cause of ESRD in the global world and also in Africa (Noubiap, Naidoo, & Kengne 2015; Davids, Caskey, Young, & Singh, 2017). Boima et al. (2017), assert that the disease burden on ESRD is higher among people of the African race. Alalawi, Ahmed, AlNour, Noralla, and Alhadari (2017) in their study revealed that in Dubai, ESRD prevalence was 152 patients pmp per year.

In Ghana, chronic illnesses such as ESRD is viewed as an economic as well as public health/ developmental challenge (Vivekanand et al. 2017). Mate-Kole as cited in Achempim-Ansong and Donkor (2012) reveal that 10% of all medical admissions are renal failure cases that need hemodialysis. He also in this regard agree with Ababio (2013) and states that peritoneal dialysis is not done in Ghana, but kidney transplant was recently introduced. Furthermore, a report by Asie-du-Addo (2013), showed that the hemodialysis facility at the Korle-Bu Teaching Hospital in 2010 recorded a 15% incidence of ESRD among all medical admission cases. In the health care system, quality of life among these patients is a major area of focus that cannot be overlooked.

According to Wu, Lin and Hsieh (2015), ESRD patients had a different belief about their illness, such as it is caused by aging, diet, genetics, stress, long term use of medication and karma.

Renal failure is increasing in Ghana Bekink (2018), and the researcher considers this as a challenge to nurses and other health professionals to look into the quality of life of patients experiencing renal failure. Moreover, there is a paucity of literature examining the illness beliefs to the quality of life of renal failure patients, thus this study.

The study aimed to determine the influence of illness beliefs on the quality of life of renal failure patients. Specifically, it answered the following questions.

1. Do illness beliefs relate to the quality of life of the respondents?
2. Is there a significant difference in the quality of life of the respondents when sex is considered?

It is believed that most chronic illness typically have their own beliefs thus there are myths and other cultural superstition that is being attached to it. For example, in Ghana, chronic diseases are believed to be debilitating/life threating condition. Mostly the popular notion is that people do not just suffer illness by chance. Serious illness is believed primarily to have its origin in a supernatural cause. The people see other causes of illness as secondary. The kind of illness belief attached mostly influence the outcome of diseases condition hence affecting patient's well-being/ quality of life. The very common explanation is that, in serious illnessess, there is a root cause of the supernatural, the most frequently awaken agency is ancestral spirit anger (Ojua & Omono, 2012). According to Leventhal et al., as cited in Aujla et al. (2016) illness beliefs are formed either through the information obtained from peoples' social environment, such as health care providers or family; cultural knowledge of the illness; and current conceptions including symptomatic information as well as past experiences of the disease. Besides, Jayanti, Foden, Wearden and Mitra (2016), say that the beliefs of the disease are influenced by the experience and knowledge in both the illness and its treatment. In addition to the above statements, illness beliefs are individual and are acquired with the passage of time in life as well as during the course

of an illness. Beliefs serve as a concept that enables health care providers and patients to come to the realization of making meaning into an illness (Wright as cited in Järemo, Arman, Gerdle, Larsson and Gottberg, 2017). Studies have shown that illness beliefs predict the outcome of treatment as well as having the potential to be improved by treatment (Crawshaw, Rimington, Weinman and Chilcot, 2015; Siemonsma et al. 2013). The study of Abraham and Ramachandran (2012), revealed that patient's QoL could be enhanced by improving the awareness and removing the misconceptions about the disease. The study of Knowles, Swan, Salzberg, Castle, Langham (2014), reveals that the beliefs about an illness have been shown to portray how patient adapt to their illness. Laventhal, Mayer and Nerenz as cited in O'Donovan, Painter, Lowe, Robinson, and Broadbent (2016), say that there is a proposal that is made in the common sense model that when a patient is being attacked with a disease condition, the individual quickly forms a lay man's perception about the new situation he finds himself. In addition, O'Donovan et al. (2016), points out illness beliefs had a relationship with psychological outcomes. Personal illness beliefs are stories with the potential to modifiable prognostic factors (Chilcot, 2012). Clarke, Yates, Smith and Chilcot (2016) state that patients with chronic kidney disease (CKD) create certain beliefs to their illness.

According to National Kidney Foundation (2017), signs and symptoms of renal failure may appear in the form of nausea, vomiting, loss of appetite, weakness, increasing tiredness, itching, muscle cramps (especially in the legs) and anemia. Mayo Clinic, (2018) include in their article on symptoms of ESRD nausea and vomiting, chest pains, sleep problems, fatigue and shortness of breath. Meanwhile, de Goeij Ocak, Rotmans, Eijgenraam, and Dekker (2014), stipulated that ESRD symptoms as a result of the development of uremia are a pain, upset stomach, sleep difficulties, stiff joints, wheeziness, nausea, breathlessness, weight loss, fatigue, headaches, dizziness, and loss of strength. Chilcot (2012), expressed that 14 symptoms were experienced by ESRD patients. The study of Clarke et al. (2016) showed that symptoms were experienced by ESRD patients, but in Pagels, Soderquist, and Heiwe (2015), they specified that patients experienced an average of 13 symptoms. Based on this, there was an assertion that as more symptoms occur in the end stage of the disease, patients perceive these symptoms as the consequences of the disease. Clarke et al. (2016), share this same view as the study identified that if ESRD patients perceived illness as negative, their prognosis of the illness also progresses.

Notwithstanding the symptoms from different studies, the pathophysiology of ESRD reveals that as chronic kidney disease progresses to ESRD, individuals may develop nausea, vomiting,hiccup, anorexia, tiredness and weakness, loss of appetite, insomnia, reduced mental alertness, convulsing and cramping muscles, comatose state, stup, or, feet and ankle swelling, constant itching, chest pain whenever fluid accumulates around the heart's lining and shortness of breath. Anemia, sexual problems and kussmaul breathing also may be other symptoms. (Huether, McCance, Brashers and Rote, 2017; Sherwood, 2016; Le May 2017; White, Duncun and Baumle 2013; Crowley, 2013)

ESRD is globally alarming and suffered by elderly populations as well as the prevalent of some chronic noncommunicable diseases like diabetes mellitus and hypertension (Griva et al. 2012). In Iran, for example, patients point their health problems to other people (Aliha, 2015). Lee et al. (2016) attested that diabetes mellitus is the commonest cause of end-stage renal disease as perceived by patients. In cross - sectional analyzes of ESRD patients, a study was conducted to examine illness beliefs and discovered that ESRD patients had a significantly higher percentage among those who disagreed that cigarette smoking was responsible for their kidney failure. ESRD patients who were associated with chance or misfortune with their disease condition were more than 40%. Another greater percentage of ESRD patients also attributed their disease to their own attitudes and approximately 25% of ESRD patients noted that poor medical care contributed to the cause of their disease. (Jayanti et al. 2016).

In the study of Jansen et al. (2013), hemodialysis patient perceived more illness and treatment consequences, thus there was a negative perceived consequence. Renal failure patients believed that the illness had a great impact on their lives (Meuleman et al. 2015; Wu et al, 2015). Fradelos at al. (2015), in their study showed that consequences of ESRD as a result of the patient's condition might be in the form of physical social and mental challenges. In the study of Stavropoulou, Grammatikopoulou, Rovithis, Kyriakidi, Pylarinou, and Markaki (2017), the greater financial burden was said to be a major consequence. Another consequence is that in the diseases process, Kimmel as cited in Finnegan-John & Thomas, (2013), spouses of these patients who turn to be caregivers later in life suffer from depression. Finnegan-John, and Thomas, (2013), writes that other consequences are changes in responsibility and relationships among spouses and within the family line. In the study of Intiso (2014), researchers mentioned social cost as a burden in ESRD. Several patients with ESRD saw changeover period to dialysis troublesome and hurting (Combes, Allen, Sein, Girling and Lilford, 2015) and they live with these distress all through their time on dialysis, as a result of the stress of treatment, loss of sexual function, decreased physical and cognitive functioning, altered body image, as well as knock-on effects for occupation, relationships and way of life (Taylor, Taylor, Baharani, Nicholas and Combes, 2016).

Lin et al. (2013), report that the hemodialysis treatment they receive controlled their illness A study by Jansen, et al (2013), posit that patients on hemodialysis had a strong belief that their treatment controlled their illness.

In this study, quality of life is measured in terms of physical, psychological, social and spiritual well-being. According to Joshi (2014), quality of life is seen as an essential factor that should be understood well because ESRD is seen as a debilitating condition that requires a demanding, careful and considerable measures since treatment is mostly lifelong. A study by Abraham and Ramachandran (2012) shows that the quality of life of ESRD patients in India is very poor, hence a lifelong treatment for survival.

Physical well-being is the overall condition of the body (Division of Human Resources 2017). It may comprise of good eating, regular exercise and getting adequate sleep; this enhances the individual's life by having sufficient energy and motivation to get things done in his or her daily life. In this study, physical well-being has been associated with the physical health of ESD patients undergoing hemodialysis. Factors affecting physical well-being according to Gerogianni and Babatsikou, (2014), were said to be anemia and pain whereas diet (eating disorders), exercise, sleep and sexual dysfunction were considered to be behavioral factors. Meanwhile, according to Finnegan-John, and Thomas (2013), fatigue and decrease in energy were said to be the significant factors that affected the physical well-being of the ESRD patients. It also affected their normal life, social interaction as well as family life.

Theofilou (2012), in his study writes that patients with good social supports were less hospitalized and had better quality of life when compared with those without social support. The researcher added that interventions that aim to provide social support and enhance independence need to be investigated. Gerogianni and Babatsikou. (2014) states that ESRD has a significant influence on the patient's social life hence affecting the well-being of hemodialysis patients. They also emphasized that rendering social support, family support and support of friendly environment in patients with renal failure is linked with reduction in depressive symptom hence psychological well-being.

The World Health Organization (WHO) defines psychological well-being as a state in which patients rectify their own potential, can manage with the normal stresses of life, and work effectively and efficiently thereby improving production and contribution to the community (Division of Human Resources 2017). A patient may decide to quit from dialysis treatment and accept to die due to the psychological distress being faced (Lacson, et al. 2012).

The World Health Organisation according to Vitillo Puchalski (2014), recognises the vital role spirituality play in complex and chronic illnesses. According to Lorig, Holman, Sobel, Laurent, Gonzalez, and Minor (2012), emotional experiences such as depression, anger and frustration may occur in individuals with chronic illness in which case the individual might feel overwhelmed with the duty that comes with managing the illness. In this way, the individuals level of spirituality serves as a means of support and comfort that helps with coping with the chronic illness. This indication that spiritual well-being brings meaning in the lives of individuals with chronic illnesses help them deduce a positive interpretation from their illness (Lorig et al. 2012). O'Briens (2014) reveals that finding spiritual meaning while living with chronic illness may lead to spiritual well-being. The researcher added that the quality of one's faith dictate his or her ability in seeking after spiritual well-being.

A regression coefficients of mediation analysis as used by Quaye, (2015) in their study proved that there was an initial significant relationship between illness beliefs and quality of life ($\beta = .619$, $p < .001$) with beliefs of illness comprising 38.3% ($r^2 = .383$, $p < .001$) of the variance in quality of life. The results of the study indicated on the Pearson Product Moment Correlation also showed that illness beliefs are positively related to quality of life ($r = .619$, $p < .01$). Therefore their prediction that there will be a positive correlation between illness beliefs and quality of life was supported as highlighted by the study of Clarke et al. (2016). In the study of Croom (2013), higher illness beliefs were associated with higher quality of life. Moreover, according to Lorig et al. (2012), the indication that spiritual well-being brings meaning in the lives of individuals with chronic illnesses help them deduce a positive interpretation from their illness. Rydén, Wolfe & Martin (2016), asserted that it is essential to make inquiries into patient's perceptions, for example, the awareness about patients beliefs of their illness will aid in how they are being cared for and should be driven towards the attainment of QoL.

Sex has an impact on patients with ESRD especially when it advances, hemodialysis treatment accessibility and the kind of recommended treatment (Patzer & McClellan 2012; Australian Institute of Health and Welfare, 2012). A study conducted by Wu et al. (2015) shows that gender was one of the factors that contributed to the differences in the perceived causes of illness among ESRD patients. Out of 125 patients in the study of Anees et al. (2014), 89(71.2%) were male and 36(28.8%) were females.

Hecking et al., (2014) revealed that majority of men (59%) when compared to women (41%), underwent hemodialysis as great diference detected between nations. The normal expected glomerular filtration rate at the start of hemodialysis was found to be higher in men than in women. In Fernandes and D'Almeida, (2013), male 37 (74%) of the study population formed the greater number. Leung, (2014), also emphasized that more men receive hemodialysis than women. In the study of Bayoumi et al., (2013), it showed that male patients had a remarkable reduced QoL. The findings of this present study are supported by the study of Lopes et al. (2014) that utilized 101 participants of whom, 69 were male, and 32 were female. The study found no significant difference in the QoL among males and females who are chronically ill (Quaye 2015).

Methodology

The study used descriptive correlation to determine the influence of illness beliefs, resilience and compliance on the quality of life of renal failure patients. The sample population of the study was comprised of 238 End Stage Renal Disease patients who were undergoing maintenance hemodialysis in three selected government teaching hospitals in Ghana. Convenience sampling was used in choosing the hospitals while purposive sampling was utilized in selecting respondents for the study. Inclusion criteria were as follows: End Stage Renal Disease patients undergoing hemodialysis two to three times a week and ages 18-60, irrespective of gender. Self-constructed and

adapted but modified questionnaire was used to gather the data for the study. Some of the adapted questionnaires were obtained from different studies and literature.

Ethical guidelines for professional conduct such as the Ethical Review Board approval was taken as well as authorization letters were sought for the study. Participants were given adequate information regarding the study as well as the decision to choose to consent or decline participation. The study was analysed by using Statistical Package for the Social Sciences (SPSS) version 22. Question one was analyzed by using Pearson correlation to test the relationsip between illness beliefs and quality of life. Question two utilized t-test to find the significant difference in the quality of life when sex was considered. The study showed that the majority of respondents were males 147 (61.8%) while 91 (38.2%) were females.

Based on the research question above, the hypothesis of the study are be:

1. There is no significant relationship between illness beliefs and quality of life of the respondents.
2. There is no significant difference in the quality of life of the respondents when sex was considered

Results and Discussions

The Table below shows that there is a significant correlation between illness beliefs and quality of life. This correlation between illness belief and QoL is noted to be positively significant ($r = 0.155$, $p = 0.016$). Therefore the study rejects the null hypothesis that states that there is no significant relationship between illness beliefs and quality of life. The more the respondents agree to the statements on illness beliefs, the better the quality of life. In a more detailed analysis of illness beliefs to quality of life there is a positively significant relationship between physical ($r = .187$, $p = .004$) and spiritual ($r = .131$, $p = .043$) well-being. However, the relationship between social ($r = .057$, $p = .380$), and psychological ($r = .119$, $p = .067$) well-being are not significant. Therefore illness beliefs are significantly related to the quality of life in terms of physical and spiritual well-being of ESRD patients. This could be due to their beliefs on the fact that diet played a major role in their illness and that, their illness is largely due to their own behavior.

Table 1
Relationship of Illness Belief and Quality of Life

	Physical Wellbeing	Social Wellbeing	Psychological Wellbeing	Spiritual Wellbeing	Quality of Life
Illness Belief					
R	0.187*	0.057	0.119	0.131*	0.155
P	0.004	0.38	0.067	0.043	0.016

*N=238; **Correlation is significant at 0.01 level (2-tailed);*
**Correlation is significant at 0.05 level (2-tailed)*

As a matter of fact, they did not attribute ESRD to superstition. Despite the fact that respondents agree that their illness has serious negative consequences such as depression symptoms, self-image, and esteem, changes in responsibility among relatives, challenges in relationships among loved ones, decreased physical functioning, they also found comfort and strength in their faith or spiritual beliefs. This resulted to a reason for living, being peaceful, having a sense of purpose in life as well as a sense of harmony within themselves. As a result of the faith they possess and strong spiritual beliefs they knew that irrespective of whatever that happens in the course of their illness, they will be okay. A regression coefficients of mediation analysis as used by Quaye, (2015) in their study proved that there was an initial significant relationship

between illness beliefs and quality of life (β = .619, $p < .001$) with beliefs of illness comprising 38.3% ($r^2 = .383$, $p < .001$) of the variance in quality of life. The results of the study indicated on the Pearson Product Moment Correlation also showed that illness beliefs are positively related to quality of life ($r = .619$, $p < .01$). Therefore their prediction that there will be a positive correlation between illness beliefs and quality of life was supported as highlighted by the study of Clarke et al. (2016). In the study of Croom (2013), higher illness beliefs were associated with higher quality of life. Moreover, according to Lorig et al. (2012), the indication that spiritual well-being brings meaning in the lives of individuals with chronic illnesses help them deduce a positive interpretation from their illness. Rydén, Wolfe & Martin (2016), asserted that it is essential to make inquiries into patients perceptions, for example, the awareness about patients beliefs of their illness will aid in how they are being cared for and should be driven towards the attainment of QoL.

Results on the comparison of quality of life of the respondent's sex show that there is no significant difference of sex to respondent's quality of life hence the null hypothesis which states that there is no significant difference in the quality of life of the respondents considering their sex ($t = 0.630$, $p = .529$) is not rejected.

Table 2
The Difference in Quality of Life Considering Sex

Quality of Life	Sex	*N*	Mean	*SD*	*T*	Sig (2 tailed)	Qualitative Descriptor
Physical Wellbeing	Male	147	2.667	0.525	1.8	0.073	Not significant
	Female	91	2.539	0.549			
Social Wellbeing	Male	147	3.036	0.397	-0.781	0.435	Not significant
	Female	91	3.077	0.392			
Psychological Wellbeing	Male	147	2.939	0.47	0.151	0.88	Not significant
	Female	91	2.93	0.417			
Spiritual Wellbeing	Male	147	3.174	0.333	0.514	0.608	Not significant
	Female	91	3.151	0.315			
Overall Well-being	Male	147	2.954	0.362	0.63	0.529	Not significant
	Female	91	2.924	0.337			

A further analysis of the factors of quality of life all indicated non-significant relationship to the sex of the respondents; physical ($t = 1.800$, $p = .073$), social ($t = -0.781$, $p = .435$), psychological ($t = 0.151$, $p = .880$) and spiritual ($t = 0.514$, $p = .608$) wellbeing. This implies that sex is not a distinguishing feature in defining the QoL of the respondents. Irrespective of respondent's sex, they perceive to have a good quality of life. Hecking et al., (2014) revealed that majority of men (59%) when compared to women (41%), underwent hemodialysis as great diference detected between nations. The normal expected glomerular filtration rate at the start of hemodialysis was found to be higher in men than in women.

In Fernandes and D'Almeida, (2013), male 37 (74%) of the study population formed the greater number. Leung, (2014), also emphasized that more men receive hemodialysis than women. In the study of Bayoumi et al., (2013), it showed that male patients had a remarkable reduced QoL. The findings of this present study are supported by the study of Lopes et al. (2014) that utilized 101 participants of whom, 69 were male, and 32 were female. The study found no significant difference in the QoL among males and females who are chronically ill (Quaye 2015).

Recommendations

The study recommends that health professionals should be culturally sensitive to the health beliefs of the ESRD clients regarding their illness; health professionals should take time to know and address the patients' misconceptions. With this, they can truly develop cultural competence as well as patient-centered plan of care, hence, a good quality of life.

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The Influence of Adaptive Coping Behavior on Stress of Nursing Students

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Abstract

Due to the numerous academic and clinical requirements, nursing students have been noted to experience stress. These students have adopted various forms of coping behaviors. This descriptive-correlational study aimed to examine the influence of adaptive coping behavior of nursing students on their stress level. The study also measured the extent of stress and adaptive coping behaviors of nursing students. One hundred nursing students from level 2 and level 3 of the College of Nursing of the Adventist University of the Philippines (AUP) were conveniently sampled to answer a self-constructed survey questionnaire. The statistical treatments used were the central tendency of the mean and standard deviation, T'Test, and Pearson Correlation to address the research questions. Results revealed that the nursing students have a high-stress level and a corresponding high adaptive coping behavior. There exists a small positive significant relationship between adaptive coping behavior and stress. The coping behaviors of the nursing students showed a significant difference in terms of the year of study and the residential status. Furthermore, a significant difference was found in the stress and coping behavior of nursing students. The study revealed that the nursing students' high-stress level is a result of the examination and workload. The preferred adaptive coping behavior was transference by listening to music. The female nursing students were identified to be more stressed than males. It is therefore recommended that the implementation of an effective stress management program for nursing students in AUP should encompass problem-solving, emotional aspect, and optimism.

Keywords: *Adaptive Coping Behavior, Stress, Nursing Students, Transference*

Stress is one of the fundamental human endeavor issues, regardless of a person, male or female. Stress brings an increased rate of depression to the individual, cardiovascular disease, and life-menacing health problems to the individual. The stress issue affects students, but nursing students are among the most affected population.

According to Alsaqri (2017), the nursing education program focuses on the development of qualified nurses who are able to use their knowledge and skills in professional practice. Nursing education consists of theoretical knowledge and clinical practice directed at preparing nursing students for the practice of nursing professions. (Hamaideh, Al-Omari, & Al-Modallal, 2016). Hamaideh and Ammour (2011) deem nursing a stressful profession because nurses deal with clients with diverse backgrounds with complex clinical - related health issues. Students in nursing experience a high level of stress during their period of academic and clinical skills. (Chen and Hung,

2017). Mohmoud et al (2012) expressed that, stress is unavoidable or inevitable, however, nursing students who are able to cope with stress have good academic performance as well as their social, physical and emotional facets of life. (Jamama, Shdaifat, and AlAmer, 2018).

Stress, as defined by the World Health Organization (WHO) as "the 21st-century health epidemic," has a global economic burden of about $ 300 million annually. The detrimental effect of stress can be devastating to our health. The World Health Organization (WHO) estimates that one of the main causes of disability by 2020 will be stress-related disorders (Fink, 2016).

Approximately 55 percent of their students claimed academics stress being their highest stressor in a publication by the New York University (2016). Six out of ten students in their studies enunciated unproductivity due to stress. Anxiety, depression, and inability to cope include emotional and physical related symptoms associated with stress.

Studies of nursing-related stress were a global phenomenon. The sources of stress on the student nurse were explored in a systematic review by Pulido-Martos, Augusto-Landa, & Lopez-Zafra, (2012). The study concluded that the sources of nursing students ' stress are academic factors such as revision, their lecturers ' workload, and clinical factors such as unknown patient and clinical duty situation, error with a patient or improper handling of equipment.

A study by Liu, Gu, Wong, Luo, & Chan (2015) in China examined the perceived stress in their clinical environment of nursing students. Using 203 nurses' students as their respondent in a cross-sectional descriptive study. The results revealed that in their clinical environment, nursing students experienced a higher level of stress that influences their physical and emotional health.

Senturk & Dogan (2018) looked at the stress experienced by nursing students in their clinical education in a descriptive cross-sectional study. The researchers used 318 nursing students in Turkey's southern region of Anatolia as their respondents. The researchers utilized the student information form and stress in questionnaires for nursing education. The average number of nursing students was 29.50± 8.0 from academic stress and 29.24± 8.48 from clinical practice. They concluded that nursing perceived stress exceeded the moderate level. When they encounter stress in academic and clinical settings, the researchers failed to dive into the nursing student's coping behavior.

In the Philippines, Labrague (2014) explored stress, stressors, and response to nursing student stress at a government nursing institution, Samar State University. The researcher revealed that student nurses experienced a high level of stress and had an impact on their nursing students ' physiological, psychological, and social health. The researcher concluded that stress and related factors should be understood by nursing students. However, the researchers failed to include nursing students ' coping behaviors in addressing stress.

There is a paucity of literature that examines nursing student adaptive coping behaviors and stress of nursing students in faith-based institutions. Additionally, there is limited literature that explored the residence in relation to student's coping behaviors and stress.

The aim of the study is to examine the influence of adaptive coping behavior on the stress of nursing student at the Adventist University of the Philippines.

Specially, it will answer the following questions;

1. What is the extent of the stress level of nursing students?
2. What is the extent of adaptive behavior of nursing students?
3. Is there a significant relationship between adaptive coping behavior and stress?
4. Is there a significant difference between adaptive behavior and stress in terms of;
    a) Sex
    b) Year of study
    c) Residence

1. There is no significant relationship between adaptive coping behavior and stress.
2. There is no significant difference between adaptive behavior and stress in terms of:
   a) Sex
   b) Year of study
   c) Residence

In 1984, Lazarus and Folkman as cited in Hamaideh and Al-Omari (2017), defined coping as "the process of managing demands that are appraised as taxing or exceeding the resources of the individual". A person's ability in the presence of stress to deal with the internal and external environment. In a similar vein, Rafati, Nouli, Sabzevari, and Nayeri (2017), consider coping as an effective way to use behavioral and cognitive effort to manage stress. A person manages his or her stress from the internal and external environment depending on the nature of the stress.

Sheu, et al (2002), identified four types of coping behavior namely; problem-focused, optimistic, emotional-focused, and transference. Problem-focused behavior of coping focuses on problem-solving or performing an activity to distract the source or origin of stress. It consists of planning strategies, decision making, information gathering, and conflict resolution. Usually, this type of coping behavior is aimed at getting resources to cope with stress and include task-oriented and specific situations. (Baqutayan, 2015).

Emotional focused coping is on reducing or controlling the emotions associated with the stress-causing situation. It includes cognitive strategies such as looking at the bright side or behavioral strategies such as searching for emotional support, drinking, or drug use (Baqutayan, 2015). Optimistic-focused coping involves searching for meaning in adversity and drawing on beliefs, values, and goals to develop the meaning given to a stressful situation and personal response. Transference-focused coping is the reframing of a situation to see it in a positive light It has been associated with increased positive effects significantly and independently (Kelada, Hitlock, Hasking, & Melvin, 2016).

Effective coping behavior promotes the composure between the internal and external environment that causes stress, hence the effectiveness of coping behavior depends on the nature of the situation, further decreasing the negative effect of stress. This means that coping behavior in one situation can be effective but cannot be effective in another stress situation (Baqutayan, 2015). Several literature studies show that the effective coping behavior used by nursing students is a problem-solving approach, while avoidance is the least nursing student used when stressed (Alsqari,2017; Mahfoliz and Alsahli, 2016).

The term "stress" was coined in 1936 by Hans Selye, who defined it as "the body's non-specific response to any demand for change," according to he American Institute of Stress (2018). Stress is defined, according to the World Health Organization, as "the reaction people may have presented demands and pressures that do not match their knowledge and abilities and challenge their ability to cope. They also explained that stress is not a disease but an intense result of problems with physical and mental health. Stress can be both positive(eustress) and negative (distress).

Lazarus and Folkman (1984) posited that stress as "a particular relationship between the individual and the environment that the individual considers being taxing or exceeding his or her well-being." However, stress can affect a student in both positive and negative ways, it depends on how the student controls or handles the stress. Bernstein as cited in Subramani and Kadhiravan (2017), postulates that stress "is a negative, emotional, cognitive, behavioral, and physiological process occurring as a person attempts to adjust to or deal with stressors. Stress affects all sorts of people and has individual consequences.

In the works literature, the sources of nursing students have been identified as Academic stress that includes examination, workload and assignment, and clinical stress that includes inadequate professional knowledge or nursing skills, fear of unknownness, involvement in various clin-

ical activities, and patient care (Pulido-Martos, Augusto-Landa, & Lopez-Zafra, 2012; Al-Zayyat, & Al-Gamal, 2012).

Depending on the nature of stress, stress in nursing can be positive and negative. Negative stress may not only affect academic performance but will also affect their physical health, such as increased blood pressure, gastrointestinal and cardiac conditions (Reeve et al, 2013). In clinical practice, nursing students ' stress may include a psychologically related condition such as anxiety, anger, guilt, depression, and may affect their patient's holistic care. Their excitement and motivation are increased by positive stress (Reeve et al, 2013).

Physiological stress can be posed as stress, which has a negative effect on the body, according to the Center for Studies on Human Stress (CSHS) (2017). The effect on nursing students of stress on the physical aspect may reflect on their health. High blood pressure, excessive sweaty palms, chest tightness, and pain, neck pain, jaw and back muscles, head-ache, cramps of the abdomen, nausea, trembling, tiredness, itching (Gomathi, Jasmindebora, & Baba2017; Owusu, 2017).

Emotional stress is a type of stress interpreted as negative by the individual (CSHS, 2017). The impact of nursing students ' emotional stress is irritable, angry, depressed, jealous, restless, anxious, unnecessarily guilty, panic, mood swings, and easy crying (Gomathi, Jasmindebora, & Baba 2017; Owusu, 2017).

Shdaifat, Jamama, & AlAmer (2018) examined coping strategies and stress among student nurses in a descriptive cross-sectional study. To evaluate the variables among 204 nursing students using the coping behavior inventory and perceived stress scale. The results showed that students perceived a moderate level of stress and often used problem-solving as a coping mechanism. The researchers concluded that a student stress management program and adequate support should be provided.

The researchers explored the coping behavior and perceived stress of nursing students in Saudi Arabia in a current study, Hamaideh and Al-Omari (2017). using a technique of purposive sampling of 100 nursing students. The study revealed that in clinical practice, assignment, workload, teachers, nurses were the sources of stress. The coping behavior used by student nurses was optimistic and problem-solving. The researchers concluded that nursing teachers and staff should develop strategies to reduce stress on their students and improve the behavior of adaptive coping among student nurses.

Shinde and Hiremath (2014) explored the coping behavior, stressors, and stress levels of nursing studies in non-experimental descriptive design. The researchers used as their respondent 323 nursing students. The results showed that 65% of students had moderate stress, 18.6% had mild stress, and 15.8% had severe stress. 20% of their stressors were associated with clinical posting, 25% were associated with the faculty of teaching. Their approach to coping was expressed as 50% had positive thinking, 37% emotional support, 65% social support. The study concluded that nursing students should have an effective coping mechanism.

Mahfouz and Alsahli (2016) conducted a study of perceived stress and coping strategies of student nurses in their clinical practice. The study used descriptive analytical. To evaluate coping strategies and their perceived stress, adolescent coping orientation for problem experience (ACOPE) and perceived stress scale 14 were used. The results showed that there is a high level of stress among nursing students. The study recommended instituting social, family and psychological consulting for the student and student stress education.

Methodology

The study used a descriptive correlational design to examine adaptive coping behavior and stress among nursing students. The study utilized inferential statistics. The study was conducted at the College of Nursing at the Adventist University of the Philippines.

Convenient sampling technique was used to select 100 nursing students. The study included nursing students of the from year 200 and 300 and excluded nursing students of year 100 and 400.

Out of the 100 respondents, 60 (60%) were females and males 40 (40%). Their ages range from 16-20 years 44 (44%), 21-25 years 32 (32%) and 26 years and above 24 (24%). The study had for level 300 nursing students 60 (60%) and level 200 nursing students 40 (40%). There were 60 (60 %) on-campus students and 40 (40%) off-campus students.

Ten self-constructed items were used to examine the stress level of the nursing student and adaptive coping behavior. They were measured by using a 4-point Likert-type scale, which ranged from *Strongly Disagree* – 1, *Disagree* - 2, *Agree* – 3, and *Strongly Agree* – 4. The reliability measurement based on the internal consistency by using Cronbach Alpha resulted that adaptive coping behavior of .774 and stress .71.

In determining the strength of the relationship Cohen (1998) absolute correlation valves where r = .10 to .29 meaning small or low, r=.30 to .49 is medium or moderate and larger r = .50 to 1.0 is large or high and interpreted were used. All these Likert scales are based on Vagias (2006) Likert scale recommendation. Each table contains the scaled response and verbal interpretation as shown below:

Table 1
Scoring System Table for Stress and Adaptive Coping Behavior

Numerical Scale	Numerical Likert Scale Average Weight	Scaled Response	Verbal Interpretation
4	>3.2-4	Strongly Agree	High
3	>2.4-3.2	Agree	High
2	>1.6-2.4	Disagree	Low
1	>1-1.6	Strongly Disagree	Low

All eligible nursing students received a copy of the questionnaires from the researcher. The students were approached after their lectures and the researcher explained the purpose and procedure of the study. Nursing students who were willing to participate in the study were given a questionnaire to fill for about 15 to 20 minutes and the questionnaire was collected and sealed after completing the questionnaire.

The study used the Statistical Package for Social Sciences (SPSS) version 22 to analyze the data. Descriptive statistics of the mean and standard deviation were used for the question one and two and Pearson Correlation Coefficients were used to determine the relationship based on their strength and direction of Adaptive coping behavior and stress of nursing students. The t-test was used to assess the differences between students' demographics, stress, and coping behaviors.

Result

The stress levels of nursing students were tabulated in Table 3 the degree of stress by the nursing students was (M = 2.976, SD =.4181) which had a scaled response as agreed and verbally interpreted as *high*. The most common stressor of nursing was *stress from examination* (M = 3.36, SD = .628) which had a scaled response as *strongly agreed* and verbally interpreted as *high*. The second cause of stress was *workload* (M = 3.16, SD = .677) which had a scaled response as *agreed* and verbally interpreted as *high*. The third common stressor encounters my nursing students were *when they cannot do their nursing care plan* (M = 3.12, SD = .820) which scaled response as *agreed* and verbally interpreted as *high*, and *when they stay awake during class hours* (M = 3.12, SD = .769) which scaled response as agreed and verbally interpreted as *high. Nursing students ex-*

press stress when they cannot understand their teachers' instruction (*M* = 2.92, *SD* = .800) which scaled response as agreed and verbally interpreted as high and feel stressful during a class presentation (*M* = 2.92, *SD* = .748) which scaled response as *agreed* and verbally interpreted as *high*. The lowest stressors identified by the respondent was *attending clinical practice* (*M* = 2.04, *SD* = .963) which scaled response as disagree and verbally interpreted as *low*. The results of the study are supported by Hamaideh and Al-Omari (2017); Alsaqri, (2017); Mahfouz and Alsahli, (2016), which examined nursing students on their stress level which showed that nursing students had a *high-stress* level which was attributed to examination and their nursing workload. Senturk and Dogan (2018), also expressed that nursing students had a *high-stress* level in nursing education.

Table 2
Stress (N=100)

	Mean	Std. Ded.	Response Scale	Verbal Interpretation
I feel stress because of examinations	3.36	.628	Strongly Agree	High
I am stressful because of my class workload	3.16	.677	Agree	High
I experience stress when doing my assignments.	2.88	.715	Agree	High
I stay awake during class hours	3.12	.769	Agree	High
I feel stressed when participating in group projects	2.68	1.014	Agree	High
I become stressed during a class presentation	2.92	.748	Agree	High
I feel happy when attending clinical practice	2.04	.963	Disagree	Low
I feel happy when attending class lectures.	2.36	.938	Disagree	Low
I experience stress when I cannot do my nursing care plan	3.12	.820	Agree	High
I experience stress when I cannot understand my teachers' instructions	2.92	.800	Agree	High
Stress	2.976	.4181	Agree	High

Strong Disagree -4, Disagree – 3, Agree – 2, Strongly Agree - 4

The Adaptive coping behavior of nursing students was Tabulated in table 5 the degree of adaptive coping behavior of the respondent was (*MD* = 2.647, *SD* = .4618) which was scaled *agreed* and verbally interpreted as *high*. The most adaptive coping behavior of the respondent was listening to music (*M* = 3.48, *SD* = .703) which scaled response as *strongly agreed* and verbally interpreted as *high*. The second adaptive coping behavior of the nursing students was taking long sleep hours (*M* = 3.04, *SD* = .920) which scaled as agreed and verbally interpreted as *high*. The third adaptive coping behavior of the respondents was when nursing students talk to their family and friends (*MD* = 2.92, *SD* =.800) which scaled as *agreed* and verbally interpreted as *high*. Moreover, adaptive coping behavior of the respondent by the use of critical thinking to find a solution in dealing with the stress (*M* = 2.88, *SD* = .656) which scaled as *agreed* and verbally interpreted as *high*. The least of the adaptive coping behaviors of the nursing students were avoiding clinical practice (*M* = 1.68, *SD* = .931) which scaled as disagree and verbally interpreted as *low* and avoiding class lectures (*M* = 1.60, *SD* = .899) which were scaled as strongly disagree and verbally interpreted as *low*. The coping behavior type identified in the study was transference, transference is redefining stress into a positive light. This is in contrast to the finding of Shdaifat, Jamama, & AlAmer (2018) in which problems solving was the adaptive coping behavior nursing students utilized.

Table 3
Adaptive Coping Behavior

	Mean	Std. Dev.	Response Scale	Verbal Interpretation
I cope with stress by avoiding clinical practice and staying at home	1.68	0.931	Disagree	Low
I cope with stress by avoiding class lectures and staying at home	1.60	0.899	Strongly Disagree	Low
I cope with stress by procrastinating when doing my assignments.	2.48	0.948	Agree	High
I use critical thinking to find solutions in dealing with my stress	2.88	0.656	Agree	High
I talk to my family and friends about my stress	2.92	0.8	Agree	High
I evaluate similar past stressful events to find solutions in dealing with my stress	2.76	0.653	Agree	High
I employ past experiences to solve problems	2.84	0.615	Agree	High
I listen to music when I am stressed	3.48	0.703	Strongly Agree	High
I take long sleeping hours when I am stressed	3.04	0.92	Agree	High
I cope with stress by watching television	2.68	0.886	Agree	High
I cope with stress by exercising	2.76	1.036	Agree	High
Adaptive Coping Behaviour	2.647	0.4618	Agree	High

Strong Disagree -4, Disagree – 3, Agree – 2, Strongly Agree - 4

The relationship between adaptive coping behavior and stress has been identified to be a small significant positive relationship ($r = .194$, $p = 0.48$). The results showed that the study regrets the null hypothesis which states that there is no significant relationship between adaptive coping behavior and stress. This study contradicts the findings of Alsaqri (2017) which had no statistically significant correlation between coping behavior and stress. This implies that nursing students in the Adventist University of the Philippines have a high-stress level and a high adaptive coping Behavior.

Table 4
Correlations of Adaptive Coping Behavior and Stress

		Stress	Adaptive Coping Behaviour
Stress	Pearson Correlation	1	.194
	Sig. (2-tailed)		.048
	N	100	100

In examining the significant difference between sex in terms of adaptive coping behavior. The study reveals that female nursing students have better-coping behavior than the male nursing student (female mean = 2.830, *SD* = .3634, Male mean = 2.3703, *SD* = .4612) and its statistically significant $p = 0.000$ at equal variance assumed. The adaptive coping behavior of listening to music works better in females than males.

The study also shows that level 300 nursing students have a better adaptive coping behavior than level 200 nursing students (level 300 mean = 2.776, *SD* = .4125, level 200 mean = 2.455, *SD* = .4695) and its statistically significant p=0.000 at equal variance assumed. This implies that level 300 nursing students know how to cope with their stress than level 200 nursing students.

On other hand, off-campus nursing students have good coping behavior than on-campus nursing students (off-campus mean = 2.809, *SD* = .4685, on campus mean = 2.539, *SD* = .4280) and its statistically significant $p = 0.004$ at equal variance assumed. This implies that off-campus nursing students have free will in doing their activities. The study rejects the null hypothesis that there is no significant difference between adaptive coping behavior and sex, year of study and residence. This is supported by Shdaifat, Aysar, & AlAmer (2018) which concluded that demographic of nursing students are good in determining their coping strategies of nursing students.

Table 5
The Difference of Adaptive Coping Behavior on Sex, Year of study and Residence

Adaptive coping Behavior	Sex	Year of study	Residences
F	1.446	0.22	1.079
df	98	98	98
T	5.533	-3.609	2.972
P	.000	.000	.004
IV	S	S	S

IV = Verbal Interpretation, S= Significant, NS= Not Significant

In investigating the significant difference of stress on sex, year of study and residence in terms of stress. The study reveals that female nursing students have high-stress level than the male nursing students (female mean = 3.127, *SD* = .3113, male mean = 2.750, *SD* = .4580) and its statistically significant p=0.000 at equal variance not assumed. This implies that nursing is perceived as a female profession which results in stressing the female nursing students than the males.

The study also reveals that, level 200 has a high-stress level than level 300 nursing students (level 200 mean = 3.070, *SD* = .3539, level 300 mean = 2.913, *SD* = .4478) and statistically significant p=0.66 at equal variance assumed. This implies that level 200 nursing students are the novice in the nursing practice than the level 300 nursing students.

On their residence, the results show that on-campus have a high-stress level than the off-campus nursing students (on campus mean = 3.007, *SD* = .4042, off-campus mean = 2.930, *SD* = .4392) and statistically significant $p = .372$ at equal variance assumed. This implies that off-campus nursing students are able to practice free will than on-campus nursing students. The study has produced a mix of results for the significant difference in terms of stress considering the sex, year of study, and residence. Based on the sex of the respondent there is a significant difference which indicates that study rejects the null hypothesis that there is no significant difference between stress and sex, year of study and residence, however, it fails to reject the same null hypothesis in terms of sex, year of study and residence. This implies that the stress level is the same when the respondent is at level 200 or 300 and on campus or off campus.

Table 6
The Difference of stress on Sex, Year of study and Residence

Stress	Sex	Year of study	Residence
F	13.061	2.190	.967
df	98	98	98
T	4.548	1.859	-.898
P	.000	0.66	.372
Iv	S	NS	NS

Discussion

Nursing student experienced a high level of stress because of assignment, class workload when nursing cannot do their nursing care plan and staying awake during class hours. The adaptive coping behavior utilized by nursing students is listening to music, taking long sleeping, and talking to friends which is a transference type of coping behavior. Nursing faculties can help meet the needs of the nursing students by recognizing the heavy workload and examination given to nursing students. The nursing faculties and administration should provide supportive care for the nursing student. Nursing students should be oriented during their admission into the nursing programme that nursing education is stressful and that they should have a coping behavior in dealing with their stress.

There should be a stress management programme for nursing students. The nursing curriculum should reflect on the needs of nursing students. Further researchers should explore other variables in relation to the stress and adaptive coping behavior of nursing students.

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A Study on the Knowledge, Belief and Practice Regarding Oral and Dental Health of Pregnant Women at Barangay Dita Health Center

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Abstract

To answer the call of United Nation Millennium declaration Sustainable Development Goal (SDG) and Millennium Development Goal (MDG) numbers 4, 5, and 6, Thursdays of the month are mandated by the Department of Health (DOH) as "Buntis Day". Last March 2017, the *booklet ni nanay at ni baby* was released by DOH IV-A and part of it is the Dental Health. This descriptive study aimed to educate the pregnant women regarding oral and dental health utilizing the *booklet ni nanay at ni baby* as a tool. This serves as the pre-natal and post-natal record of the mother. Convenience sampling was used in recruiting 24 pregnant individuals at Barangay Dita Health Center. The results were tabulated and calculated using percentages. The study revealed that these pregnant women are aware of the importance of daily dental practices. However, these pregnant women also believe in myths that they are not allowed to have tooth extraction (96%), dental filling (83%), and oral prophylaxis (67%). Public health strategies were done among these pregnants. After the health education using the booklet, 100% agreed that dental procedures are safe for pregnants and subjected themselves to dental check-up. Results revealed that 92% of them have tooth decay, 75% have gingivitis, 67% have broken teeth, and 96% have missing teeth. Myths and fallacies were corrected. At the end of the program, pregnants were knowledgeable and practicing dental care. Further dental examinations and researches are recommended to pay attention on the special needs of pregnant women in terms of dental and oral health.

Keywords: *Oral health, dental health, pregnants*

Pregnancy is a wonderful experience of a woman. It is the gateway to motherhood. A child is a blessing from God and the product of love of a couple. During the journey of pregnancy for 9 months, a lot of changes are happening to the body of the mother. She has to endure the ups and downs of hormones making her susceptible to nausea, vomiting, mood swings, irritability, unexplained cravings for certain foods, and even to the point of having low immune system. Thus, a pregnant woman is at risk of having infections and other diseases such as Gestational Diabetes, Hypertension, Anemia, and others. In addition to the burden of pregnancy, some mothers are enduring the problems within her environment such as teenage pregnancy, unwanted pregnancy, financial difficulties, family problems, and other day-to-day struggles in life.

World Health Organization (WHO, 2015) has focused on the Maternal and Child Health. About 830 women died due to complications of pregnancy and child birth. Almost all of these deaths occurred in low-socioeconomic areas, and most could have been prevented. The primary causes of death named are hemorrhage, hypertension, infections, and indirect causes, mostly due to

interaction between pre-existing medical conditions and pregnancy. Women in developing countries are 33 times at risk of dying from a maternal-related cause during her lifetime compared to women living in a developed country. Further, there were only 73% deliveries attended by a skilled birth attendant in 2013 and 76% of women of reproductive age who were married or in-union had their need for family planning with a modern method in 2015.

As the answer to United Nation Millenium declaration, the Department of Health (DOH) in the Philippines, has mandated that every pregnant can avail of free pre-natal check-up (PNCU) every Thursday in barangay health centers. The pre-natal check-up includes Tetanus Toxoid vaccination, giving of free pre-natal vitamins, and it was done by the barangay midwives. These activities is the response to champion the cause of women and children towards the achievement of Millennium Development Goals (MDG) 4 (reduce child mortality), 5 (improve maternal health) and 6(combat HIV/AIDS, malaria and other diseases). The Philippines is tasked to reduce the maternal mortality ratio (MMR) by three quarters (DOH, 2015).

City of Sta. Rosa follows the mandate of DOH being under its umbrella. Maternal Care Services (MCS) are also being offered in the barangay health units within the city. In 2012, it was noted that there were more pregnant women from barangays under City Health Office 2. Among the maternal care services are delivery of tetanus toxoid, iron supplementation, Vitamin A supplementation, breastfeeding, and maternal consultations (CHO 1 & 2, 2012).

MCS did not cover any dental health for the pregnants, it was only late March of 2017, when the "Booklet ni Nanay at ni Baby" of DOH IV-A was introduced among the midwives facilitating the "Buntis Program of DOH". Dental health status of the pregnants was one of the considerations. Although the national government had already formulated the Guidelines in the Implementation of Oral Health Program for Public Health Services (AO 2007-0007) and the program aimed to reduce the prevalence rate of dental caries to 85% and periodontal diseases to 60% by the end of 2016, the program was not fully implemented nor took effect.

This project aimed to educate the pregnants regarding oral and dental health especially during the gestational days.

Methodology

Based on the dental records of Barangay Dita Health Center Dental Section, among the 41 pregnants who are having PNCU from January to March 2017, there were only 3 who came for a dental check-up and the chief complaint was toothache. This corresponded to only 7% of the pregnant population who voluntarily go to have dental visit. To add, all the 3 pregnant women have dental caries as the source of toothache. The percent coverage of dental check-up among the pregnants in Barangay Dita is low.

Only those pregnant women who were having PNCU at Barangay Dita Health Center were included in the study. No age limit was set as long as the woman is in the gestational stage. A total of 24 conveniently sampled pregnants were utilized in the study.

Data Gathering

Pregnants who consented in joining the research study were asked to answer pre-test questions that contained their knowledge, attitude, and practices regarding oral and dental health. A copy of "Booklet ni nanay at ni baby" was given to every pregnant. It served as their medical record during the pregnancy period and even after giving birth.

During a scheduled PNCU at the health center, the pregnant women listened to the health education, received free toothbrushes and toothpastes which they also used during the workshop on proper brushing of teeth, and underwent dental check-up by a dentist.

At the end of the program, a post-test was given with the same questions from the pre-test. The results were tabulated and analyzed using frequency tables and percentages.

Guidelines in Oral and Dental Health during Pregnant

Dental management differs in every trimester due to hormonal changes and also the development of the fetus inside the womb. According to Singh (2012), during the first trimester of pregnancy, the recommended guidelines are:

1. Health education about the maternal oral changes
2. Have a oral hygiene practice to avoid plaque formation
3. Dental treatment should be limited to periodontal prophylaxis and emergency treatments only.
4. Avoidance to radiographs.

During the 13-24 weeks of gestation or collectively known as second trimester, the following management can be applied in terms of oral hygiene:

1. Maintain the oral hygiene practice and plaque control.
2. Scaling, polishing and curettage may be done if there is a need only.
3. Control of active oral diseases, if any.
4. An elective dental care is safe.
5. Avoidance to radiographs.

During the third trimester, drugs that may affect bleeding time should be avoided. The oral hygiene practices and plaque control are carried over. It is safe to perform a routine dental treatment only during the early weeks of third trimester but during the middle of the third trimester, routine dental treatments are avoided.

Results and Discussion

The participants were given a set of questions regarding the knowledge and belief of the pregnants as influenced by the elders, ancestors, and the people around them. Table 1 presents the knowledge and beliefs that greatly affect their oral and dental health during pregnancy.

Table 1
Knowledge and Beliefs of Pregnants About Dental Practices (n=24)

Dental Practices	Agree	%	Disagree	%
Brushing of teeth at least 2x a day	24	100	0	0
Using dental floss everyday	21	88	3	12
Dental visit 2x a year	23	96	1	4
Pregnants need dental check-up	24	100	0	0
Pregnants are not allowed to have tooth extraction	23	96	1	4
Pregnants are not allowed to have dental filling	20	83	4	17
Pregnants are not allowed to have oral prophylaxis	16	67	8	33

Pregnants believe the myths that they are not allowed to have dental extraction (96%); they are not allowed to have dental filling (83%); and they are not allowed to have dental prophylaxis during gestational days (67%).

All the 24 pregnants (100%) had attended the health seminar on oral and dental health during pregnancy had consented to have dental check-up. The result of the dental assessment showed that 22 out of the 24 pregnant women have dental caries, 18 have gingivitis, 16 have broken teeth and 23 have missing teeth. Table 2 shows the frequency distribution of 24 pregnants who voluntarily subject themselves to dental check-up. These dental conditions possibly existed already prior the pregnancy.

Table 2
Frequency Distribution of the Results of Pregnants' Dental Health (n=24)

Actual Dental Check-up	Yes	%	No	%
Presence of tooth decay	22	92	2	8
Presence of gingivitis	18	75	6	25
Presence of broken teeth	16	67	8	33
Presence of missing teeth	23	96	1	4

These data is likewise high in the entire Philippines according to the national data (DOH, NMED 2011) which stated that about 87.4% of Filipinos have tooth decay and 48.3% have gum diseases. It was also noted through statistics that 77% or more than 7 out of 10 Filipinos have never been to a dentist. There was a good program launched last 2007 by DOH about Dental Care however, there was lack of follow-up on the status of the program and it was not even fully implemented as evidenced by the DOH IV-A protocol for PNCU. The government also mentioned the third specific objective of the Oral Health Program of DOH, which is to improve the oral health conditions of pregnant women by 20% and older persons by 10% every year till 2016. To add, there were no clear mandatory orders in the local government health facilities in terms of oral and dental health.

The Barangay Dita Council has put a budget for the oral health program through the presence of 2 dentists that facilitate free dental check-ups and tooth extractions for the residents of the barangay. In terms of oral prophylaxis and dental fillings, the residents need to visit private dentists for the procedures. The program of the barangay is commendably good however, still not enough to cater the dental procedures which is understandable due to financial constraints in the part of barangay's budget.

The pregnants' actual oral and dental practices were also tabulated. The results in Table 3 show some variations in the belief compared to the actual practice.

Table 3
Actual Daily Practice of Oral and Dental Hygiene of the Pregnants of Brgy. Dita (n=24)

Daily Dental Practice	1x	2x	3x	0
Frequency of brushing after meal	2	10	12	0
Frequency of dental flossing everyday	1	2	0	21
Biannual dental check-up	8	0	N/A	16

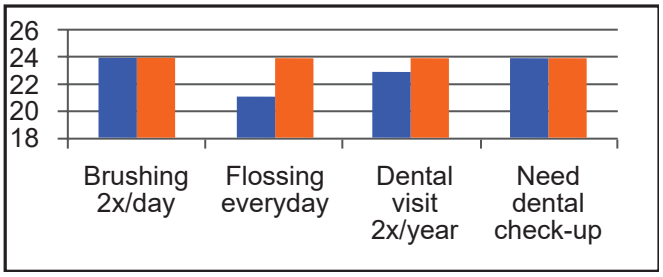
Comparing the knowledge and beliefs of pregnants about some dental practices during gestational days from Table 1, all the 24 pregnants who answered the survey prior to the health lecture agreed that brushing of teeth at least 2x a day and pregnants need dental check-up are basic oral and dental care practices that should be done. Majority also believed that flossing everyday (88%), and visiting a dentist 2x a year (96%) are practices that should be done as routine oral and dental care. However, in the actual practice of the pregnants as shown in Table 3, 50% (12) are brushing their teeth 3x a day after meals, 42% (10) are brushing 2x a day after meal, and 8% (2) are brushing only once a day. The belief and knowledge of the pregnants about the importance of brushing teeth after meals is directly related to their actual practice. Majority agreed and at the same time practiced what they believed.

Their knowledge in using dental floss everyday (88%) and visiting a dentist 2x a year (96%) do not show a direct relationship in the pregnants' actual practice. Eighty-eight percent of the respondents do not use dental floss, while 8% are floss 2x a day and 4% use it once a day. There were 67% pregnants who had no dental check-up within a year, while 33% had at least visited a dentist within the year.

The data showed that pregnants do not practice what they believed essential in terms of flossing and dental visit. Reasons could be attributed to financial difficulties. The wage of one of the couple is not sufficient in raising a family, therefore, there is no extra money to buy floss and much more paying the dentist's professional fee and services. The result in this study was comparable to a study done in Brunei, Darussalam by Bamanikar and Liew (2013) where among the pregnants of Brunei, the knowledge related to dental care such as brushing at least twice daily, use of floss daily, brushing after meals, and dental checkup at least twice a year were poor. The study also stated the three most common barriers against having check-up as expressed by the 44.1% who have not had a check during the pregnancy days. These were the following: long waiting time at the government clinics (53.7%), distance from home to the clinics (24.4%) and negative attitudes of medical workers (9.8%). In a study by Al Mullahi, Mendoza, Al Wahaibi (2012) it was reported that 50% failure of dental visits by the pregnants were mainly due to work commitment.

Further, referring to Table 1, pregnants believe the reminders of the elders that pregnants are not allowed to have dental extraction (96%), they are also not allowed to have dental filling (83%), and 67% of pregnants agreed that they are not allowed to have dental prophylaxis during gestational days. As a result of their belief and actual practice, dental caries, gingivitis, broken teeth, and missing teeth were noted during the actual dental check-up. The importance of dental check-up during pregnancy was one of the main highlights of the said lecture. With this dental check-up, one of the recommended bi-annual dental visits was fulfilled.

The oral and dental lecture conducted was a big step in the increase of the level of awareness of the expectant mothers. The 24 pregnants who listened to the lecture were able to identify the importance of dental check-up to determine their need and to further prevent dental problem that might complicate their pregnancy and to keep their own oral and dental hygiene in good condition. This was proven by their 100% response in the lecture by submitting themselves to the dental check-up. The pregnants (100%) also agreed and consented to have further dental management (tooth extraction, dental filling, and oral prophylaxis). The dental procedures that they previously believed are not allowed for pregnants, are the procedures they have consented to be done after hearing the lecture. Post-test showed a significant increase in the knowledge and belief of pregnants particularly regarding the dental procedures during pregnancy. On the first 4 questions, there was a consistent high belief among the pregnants on brushing at least twice a day, flossing every day, dental visit bi-annually, and dental check-up even before and after the lecture (Figure 1).

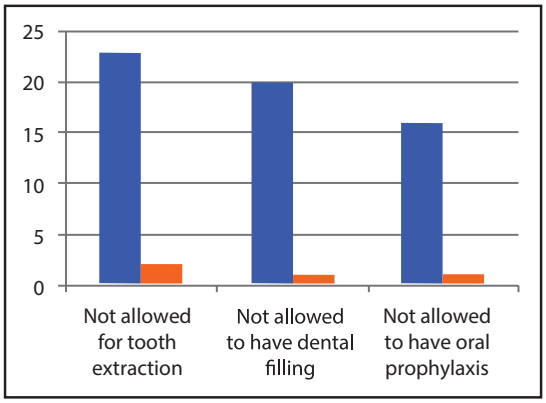


Legends: Blue - Pre-test result Orange – Post-test result

Figure 1. Comparison of the beliefs of pregnants before and after the lecture regarding the basic dental needs.

In comparison, the beliefs before the health seminar regarding the dental procedures showed positive responses after the lecture. There was a significant decrease in agreeing in misconceptions, myths, and fallacies after the lecture as shown in Figure 2. There were only 2 women who believed that pregnants are not allowed for tooth extraction, whereas before the lecture it was 23 pregnants. There was only 1 pregnant after the lecture from 20 who believed before lecture that

pregnants are not allowed to have dental filling and from 16 for oral prophylaxis. These were good indicators that they have understood the lecture.



Legends: Blue – Pre-test result

Orange – Post-test result

Figure 2. Comparison of beliefs of pregnant regarding dental procedures before and after the lecture.

In a study by Singh (2012), the good response and memory recall of the pregnants about the facts presented to them about oral and dental health were discussed. Moreover, it was proven that dental extraction is relatively safe depending on the trimester and status of the pregnant. Dental filling and oral prophylaxis are absolutely safe for pregnants under the care of dentists. It was also proven by Achtari, Georgakopoulou, Afentoulide (2012) in their study that dental procedures such as dental filling, extraction, prophylaxis are generally safe however, considerations on the age of gestation should be noted as precautionary measures. The dentist who will perform the dental procedures should choose the anesthesia and medications that are absolutely safe for the pregnant, i.e non teratogenic.

The successful return demo during the toothbrushing workshop has proven that these pregnant women are already equipped with the knowledge of basic preventive dental care. These actions have also proven their acknowledgement on the importance of oral and dental hygiene during pregnancy. They have also made big steps in putting knowledge into practice.

Conclusion and Recommendations

Oral and dental health is oftentimes not the priority in pregnancy. We care more on the medical aspect, leaving behind the health of teeth and gums during the expecting days, not knowing that these little and silent aids of digestive system can put the pregnancy into high risk if not treated early. The dentist's role during the pregnancy days of the patient is to prevent oral health problems, to inform through health education, and to provide dental care to the women patient throughout the pregnancy period and even post-partum. The reason that dental procedures and practices can be done except for the radiography (which, as much as possible, should be avoided during pregnancy) is that pregnancy is not a disease, thus there is no reason to postpone dental appointments and procedures. The advice of an obstetrician or a midwife to a pregnant for an early dental visit in her pregnancy is important.

The basic knowledge of brushing teeth, flossing and visiting dentists are common; however, the actual practices are more important. Toothbrushing is not just a fast routine, thorough attention shall be given to it for at least 2 minutes with the proper strokes. The misconceptions, myths, and beliefs that have been passed on from generations to generations became the barriers in seeking more on maternal dental health. Health awareness through health campaigns, demonstrations, and

lectures have great impacts in reversing and correcting the behavior of the pregnants. Dental check-ups are necessary to know the status of the teeth and are also ways to prevent further dental and gum diseases, that may even complicate pregnancy.

The pregnants were equipped and can prove to others that common dental procedures such as tooth extraction, dental filling, and oral prophylaxis are safe to be done. The myths and fallacies during pregnancy stage in terms of oral and dental health have been corrected. Thus, the pregnant women must also undergo dental procedures to avoid complications in pregnancy in terms of oral and dental health.

Being pregnant is not an excuse to skip dental procedures. Further dental examinations and researches are recommended that focuses on pregnants' oral and dental health as well as the complications it may bring to the baby.

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Adjustment of First and Second Year Nursing Students, Mission Faculty of Nursing, Asia-Pacific International University

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Abstract

On average, nursing students resigned 6.9% in the past 5 years. No study conducted in non-profit, religious based university. This research aimed to study the adjustment level of nursing students and their adjustment differentiated by age and CGPA. Havighurst Theory as fundamental of adjustment was discussed. 161 purposive samples were selected. The instrument was adopted with acceptable validity and reliability. One sample t-test was performed and result showed mean total adjustment score (3.89 ± 0.41) which was higher than set norm adjustment score, a statistically significant difference of 0.89 (95% CI, 0.83-0.96), t (160) = 27.74, p = .000. Independent t-test was done and result revealed no significant difference in the adjustment score for 18-20 years old (M = 3.89, SD = .42) and 21-23 years old (M = 3.93, SD = .40); t (151) =-.42, p = 0.68. Lastly, one-way ANOVA was executed and found no significant effect of CGPA on adjustment score at the $p < .05$ level [F (4, 148) = 1.34, p = 0.26]. Overall, students' adjustment was at high level and their age including CGPA had no effect on the adjustment. Others can learn how they adjust and other factors like income or passion in nursing should be explored.

Keywords: *Adjustment, Nursing Students*

New students experience new environment, social status, economic management, culture, and information technology for studying. They need to adjust themselves to live harmoniously with new changes. If adjustment does not take place, their academic performance, social life, and spiritual well-being will be affected. According to 5-years statistics of nursing student record from Registration Office, Asia-Pacific International University (AIU), students resigned 8.9% in 2013, 12.2% in 2014, 2.3% in 2015, 7.8% in 2016, and 3.3% in 2017. Various reasons were financial difficulty, unable to adjust to dormitory life, able to enter a cheaper university, does not like nursing, and unable to meet academic standard (Registration Office, 2018). This record places challenges for Mission Faculty of Nursing (MFON). Furthermore, some students, who have problem adjusting, are still studying in the program. The effects of difficulty in adjustment are low academic performance, inappropriate behavior, discouraged, and anxiety. The statement is supported with similarity by studies from students who could not adjust well. They were depressed, discouraged, hopeless, bored, anxiety, low self-esteem, somatic distress, fail classes, drop out, and suicide (Jain, 2017; Lharsuwong, 1981).

According to Havighurst Theory, development occurs throughout life span in purpose of solving problems and performing well in their tasks during each stage of their life (HQ, 2017). In categorizing these first and second year students, their age and behavior suite both adolescent and early adulthood stage because they are establishing emotional independency from parents,

equipping themselves with skills needed for a profession, achieving gender-based social role, establishing relationships with peers, and establishing a profession. They incline to accomplish all these tasks while changes occur around them. Adjusting well during development is the key which will bring up their confidence and satisfaction as foundation of development into the next stage in life. Conversely, if they fail to adjust, unhappiness, difficulty in many dimensions of life are the consequences. Studies about adjustment of college students have been done. Suwannkhot found the main areas of adjustment in first year students at Naresuan University were study, teachers, peers, environment, and activity which they were at high level. Among all factors influencing adjustment such as age, gender, birthplace, emotional intelligence, and democratic child-rearing, only democratic child-rearing influenced adjustment of the students at significance level of .05 (Suwannkhot, 2010). Moreover, Bunleard studied the same topic and found adjustment in academic, personality, emotion, and activity were the main areas. All factors such as gender, birthplace, and emotion, only gender influenced some of these domains (Bunleard, 2011).

Undoubtedly, students need to achieve their tasks during this stage of life by gone through domains of adjusting in study, teacher, friend, environment, and activity domain. Importantly, factor influencing the adjustment such as age, gender, grade, birthplace, and income are important variables impacting each domain of adjustment. However, none of the studies, but not limit to, investigated in a non-profit with different religious belief university in Thailand. Hence, authors aim to study: 1) adjustment level of nursing students; 2) their adjustment level differentiated by age; and 3) their adjustment level differentiated by CGPA. Hypotheses are: 1) the nursing students have high level of adjustment at significant level of .05; 2) age influences each domain of adjustment of the nursing students of MFON, AIU differently at significant level of .05; and 3) CGPA influences each domain of adjustment of the nursing students of MFON, AIU differently at significant level of .05. Hoping this study will assist educational institutes to be aware of the students' problem and be able to assist them at an early stage of transition into university life.

Methods

This cross sectional survey research obtained an approval to conduct the study from authors' university research committee and Institutional Review Board Committee.

Sample and Setting

The population is 161 first and second year nursing students of Mission Faculty of Nursing, Muak Lek Campus, Asia-Pacific International University, Thailand (Registration Office, 2018). One hundred percent purposive sampling technique was utilized; therefore, all 161 nursing students were the sample group.

Instrument

The questionnaire is composed of two sections. First section is personal data comprising of gender, age, birthplace, CGPA, and year of study. Second section is adopted from Niramon Suwannkhot (Suwannkhot, 2010) which is a multidimensional scale measuring students' adjustment to university. The scale is composed of 5 domains distributed in 52 questions. These domains are studying 12 questions, teacher 10 questions, friends 13 questions, environment 8 questions, and activity 9 questions which are in Five-point Likert Scale format. Scores are ranging from 5 as the most agree/ practice to 1 as the least agree/ practice. An average score is interpreted as follows:

4.21-5.00 means students can adjust at the highest level
3.41-4.20 means students can adjust at high level
2.61-3.40 means students can adjust at moderate level
1.81-2.60 means students can adjust at low level
1.00-1.80 means students can adjust at the lowest level

For psychometric properties, face validity was performed by three experts who reviewed this adjustment questionnaire for items relevancy to objectives and content measured. Items adjusted according to the experts' suggestions. The questionnaire then tried out with 30 first year students for internal consistency reliability examination. Cronbach's Alpha Coefficient from each domain of adjustment which are study, teacher, friends, environment, and activity, were .86, .85, .84, .87, and .84, respectively. The values above 0.80 are acceptable (Waltz, Strickland, & Lenz, 2005).

Data Analysis

Demographic data was calculated by using descriptive data analysis such as percentage, mean, and frequency. The nursing students' adjustment level was examined by using one-sample t-test. The effect of age and CGPA toward adjustment in all domains which are studying, teacher, friends, environment, and activity was calculated by independent t-test and One Way ANOVA, respectively.

Results and Discussion

From total of 161 nursing students, majority in each category of demographic data are reported in the followings: 143 (88.8%) were female, 137 (85.1%) were 18-20 years old, 152 (94.4%) were originated from outside Saraburi Province, 56 (34.85) had CGPA 3.01-3.50, and 94 (58.4%) were first year students.

Adjustment Level

From Table 1, one-sample t-test was conducted to compare whether five domains of adjustment level in nursing students were different to normal, defined as adjustment score of 3. Mean adjustment score of all domains which are study (3.84 ± 0.40), teacher (3.94 ± 0.42), friend (4.13 ± 0.46), environment (3.69 ± 0.74), and activity (3.86 ± 0.69) were higher than the population 'normal' adjustment score of 3.0. For mean total adjustment score (3.89 ± 0.41), it was higher than the population 'normal' adjustment score of 3.0, a statistically significant difference of 0.89 (95% CI, 0.83-0.96), t (160) = 27.74, p = .000. There was a statistically significant different between means ($p < .05$) and, therefore, investigator can reject the null hypothesis and accept this study's hypothesis 1 "Nursing students had high level of adjustment at significant level".

Table 1
Adjustment Level of Sample (N=161) Classified by Each Domain

Domain of Adjustment	Test Value of 3/5 (60%)			Sig. (2-tailed)	Interpretation of Result
	$\bar{x}$	*SD*	*t*-value		
Study	3.84	0.40	26.59*	0.000	High
Teacher	3.94	0.42	28.51*	0.000	High
Friend	4.13	0.46	31.54*	0.000	High
Environment	3.69	0.74	11.97*	0.000	High
Activity	3.86	0.69	15.94*	0.000	High
Total	3.89	0.41	27.74*	0.000	High

*$p < .05$

Criteria $\bar{x} > 3.00$, High level of significance
$\bar{x} = 3.00$, Moderate level of significance
$\bar{x} < 3.00$, Low level of significance (Needs improvement)

Even though the students adjusted well in all domains; among them, results demonstrated that they can adjust best with their friends. Noticing in friend domain, both years students had highest level of adjustment in item "I am willingly to cooperate with friends in completing assignments" (4.36 ± 0.60). According to Havighurst Theory, college age students normally try to establish relationship with peers and pave their way for a profession (HQ, 2017). At this university setting, all nursing students live in dormitory; hence, they form closer relationship and help each other. Moreover, a study was done in college students at Phranakhon Rachabhat University. They found the students adjusted well in "good relationship and when they can depend on others" (Ruangprot, Wongkhumsin, & Phewluang, 2010). Furthermore, nursing curriculum offers preparation courses such as English, studying skills in using library and Internet prior to the first semester begins. These courses assist students to be prepared to adjust in studying. The statement is confirmed by finding in another study, they found students in private university at Jordan did not adjust well in academic domain due to difficulty in buying courses, books, studying to use library and Internet, and weak relationship with teachers (Al-khatib, Awamleh, & Samawi, 2012). Teacher is another domain that is important. From the questionnaire, the students adjusted at high level with teachers especially in items "I pay respect and greet teachers when passing by them" or "I am willing to improve myself according to my teacher's advice" or "I participate in activity and task that were assigned". These items reflect students' willingness to learn from teachers and have good relationship with them which enhance their overall performance.

Moreover, nursing students also adjusted well at high level in activity domain. Many items ranked high adjustment. Examples were "I participate in activity fully" and "I am interested in university's activities". These statements imply that university offers very interesting activities which pull students to participate. In turns, this group of student did not have hard time adjusting with activity at all; plus, this creates skills for them to achieve well academically. To support the statement, a study found students who do more physical activity, could increase in academic self-efficacy and improve academic performance (Gillinsky, 2011). Furthermore, students who had high level of adjustment, they tended to perceive their classroom environment as comfortable (Stoklosa, 2015). Fortunately, this research setting maintains classrooms and compound up to cleanliness and standard which promote positive studying environment. The statement is supported by some items in this environment domain such as "I am eager in studying because of nice studying atmosphere in classrooms" and "I arrive at classroom earlier before class begins". These results indicate that this university has done a good job and the upholding the good quality is important.

Adjustment Differentiated by Age

From samples, there were two groups of age. They were 18-20 years old and 21-23 years old. An independent-samples t-test was performed to compare adjustment level in 18-20 years old and 21-23 years old students. Result revealed there was not a significant difference in the scores for 18-20 years old (M = 3.89, SD = .42) and 21-23 years old (M = 3.93, SD = .40); t (151) =-.42, p = 0.68. These results suggested that age groups do not have effect on total adjustment and any other domains of adjustment. Therefore, hypothesis 2 stating "Age influences each domain of adjustment of the nursing students of MFON, AIU differently at significance level of .05" is rejected and accepted the null hypothesis. Please see Table 2.

Even though this study showed that nursing students were capable to adjust at high level, their age does not play any role in their adjustment. The findings were inconsistent with a study that was conducted prior with nursing students in India. They found a significant association between personal variables such as age and gender and adjustment problems (Hiremath & Wale, 2017). The difference could be from preparedness and support given to the students. Majority of subjects came to study right after graduated from high school located outside Saraburi Province and Bangkok. Hence, they all had to take university preparation courses such as study skills in library, computer

lab, typing, and English. Moreover, almost all of them left their home for the first time; many of them felt homesick in the beginning. AIU maintains quality of dormitory and warmth character dormitory deans in order to take care of the students as this is their second home. Furthermore, AIU attains close relationship between teacher and student by providing advisor system at ratio of 1:8. Additionally, family meeting at faculty's house every other Wednesday is another ongoing program for caring students. These supports were effective to nursing students who came from similar common background despite of their different in age.

Table 2
Independent Sample t-Test Between 18-20 Years Old and 21-23 Years Old Group (N=153)

Domain of Adjustment	18-20 years		21-23 years		*t*	Sig. (2-tailed)
	$\bar{x}$	*SD*	$\bar{x}$	*SD*		
Study	3.83	.40	3.86	.41	-.29	.77
Teacher	3.92	.42	4.11	.39	-1.79	.09
Friend	4.14	.47	4.11	.47	.24	.81
Environment	3.68	.77	3.72	.54	-.25	.80
Activity	3.87	.70	3.86	.59	.04	.97
Total	3.89	.42	3.93	.40	-.42	.68

*p < .05

Adjustment Differentiated by CGPA

A one-way between subject ANOVA was conducted to compare the effect of students' CGPA (1.85-2.00, 2.01-2.50, 2.51-3.00, 3.01-3.50, and 3.50-4.00) on their adjustment (study, teacher, friends, environment, activity, and total adjustment domain). From Table 3, There was not a significant effect of students' CGPA on their adjustment level at the p<.05 level for the study domain [F (4, 148) = .89, p = .473]; teacher domain [F (4, 148) = .67, p = .616]; friend domain [F (4, 148) = 1.39, p = .240]; environment domain [F (4, 148) = .49, p = .744]; activity domain [F (4, 148) = 1.54, p = .195]; and total adjustment [F (4, 148) = 1.54, p = .195]. Since the results showed no significance, Post Hoc test (Scheffe) was not necessary. For hypothesis 3 that stating "CGPA influences each domain of adjustment of the nursing students of MFON, AIU differently at significance level of .05", is rejected and accepted the null hypothesis. Please see Table 3.

In this study, CGPA does not affect all domains of adjustment including total adjustment of nursing students. Conversely, a study in adjustment of students was done in Suranaree University of Technology, they found CGPA affected the students' adjustment at statistical significance level (p < .01) (Chairuck, 2013). According to Havighurst Theory, development is an ongoing skill throughout life for solving problems and performing well in their tasks (HQ, 2017). With the implication of this study, the students were focused and wanting to achieve performance. Likewise, studies showed students are prepared to adjustment and committed to reach their goal (Al-khatib et al., 2012; Jain, 2017). They were willing to do whatever would bring them success. Therefore, preparation in various aspects such as preparation courses, comfortable with classroom and teachers, dormitory as home, interesting activities, and friendly environment, that university offers, unmistakably, promotes their transition to be smooth. Furthermore, this faith based university emphasizes characteristic building and sharpen students' mind by providing this activity from Christian worldview very week. So they could stay focus and make right decision in carry on their lives in university. Moreover, their advisors set up a student tutorial program in order to assist weak students. As friends tutor friends, their studying curve is likely to be high. Obviously, weak or strong academic background students receive the same preparation, support, and mentor system which enables them to adjust very well at this university.

Table 3

One-Way ANOVA Demonstrating Adjustment Among Students with CGPA1.85-2.00, CGPA 2.01-2.50, CGPA 2.51-3.00, CGPA 3.01-3.50, and CGPA 3.50-4.00 (N= 152)

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
totalstudy1	Between Groups	.579	4	.145	.887	.473
	Within Groups	24.142	148	.163		
	Total	24.721	152			
totalteacher2	Between Groups	.461	4	.115	.666	.616
	Within Groups	25.575	148	.173		
	Total	26.035	152			
totalfriend3	Between Groups	1.150	4	.287	1.389	.240
	Within Groups	30.624	148	.207		
	Total	31.774	152			
totalenv4	Between Groups	1.107	4	.277	.489	.744
	Within Groups	83.860	148	.567		
	Total	84.967	152			
totalact5	Between Groups	2.904	4	.726	1.536	.195
	Within Groups	69.923	148	.472		
	Total	72.827	152			
totalALL	Between Groups	.895	4	.224	1.339	.258
	Within Groups	24.723	148	.167		
	Total	25.618	152			

As the results revealed, they imply that this faith based, Christian, university has set and equipped standard preparation, and system in various ways to facilitate students in transition into university life. As university humbly adopt Jesus's teaching into practice from Luke 6:31 NIV "Do to others as you would have them do to you" and Mark 12:31 "Love your neighbor as yourself", everyone tries their best to taking care these students as their own child. Therefore, continuation of these practices must go on from all involved parties such as administrators, teachers, and staffs. However, the limitation of this study is about generalizability. The results cannot be utilized with other type of university such as government and for profit private universities.

Conclusion and Recommendations

Adjustment level in all domains of first and second year nursing students at AIU was higher than the population 'normal' adjustment score of 3.0, a statistically significant difference of 0.89 (95% CI, 0.83-0.96), t (160) = 27.74, p = .000. Nursing students adjusted themselves at high level in all domains: study, teacher, friend, environment, activity, and total adjustment. Looking closer, authors would like to investigate whether factors such as age and CGPA would influence adjustment. The age group of 18-20 years old and 21-23 years old were compared for adjustment level and there was not a significant difference in the scores for 18-20 years old (M = 3.89, SD = .42) and 21-23 years old (M = 3.93, SD = .40); t (151) = -.42, p = 0.68. Hence, age groups had no effect on their adjustment. Similarly, comparison the effect of students' CGPA (1.85-2.00, 2.01-2.50, 2.51-3.00, 3.01-3.50, and 3.50-4.00) on their adjustment (study, teacher, friend, environment, activity, and total adjustment domain) were performed. There was not a significant effect of students' CGPA on their adjustment level at the $p < .05$ level for all domains.

Recommendation for nursing administration is to assess continuously about the need for preparation courses because high school students nowadays are more competent in typing, using computer, and using English than years ago. However, if there is still a need, administrators must secure this program in nursing curriculum. Moreover, student life department plays crucial role in caring the students in dormitory, safety, activities, and discipline. Nursing administrator needs to monitor outcome closely and work parallel with their administrator. For nursing education, maintaining caring, good relationship, and comfortable class atmosphere is essential. Asian students naturally respect teachers; hence, they normally respect and accept the teaching well. Lastly for nursing research, more samples representing non-profit universities from all parts of Thailand can be conducted in order to make this study more robust. Since the results did not support the hypotheses, further study can be explored regarding factors influencing adjustment which made students resign. These factors can be passion in nursing and financial support. Authors hope this study will be useful to other universities in the future.

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A Survey of Toddler's Behaviors Risk for Unintentional Injuries at Bangkok Metropolitan Area, Thailand

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Abstract

Unintentional injury in toddler is a worldwide problem causing death and hospitalization. This research aims to survey risk behavior of unintentional injury in toddler. Purposive sampling technique with inclusion criteria was used to recruit 150 parents. The instrument was developed by investigators composing of demographic data and risk behavior of unintentional injury 23 questions. Cronbach's Alpha was .81. Descriptive statistical analysis was performed. Results revealed that the high risk behaviors of unintentional injury in toddler ranking from the highest score were: (a) fall down, and (b) run out into street in front of their house. The low risk behaviors of unintentional injury scores in toddler ranking from the lowest were: (a) play with matches, candles, lighters, or others; (b) fall out of windows or down the stairways; and (c) get into dangerous substances such as medicine, gasoline, cleaning supplies, and others. Suggestions were for pediatric nurses, educators, institutes of child injury promotion and prevention to provide guidelines for care takers regarding care and safety standard for risk behavior of unintentional child injury in family, community, and nationwide.

Keywords: *behaviors risk, toddlers, unintentional injuries, Thailand*

Injury is an important public health problem worldwide including Thailand. It is likely to increase continuously and currently is the second most cause of death after cancer (Ministry of Public Health, 2016). The leading causes of death by injury in toddlers are drowning, falling, poisoning, burning, cuts with sharp objects, and animal biting (Sitthi-amorn et al., 2006; Chivanon, 2016). These things affect life, can lead to disabilities and hospitalization. This, by extension also affects families, communities, society, health service systems, and economy of nation (Ministry of Public Health, 2016; Jagnoor et al., 2011). The Thai National Injury Survey both fatal and non-fatal injuries reported that death by injury of toddler (1-4 years old) was the same as deaths due to infection and incommunicable diseases combined (Sitthi-amorn, 2006). Additionally, the survey also found that in 2015-2016, the most common cause of death for children less than 5 years old, was by drowning (Ministry of Public Health, 2017).

Toddlers receive unintentional injury according to their particular behavior risks. As all toddlers begin to transform from dependents into autonomy, they development extreme movements such as walking well, running actively, climbing, and jumping. They are eager to know things, and they explore surrounding environments by themselves, as well as desiring freedom. However, their intellectual development is still in the level of preoperational thought wherefore toddlers in the age of walking lack knowledge, understanding, experience, and decision making skills relating to safety (Wilson, 2013). Moreover, physical growth is incomplete yet. Size of toddlers' head is proportionately larger than their bodies causing them to fall down or fall from high ground with their heads bumping onto the ground and their heads can get stuck within a space wider than 6 cen-

timeters, for example, balusters of bed partitions or space between bed and wall as such. Also, their visual acuity reaches about 20/40 feet (Wilson, 2013). Therefore, small toddlers can easily run into all kinds of things (Chivanon, 2016). Additionally, Morrongiello, Klemencic, and Corbett (2008) reported that children who had a high degree of behavioral intensity and a high level of sensation seeking were associated with medically attended injury.

Thailand has set a Draft of National Child and Youth Development Plan 2017-2021 to develop life quality of children and youth into strong persons who have complete body, mind, emotion, socialization and intelligence at every appropriate age range (Department of Child and Youth, 2017). Thereby, unintentional injury prevention in toddlers is accordingly the national agenda that moves children into growth development and suitable quality of life. Thus, the researchers aims to study unintentional risk behavior that leads to injury in toddlers in Bangkok, Thailand. This study will bring about the result that can be beneficially utilized as guideline in giving out advice to protect and decrease death rate as well as hospitalization. It can also be used as a guideline in educating fathers and mothers in looking out for unintentional risk behaviors their toddlers might face.

This research hypothesis of unintentional home injury in toddler in Bangkok, Thailand is moderate level comparing to the set-up criteria.

Research Methodology

This study is a descriptive cross-sectional design. Approval from research committee and IRB committee to conduct this study were obtained.

Population and Setting

Population was a total of 1,664 mothers of 1-3 year old children currently residing in Metropolitan area of Bangkok, Thailand. Sample size was calculated from Statistic Power Tables which is based on a small effect size of .30, and power of test 95 %, .05 and level of significance. This requires a minimum sample of 137 subjects (Burns & Grove, 2005). This study increased the sample to 150 mothers of 1-3 year old children currently residing in Bangkok Metropolitan, Thailand. Purposive sampling technique was used with the inclusion criteria of healthy children without congenital anomalies or disability, mothers who can read and write in Thai, and willing to participate in this study.

Instruments

Part 1: The Demographic Questionnaire was developed by the researchers comprising of age, sex, birth order, and the number of children under 15 years of age who were in the same household.

Part 2: The Toddler's Behaviors Risk for Unintentional Injuries Questionnaire was derived from a questionnaire assessing unintentional injury risk behaviors by Speltz et al. (1990). It consisted of 23 items on a 5-point Likert rating scale ranging from 1 (Not at all) to 5 (Very often). The total sum of the scores ranged from 23 to 115. The higher score indicated that the child had a high level of risk taking behavior leading unintentional injuries. Lower scores indicated child has a low level of risk taking behavior for unintentional injuries. A level of mean score was calculated from the maximum score minus the minimum score and divided by number of the desired levels. The level of mean score in this study was 1.33. This value was used an interval range to set up 3 desired levels as follows: 1.00 – 2.33 low level, 2.34 – 3.67 moderate level, and 3.68-5.00 high level. Content validity and language suitability were verified by four experts. These experts included a director of Child Safety Promotion and Injury Prevention Research Center and three nursing faculty members; then, a Content Validity Index (CVI) calculated and its CVI was.91. After that, the questionnaire was adjusted; then, the test was tried out with the sample group who has similar characteristics to the real sample group of 40 mothers. The reliability was calculated using Cronbach's Alpha coefficient. The result was .91.

Data Collection and Data Analysis

Researchers contacted community leaders in Metropolitan area of Bangkok. Then, he/she made an appointment with the mothers for researchers. Researchers explained this study's objectives, methods, and benefits to sample group (mothers); then, cooperation of responding to questionnaire was requested. Thereafter, if there was any doubt during questionnaire rendition, researchers would explain to the sample group until thoroughly understood. The questionnaires were distributed to the sample group. After the sample group completed the questionnaire approximately 10-15 minutes, researchers checked for correction and completion of the rendered questionnaires.

Data analysis, was processed by the SPSS program. The demographic characteristics of the sample was summarized by using number and percentage statistics and factors of the toddler's behaviors risk for unintentional injuries were analyzed by using mean, standard deviation, and mean score level.

Results and Discussion

A total of 150 mothers of 1-3 year old children who met the inclusion criteria were recruited for this study. The children's demographic characteristics are presented in Table 1. The ages of the children ranged from 12 to 41 months with an average of 25.52 (*SD* = 7.99). 46% of them were between 24.1 - 36 months, and 44% were 12-24 months. 54% of them were boys. First-born children comprised 43.3% of the sample. Mostly, there were one (36%) or two (34.7%) children younger than 15 years living in the sampled homes.

Table 1
Demographic Characteristics of Children (n = 150)

Characteristics	*n*	%
Age (months) (*M* = 25.52, *SD* = 7.99, range = 12 - 41)		
12.0 – 24.0	66	44.0
24.1 – 36.0	69	46.0
36.1 – 48.0	15	10.0
Gender		
Boys	81	54.0
Girls	69	46.0
Birth order		
1st	65	43.3
2nd	51	34.0
3rd or later	34	22.7
# of children < 15 years in the same home		
1	54	36.0
2	52	34.7
≥ 3	44	29.3

Descriptive Statistics of Toddler's Behaviors Risk for Unintentional Injuries

The descriptive analysis result of behaviors that put toddlers at risk of unintentional injuries is in Table 2 and interpreted as followings:

This finding was categorized into three groups differentiated by using mean score level. First group, the behaviors with a high risk of causing unintentional injuries were falling down (*M* = 3.87, *SD* = 1.00) and running out into street in front of house (*M* = 3.73, *SD* =1.36). Second

group, the behaviors with medium risk were putting objects or non-food items in mouth (*M* = 3.43, *SD* = 1.18), trying to climb on top of furniture, cabinets, etc. (*M* = 3.43, *SD* = 1.31) and getting scratches, scrapes, or bruises when playing outdoors (*M* = 3.29, *SD* = 1.24). Third group, the behaviors with low level risk were playing with fire (*M* = 1.37, *SD* = .71), falling out of windows or down stairways (*M* = 1.50, *SD* = .79), and Exposes to dangerous substances (*M* = 1.59, *SD* = .93) respectively.

Table 2
Descriptive Statistics for the Toddler's Behaviors Risk for Unintentional Injuries (n = 150)

Variables	*M*	*SD*	Level
1. Falling down	3.87	1.00	High
2. Run out into street in front of a house	3.73	1.36	High
3. Put objects or non-food items in mouth	3.43	1.18	Medium
4. Tries to climb on top of furniture, cabinets, etc.	3.43	1.31	Medium
5. Get scratches, scrapes, or bruises when playing outdoors	3.29	1.24	Medium
6. Runs or bumps into things (furniture, walls, poles, etc.)	3.14	1.15	Medium
7. Explores places that are "off limits" (medicine cabinet, storage shed, etc.)	3.11	1.31	Medium
8. Stands on chairs	2.93	1.21	Medium
9. Jumps off furniture or other structures (playground equipment, etc.)	2.90	1.30	Medium
10. Put objects or non-food items in mouth	2.86	1.30	Medium
11. Rides big wheel (kiddies car, skateboard, etc.) in unsafe areas (street, hill, down stairs, etc.)	2.75	1.47	Medium
12. "Takes chances" on playground equipment	2.75	1.33	Medium
13. Teases animals, such as unfamiliar dogs	2.67	1.38	Medium
14. Plays carelessly or recklessly	2.53	1.25	Medium
15. Leaves the house without permission	2.45	1.42	Medium
16. Behaves carelessly in or around water hazards (pools, bathtub, etc.)	1.93	1.21	Low
17. Burns self with hot objects (stove, iron, etc.)	1.91	1.06	Low
18. Jumps down stairways	1.89	1.15	Low
19. Plays with sharp objects (tools, knives, etc.)	1.87	0.94	Low
20. Puts fingers or objects in electrical wall sockets or appliances (toaster, etc.)	1.83	1.01	Low
21. Exposes to dangerous substances (medicine, gasoline, cleaning supplies, etc.)	1.59	0.93	low
22. Falls out of windows or down stairways	1.50	0.79	low
23. Plays with fire (matches, candles, lighters, etc.)	1.37	0.71	Low

Toddler Behaviors Involving Risk of Unintentional Injuries

Toddler's behaviors risk of unintentional injuries was in the high level and included falling down and running out into a street in front of a house. This was not what we had hypothesized. It could be explained that toddlers at this age start to be autonomous, walking by themselves, exploring their surrounding with their curiosity, like to climb up and down stairways, jump, run and they were displeased, dissatisfied, and cried, when controlled (Siriboonpipattana, 2013). Because their visual acuity has only reached about 20/40 feet (Wilson, 2013) frequent falls and slips from high grounds easily occurred. It was consistent to the study of Burrow and colleague (2015)

indicated that falling down is a common mechanism in young children admitted to hospital with skull fracture and intracranial injury. Moreover, the study of Damashek and Kuhn (2012) finding that toddlers with high activity level of walking and running were likely to be exposed to injuries more than closely supervised toddlers. It was found that toddlers' residing in residences located close to alleyways without fence, wall or barricades could allow them to easily walk or run out into the roadway in front of their houses. It was agreeable again with the study of the cause of small children's death by car accident in Bangkok Metropolis which found that children darted out unexpectedly into the road or alleyway even when the childminder was next to them. The childminder response was that they did not think that the child would suddenly run out into the road. For the driver, it was usually too late to stop when something like that happened and hence the child was hit (Plitapolkarnpim, 2004).

Risky behaviors leading to unintentional injuries at medium level were: i) putting objects or non-food items in mouth, ii) trying to climb on top of furniture, cabinets, etc., iii) getting scratches, abrasions, or bruises from outdoor play, iv) running or bumping into things, v) exploring places that were off limits, vi) standing on chairs, vii) jumping off furniture or other structures, viii) playing with sharp objects, ix) riding pedaled big wheel, x) taking chances while playing on playground equipment, xi) and teasing animals, such as unfamiliar dogs etc. During this stage of development, toddlers like to experiment, are curious to know things, put things into their mouth because of their autonomy (able to do by themselves) but inexperienced to know what is dangerous or not (Wilson, 2013). Objects commonly eaten are children toys color crayons or small objects smaller than 3.2 by 6 centimeters, (e.g small plastic dolls (masked rider (a Japanese TV series character ultraman, ninja turtles, girl toy lipsticks) (Faculty of Medicine, Ramathibhodi Hospital, Mahidol University, 2013) The gross motor skills are developing such that they are able to swing their legs, kick a football, jump up with their both feet above ground and stand on one leg for one second (Ministry of Public Health, 2015). Consequently, children at this age have strong muscular, like to do things by themselves even though they lack experience and appropriate decision making skills which consequently leads them to incur unintentional injuries. A study by Kendrick showed consistency with the risk factors highlighted above especially the behavior of climbing or playing on top of furniture on furniture (Kendrick, 2015).

Behaviors associated with a low level risk of unintentional injuries included behaving carelessly in or around water hazards, burning themselves with hot objects, jumping down from stairways, playing with sharp objects, putting fingers or objects in electrical wall sockets, exposing to dangerous substances, falling out of windows or down stairways, and playing with fire. These behaviors are possibly in the low risk category because children's care taker closely supervise and teach children not to play with these dangerous things. And so toddlers are aware of the dangers of these low risk behaviors. This result is in agreement with the study of the association between caregiver supervision and unintentional injury in children aged ≤ 4 whose injuries required treatment at emergency department. This study showed that children with higher supervision had the lowest of injury (Schnitzer, Dowd, Kruise, & Morrongiello, 2015). Upon interviewing the children's care taker they explained that sometimes they had to rebuke or smack children in order to make them afraid to do such dangerous activities, particularly putting their fingers in house electrical wall sockets, playing bottles of cleaning liquid, and approaching hot objects. Additionally, children's residences were one-storey buildings with the absence of stairways making the high risk behaviors like falling out of windows or down stairways unlikely.

Conclusion and Recommendation

This finding indicated that toddler's behaviors risk of unintentional injuries at optimal high average score were falling down and running out into a street in front of a house. Additionally, toddler's behaviors risk of unintentional injuries at optimal the lowest average score were playing

with fire, followed by falling out of windows or down from stairways. Therefore, these findings suggested that pediatric nurses, educators, institutes promoting child injury prevention should provide caretakers guidelines regarding care and safety standards against risk behaviors leading to unintentional child injuries in families, communities, and nationwide.

The limitation of this finding research is that it cannot be generalized to other toddlers in Thailand. This research provided a representative sample of toddlers who had families residing in Bangkok. Therefore, the finding can be generalized to similar toddlers in Metropolitan area particularly. There are two recommendations for future research suggested by these findings. Firstly, it would be useful to develop unintentional injuries prevention program for toddlers who have high level behaviors risk. Secondly, it may be interesting to study risk behaviors to unintentional injury in and around houses in toddlers who live in rural areas as well.

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Perceived Self-Efficacy, Outcome Expectations and Self-Care Behavior of Hypertensive Patients at Hinlub Subdistrict Health Promotion Hospital, Muak Lek District, Saraburi Province, Thailand

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Abstract

This research examined and compared the levels of perceived self-efficacy, outcome expectations, and self-care behavior of hypertensive patients who received treatment at the studied area. Purposive sampling of 76 patients (21 males and 55 females) who had blood pressure under 160/100 mmHg., answered the questionnaires (Alpha-reliability Coefficient as 0.96) during August to November 2017. Data was analyzed by looking at frequency, percentage, mean, standard deviation, one sample t-test, one-way ANOVA with comparison test by Scheffe's method, and Stepwise-multiple regression. The results are as follows: (a) All of the three aspects were at a high level when comparing with the established criteria (60%) at the .05 level of significance with an average mean of 3.56; (b) comparison between genders was not significant (c) only income made the three issues significantly different at the .05 level of significance. The best predictor of self-efficacy perception is appropriate time selection for exercises, which could predict self-care behavior at 48.70 percent and at the .05 level of significance.

Keywords: *Perceived Self-efficacy, Outcome expectations, Self-care behavior, Hypertensive patients*

High blood pressure (hypertension) is a major cause of premature deaths (Pangjunant & Panthuvet, 2013). The worldwide deaths of adults due to hypertension were estimated to be almost 8 million each year, with about 1.5 million in Southeast Asian populations (Pangjunant & Panthuvet, 2013).

Data from the 4th annual health survey of the Thai population via health check-ups (2008-2009) revealed that there were 11.5 million people over 15 years old with high blood pressure, 60% male and 40% female; 8-9% of the 11.5 million people had undiagnosed high blood pressure. The condition is increasingly worse for patients with a positive diagnosis but without appropriate treatment (Pangjunant & Panthuvet, 2013). Data from the Bureau of Policy and Strategy, Ministry of Health showed 3,664 hypertension deaths in 2001. However, an almost fivefold increase occurred between 2001 and 2011, when the rate soared from 287.5 to 1433.6 per 100,000 (Bureau of Policy and Strategy, Ministry of Health, 2011).

Hypertension is a chronic disease and has no cure (Pangjunant & Panthuvet, 2013). One of the most dangerous aspects of hypertension is that people do not know if they have it. The early stage of hypertension usually has no noticeable symptoms, and this is why it is sometimes called the "silent killer". The pathology of the disease will spread slowly until the symptoms are

more severe. It is usually identified through health screening. Treatment is only symptomatic to reduce severity of symptoms, which may make the disease more aggressive. Untreated high blood pressure leads to worsening and severe complications, which may require longer and more sophisticated treatments. Hypertensive patients who cannot care for themselves or do not get proper treatment, symptoms leading to premature death (Pangjunant & Panthuvet, 2013). Hypertension patients, hence, should possess appropriate health promoting behavior with self-value and full awareness of potentially hazardous health environments. Such health promoting behavior modifications should be practiced consistently as an integral part of a healthy life style. This can eventually lower health issues and complications, which may lead to better overall well-being (Pender, 1996).

To understand how hypertensive patients practice and maintain health promoting behavior, this study sought to investigate the level, perception, and factors of perceived self-efficacy, outcome expectations, and self-care behavior in 3 categories (nutrition, physical exercise, and stress management). This study also aimed to glean insights into public health issues in the communities where senior nursing university students were completing their nursing training. To achieve these aims, this study conducted a health community survey at Hinlub Subdistrict Health Promotion Hospital in Muak Lek District, Saraburi Province. This was carried out by the researchers with the help of nursing students. This hospital was selected because it has been observed that there is a continuously increasing number of hypertensive patients, who also suffered from other complications, including ischemic heart disease, myocardial infarction, paralysis and renal failure. These increasing rates of people with hypertension and associated conditions made the health care providers to act on it. The researchers hope the study will reveal strength and weakness in caring for hypertensive patients and be able to prevent complications well in the future.

Objectives

1. To examine the level of perceived self-efficacy, outcome expectations and self-care behavior of these hypertensive patients.
2. To compare the level of perceived self-efficacy, outcome expectations and self-care behavior of these hypertensive patients in Muak Lek District, Saraburi Province, between different personal statuses (gender and incomes).
3. To analyze factors of perceived self-efficacy and outcome expectations influencing self-care behavior of these hypertensive patients

Hypothesis

1. Level of perceived self-efficacy, outcome expectations and self-care behavior of these hypertensive patients is very high.
2. Gender and Income make no difference on perceived self-efficacy, outcome expectations and self-care behavior of these hypertensive patients.
3. Factors of perceived self-efficacy and outcome expectations influence self-care behavior of these hypertensive patients

Research Framework

The authors adopted the Self-Efficacy Theory by Bandura (1997) as a framework for this study. Figure 1 answer objective 2 and figure 2 answers objective 3.

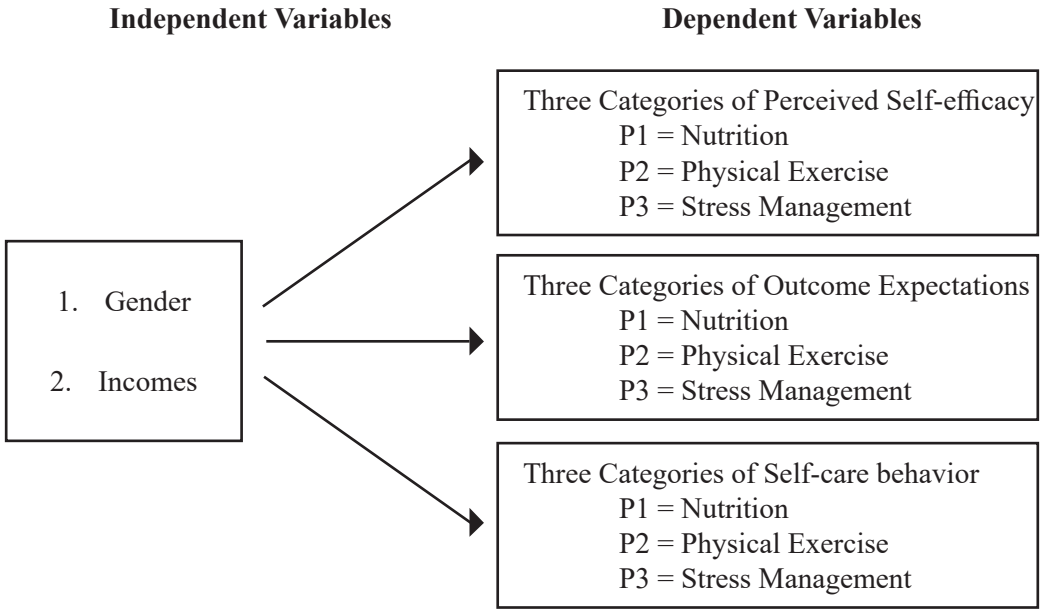

Figure 1. Research Framework for objective number 2

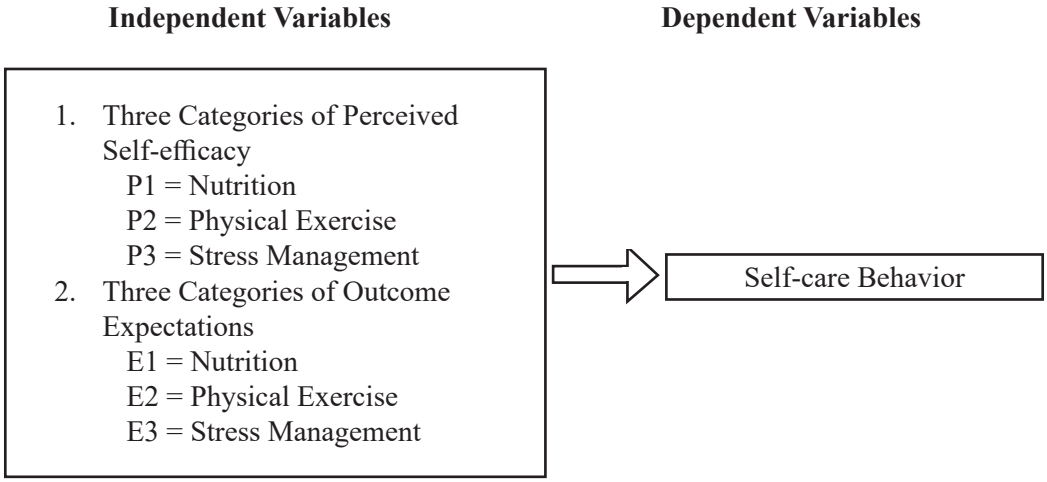

Figure 2. Research Framework for objective number 3

Methodology

Population and Setting

Population Group

Population was 76 (21 males and 55 females) hypertensive patients with blood pressure <less than 160/100 mmHg between the months of August to December 2017.

Sampling Group

100 % purposive sampling method was used for selection a total of 76 subjects.

Instrument

The researchers obtained permission to adopt the questionnaire utilized by Charernyuth (2009) entitled "Effectiveness of Health Promoting Program for Hypertensive Patients" for this study. The data collection questionnaire consisted of 4 sections:

Section 1) General information about the population group such as gender, age, marital status, education level, occupation, domicile, family status, income, medical history of hypertension in patient's family, treatment expense, health checkup, smoking status and alcohol consumption status.

2) Perceived self-efficacy, consisting of nutrition, physical exercise and stress management on a five-point rating scale with a format of positive response questions (most, very, moderate, little, least).

3) Outcome expectations, consisting of nutrition, physical exercise and stress management on a five-point rating scale (strongly agree, agree, somewhat agree, disagree, strongly disagree).

4) Self-care behavior of nutrition, physical exercise and stress management of hypertensive patients consisting of frequency of self-care behavior on a five-point rating scale (routinely, very often, often, sometimes, rarely).

The criteria and interpretation of the perceived self-efficacy, outcome expectations and self-care behavior was divided into five levels: a) the highest level – average score = 4.51-5.00, b) high level – average score = 3.51-4.50, c) intermediate level – average score = 2.51-3.50, d) low level – average score = 1.51-2.50, and e) the lowest level - average score = 1.00-1.50. Reliability testing was tested with 30 hypertensive patients. Cronbach's Alpha Coefficient was performed. The reliability of each section, perceived self-efficacy, outcome expectations, and self-care behavior, was 0.92, 0.94, and 0.88, respectively. The total reliability of this questionnaire was 0.96.

Data Analysis

1. Statistical analysis of general information of the respondents using frequency and percentage
2. Statistical analysis as indicated under Objective 1 in Mean ($\bar{x}$) and Standard Deviation (S.D.). Also using One sample t-test to find the significant difference (by comparing mean with 60% criteria or 3 out of 5 in five rating scales) and the interpretation are as follows:
   a. Mean is higher than 3 (in five rating scale) or 60% and $p < .05$ = High level
   b. Mean is close to 3 or 60% and $p > .05$= Moderate level
   c. Mean is lower than 3 or 60% and $p < .05$ = low level
3. Statistical analysis as indicated under Objective 2 by Independent Samples t-test, One way ANOVA and with comparison test by Scheffe's method.
4. Statistical analysis as indicated under Objective 3 by Stepwise-Multiple Regression as follows:

Results and Discussion

Demographic of the Respondents

There were 76 questionnaire respondents from Hinlub Health Promoting Hospital. The majority were female 72.40%, 75% were aged 60 years and above 67% were married 44. 7% were unemployed 23.& were farmers, 72.40% had elementary school as their highest education level, and 57.9% and 32.90% perceived themselves as having an inadequate and adequate income respectively, as shown in Table1.

Table 1
Demographic of the Respondents (Sample N=62)

Subject	Quantity	Percentage
1. Gender		
Male	21	27.60
Female	55	72.40
2. Age		
18-35 years old	-	-
36-59 years old	19	25.00
60 years and above	57	75.00
3. Marital status		
Single	4	5.30
Married	51	67.00
Widowed	17	22.40
Divorced	4	5.30
4. Occupation		
Employee	16	21.10
Agriculture	18	23.70
Merchant	8	10.50
Unemployed	34	44.70
5. Education level		
No school	13	17.10
Elementary	55	72.40
High school	5	6.60
Bachelor degree	1	1.30
Higher than Bachelor degree	2	2.60
6. Living income level		
Inadequate	44	57.90
Adequate	25	32.90
Adequate with savings	7	9.20

The Levels of Perceived Self-Efficacy, Outcome Expectations and Self-Care Behavior of Hypertensive Patients.

Table 2 shows the data for perceived self-efficacy, outcome expectation and self-care behavior. Perceived self-efficacy, outcome expectation, and self-care behavior of patients, was at a high level when comparing with the established criteria (60%) at the .05 level of significance, average mean as 3.56. Also, when identifying the average means of each aspect, it was found that patients had perceived self-efficacy, outcome expectations, and self-care behavior at the same high level, average means as 3.94, 3.36, and 3.40 respectively, as shown in Table.

Table 2
Statistical Data and Category Interpretation of Hypertensive Patients
(*N* = Sample size, $\bar{x}$ = Mean, *SD* = Standard Deviation)

Category	*N*	$\bar{X}$	S.D	t-value
1. Perceived self-efficacy	76	3.36	0.59	5.34*
2. Outcome expectation	76	3.94	0.57	14.46*
3. Self-care behavior	76	3.40	0.61	5.73*
Total	76	3.56	0.49	10.01*

** $p < 0.5$*

Comparing the Levels of Perceived Self-Efficacy, Outcome Expectations and Self-Care Behavior of Hypertensive Patients Against Gender and Income.

Table 3 showed that gender had no different effect on perceived self-efficacy, outcome expectations, and self-care behavior.

Table 3
Independent Sample t-test of Hypertensive Patients with Gender Classification.

Category	Male (*n*=25)		Female (*n*=55)		*t*	Sig.
	$\bar{X}$	*SD*	$\bar{X}$	*SD*		
Perceived self-efficacy	3.33	0.14	3.37	0.57	-0.31	0.85
Outcome expectations	3.85	0.50	3.97	0.59	-0.83	0.46
Self-care behavior	3.38	0.66	3.40	0.59	-0.13	0.71

*p < .05

Table 4
One-Way Analysis of Variance of Perceived Self-Efficacy, Outcome Expectations and Self-Care Behavior of Hypertensive Patients Classifying with Incomes.

Source	S.S.	*df*	M.S.	*F*	*p*
Perceived self-efficacy					
Between group	2.72	4	1.36	4.32	0.01*
Within group	22.98	71	0.32		
Total	25.70	75			
Outcome expectations					
Between group	1.87	4	0.93	3.08	0.05*
Within group	22.09	71	0.30		
Total	23.95	75			
Self-care behavior					
Between group	2.72	4	1.36	3.98	0.02*
Within group	24.94	71	0.34		
Total	27.66	75			

**p < .05*

Analyzed Factors of Perceived Self-Efficacy and Outcome Expectations Influencing Self-Care Behavior of Hypertensive Patients Using Stepwise-Multiple Regression.

Seven crucial aspects were found affecting the Self-care behavior, could explain the variance of dependent variables at the 77.50 percent at the .05 level of significance. Those variables were: 1) self-efficacy perception in terms of setting aside time for exercise; 2) outcome expectations in terms of eating vegetables and fruits for reducing high blood pressure; 3) self-efficacy perception in terms of meditation for reducing high blood pressure; 4) self-efficacy perception in term of drinking 6-8 cups of clean water a day to have a regular excretory system and control high blood pressure; 5) self-efficacy perception in terms of selecting the appropriately exercise methods for reducing high blood pressure; 6) outcome expectations in terms of taking sufficient nutrient help control high blood pressure; and 7) self-efficacy perception in terms of positive mind to reduce stress help control high blood pressure. It was also found that the best predictor of all as self-efficacy perception concerning setting aside time for exercise, only one aspect could predict the self-care behavior of high blood pressure patients at 48.70 percent and at the .05 level of significance, as shown in Table 5.

Table 5

Stepwise-Multiple Regression Analysis of the Effect of Perceived Self-Efficacy and Outcome Expectations to Self-care Behavior of Hypertensive Patients at Hinlub Sub-District Health Promotion Hospital in Muak Lek District, Saraburi Province.

Model	Factors	r^2	F	Coefficient				
				Constant	B	Beta	t-value	Sig.
1	• Perceived self-efficacy in terms of setting aside time for exercise (P2)	.487	70.15*	2.36	0.30	0.70	8.38*	.000
7	• Perceived self-efficacy in terms of setting aside time for exercise (P2)	.775	33.54*	.112	0.17	0.39	4.04*	.000
	• Outcome expectations in term of eating vegetables and fruits for reducing high blood pressure (E1)				0.19	.291	4.82*	.000
	• Perceived self-efficacy in terms of meditation for reducing high blood pressure (P3)				0.10	0.24	3.99*	.000
	• Perceived self-efficacy in terms of drinking 6-8 cups of clean water to have a regular excretory system and control high blood pressure (P1)				0.11	0.19	3.05*	.003
	• Perceived self-efficacy in terms of selecting the appropriate exercise methods for reducing high blood pressure (P2)				0.13	0.30	3.12*	.003
	• Outcome expectations in terms of taking sufficient nutrient help control high blood pressure (E1)				0.13	0.18	2.87*	.005

(table continues on the next page)

• Perceived self-efficacy in terms of positive mind to reduce stress (P3)	0.08	0.16	2.66*	.010

* $p < .05$

Notation:

B: Regression Coefficients;
Beta: Standardized coefficients
F statistics or F ratio;
R: Multiple correlation coefficients
Sig. labels the two-sided P values or observed significance levels for the t statistics

Discussion

This is due to the past health care events held at Hinlub Subdistrict Health Promotion Hospital related to Perceived self-efficacy, Outcome expectations and Self-care behavior. There were health care exhibits of hypertension highlighting facts, cause, symptoms/types, complications, diagnosis/test, treatment and self-care. Medical staffs and nurses from Hinlub Subdistrict Health Promotion Hospital emphasized the importance and benefits of self-care, knowledge and skill in healthy nutrition, diet, weight control, video with demonstration of stretching & exercise and stress reduction techniques. Patients participated in group discussion & questions and took materials home for review and practice. They also made house calls to follow-up on self-care behavior and rotated to all hypertensive patients at Hinlub Subdistrict Health Promotion Hospital. This correlates to the research of Prompiengboon Jongpakdee (1998) who studied health promotion for patient in self-care behavior at Lampoon Hospital and revealed comparable results with $p<0.05$. Saijai Chaisongkarm (2002) also reported that health promotion program for seniors at Muang District, Nonthaburi Province showed better results of perceived self-efficacy, outcome expectations and behavioral promotion in nutrition, physical exercise and stress management after experiment with $p<0.05$.

Conclusion and Recommendation

There were 76 respondents from Hinlub Health Promoting Hospital. The majority was female 72.40%, aged 60 years and above 75.00%, married 67.00%, unemployed 44.70%, agriculture 23.70%, elementary school graduate 72.40%, inadequate and adequate income 57.90% and 32.90% respectively.

From our study, Hinlub Subdistrict Health Promotion Hospital should routinely offer health related activities in 3 areas: nutritional intake, physical exercise and stress management. Information should be demonstrated with hands-on practice whenever possible to help enhance remembering. Physical exercise should not be vigorous to avoid injury since most hypertensive patients are elderly.

For future research, should adopt perceived self-efficacy theory with social/community support to promote health in hypertensive patients. Caretakers play an important role in assisting hypertensive patients to participate in the on-going activities with transportation; while at home, they help oversee and assist with nutrition, exercise, and stress management including utilization of health information of high blood pressure.

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The Result of Stress Management Program in Freshman Nursing Students, Asia-Pacific International University

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Abstract

This quasi-experimental research aims to study stress level and the result of stress management program of freshmen nursing students. Simple random sampling technique was used to select 60 freshmen nursing students. They are divided equally into control group and intervention group. Stress management program was developed by investigators and implemented in the intervention group for 3 weeks. Stress level was assessed in both groups before and after the implementation in the intervention group by using Suanprung Stress Test-20 which is a standardized test with Cronbach's Alpha of .87. Descriptive and Independent *t*-test were performed in statistical analysis. The results revealed that high level of stress in both groups ($p < .05$) before the intervention. However, the stress level of freshmen students who receive stress management program in the intervention group decreases ($t = 2.20$, $p < .05$). These findings suggest that instructors and administrators should develop and promote mental health activities for nursing students.

Keywords: *stress management program, stress, nursing students*

Stress is a condition of feeling pressured, uneasy, nervous, afraid, or anxious which is caused by a person's perception or evaluation of life experiences as a mental threat or a harmful condition that impairs function. This creates imbalances between the body and the mind causing many reactions such as the use of self-defense mechanisms, physiological changes, behavioral changes, ideological behavioral changes and emotional changes (Department of Mental Health, 1996). Stress affects physical health and mental health which leads to anxiety, depression, unreasonable fear, and unstable emotion. Moreover, it also affects a person's working efficiency, and relationships with family and close friends (Jitrakorn, 2004). If adjustments are made and satisfaction is acquired, then the individual is encouraged and strengthened to manage any stressful situation. However, if adjustments and satisfaction are not achieved, then it will be stressful. As a result, the balanced living in the society is lost and there is a lack of efficiency in the workplace.

Stress occurs at any age and adolescence is the time when stress levels are high. According to the study done by Anderson, Levinson, Barker, & Kiewra. (1999), they found that students aged 18-22 years were in need of adaptability to the dramatic changes in life. Higher education is an area where students are required to use analytical thinking as well as adapting to new academic environments. These kinds of adjustments in life --new student orientation, new teaching methods at university, and changes of places and friends impact the levels of stress in university life.

The freshman nursing students at Asia-Pacific International University entered this great change in life: They had to adjust to a new campus, environment, society and culture; make and adapt to new friends, activities and regulation of the university. All of these result in many kinds of stress. Research done by Nithipun Boonpume (2010) regarding stress and stress management

among Thai Traditional Medical College students found that the level of stress experienced by these university students can be improved by changing their lifestyles at the beginning of their university lives. From high school students to adulthood, many adaptations have to be made starting from new student orientation; adjusting to new teaching methods, places, and society through to the preparation of starting a career and building a family. A self-assessment report of the Mission Faculty of Nursing in curriculum discovered that of the 77 students, who were accepted in the first academic semester of 2016, only 70 students remained at the end of their freshman year. Factors affecting the change in number were students' resignation, transfer out of the faculty or semester leave-of-absence due to financial issues. Other researchers found that students dropped out because they were studying in fields that they did not like, had problematic attitudes toward their field of studies, family status, with insufficient income to support their studies, uncaring parents who disturb their children's study by asking them to help the in family's businesses, health concerns and quitting to pursue other careers (Luesakul, 2010; Supyam, 2009; Phokeaw, 1996; Joseph, 1972).

In light of the findings above, stress among the freshman mission nursing students may be due to the effort of adaptation, participation in university activities, teaching and learning styles at a higher education level, personal factors and family status. The researchers recognized the impact of stress so they developed a stress management program that allowed the freshman nursing students to be able to measure and perceive their own stress level and learn techniques on how to manage their stress.

Research Objectives

1. To study the stress levels of the freshman nursing students at Asia-Pacific International University
2. To study the effect of a stress management program on the freshman nursing student at Asia-Pacific International University.

Research Hypothesis

1. The stress level of the freshman nursing students at Asia-Pacific International University is high significantly before the integration of the experiments compared to the criteria of the Department of Mental Health with statistically significance level of 0.05.
2. The freshman nursing students at Asia-Pacific that receive the integration of the stress management program have a lower level of stress than the group that does not receive the integration of stress management program, with statistically significance level of 0.05.

Research Framework

The systematic theory of Lazarus (1996), the theory applied to this research, discusses the emotional response system as a result of an interpersonal relationship with the environment. The key components of the Lazarian concept of emotional response system are the stimuli, the evaluation of the person and the response of the person. Research framework is shown below.

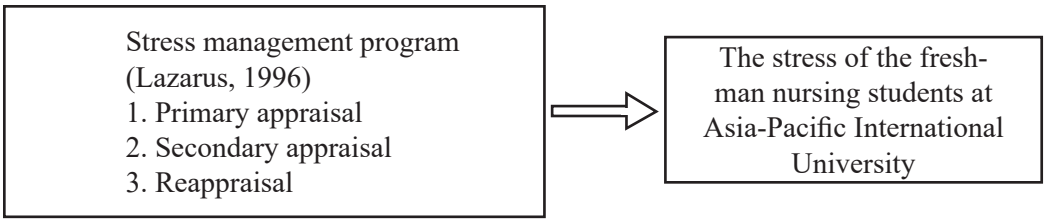

Figure 1. Research Framework

Methodology

This research is a quasi-experimental research with a 'Non-Randomized control Group Pretest-Posttest Design'. The independent variable is the stress management program and the dependent variable is the stress levels of the freshman nursing students of Asia-Pacific International University.

Population and the Sample

The population is 92 freshman nursing students at Asia-Pacific International University. For the sample, as this is a quasi-experimental research, the sample size should not be less than 20-30 people (Polit & Beck, 2004). The sample size used in this study was 60 people.

Sampling method. Simple random sampling technique was used to collect 60 students, 30 of which 30 were assigned to the experimental group and 30 to the control group.

Research Instrument Includes

1. Personal data questionnaire consisting of gender, age, family income, status of father or mother, number of siblings, physical activity and number of close friends.
2. 'Suanprung Stress Test-20' developed by Mahatnirunkul and his colleagues (1997) at Suanprung Mental Health Hospital. It is based on a 6-point scale answer which is 0-5 points; no stress (0) to severe stress (5). But for the Suanprung Stress Test, the total score should be no more than 100 points which is divided into 4 levels.

Score	0-23	low level of stress
Score	24-41	moderate level of stress
Score	42-61	high level of stress
Score	62 and above	intense level of stress

3. Stress Management Program which was created using the concept of Lazarus (1966), from the literature review and related research to investigate the effects of the stress management program on freshman nursing students at Asia-Pacific International University.
   3.1 Primary appraisal is the evaluation of a person's stress-inducing stimuli in order to eliminate the stress or the prevention of the cause of the stress and to find a way to control the situation by having group activities, recording the problems and managing the stress.
   3.2 Secondary appraisal is the evaluation of a person's ability of managing a stressful event which is a change that brings a solution to the problem, being able to respond to stress inducing stimuli by doing relaxation exercises in groups, relaxing the muscles and having the proper way of exercising.
   3.3 Reappraisal is the re-evaluation of the situation after the method in 3.2 has been applied in order to maintain the balance and to reduce the impact of stress by doing group activity in response to recorded problems.

Quality Control Inspection of Research Instruments

1. **Content Validity.** Three experts examined the data questionnaire and the stress management program and assessed their content validity index (CVI) the criteria of which should be more than 0.8 (Burns and Grove, 2009).
2. **Reliability.** The researcher used the Suanprung Stress Test-20 to try out freshman nursing students at Asia-Pacific International University who have similar characteristics to, but were not part of the sample. The Cronbach's Alpha Coefficient's value was 0.87.

Protocols for the Sample

After being approved by the Ethics Research Board of Asia-Pacific International University, the researchers called for the participants who met the criteria in order to explain to them the purpose of the research, the process of the experiment and the duration of the research along with the explanation that the participants had the right to accept or refuse to participate. In addition, if the participant was dissatisfied or did not want to continue to participate in the research, he or she could withdraw from the participation at any time. All information provided was kept confidential. The data was presented as an overview without revealing any names. If there were any questions or doubts, the participants were able contact the researchers at any time.

Methods

1. When the researchers received approval from the Research Ethics Committee of Asia-Pacific International University, they brought the approval letter from the Mission Faculty of Nursing of Asia-Pacific International University to the Deputy Dean of the Faculty of Nursing, Muak Lek campus. The researchers clarified the objectives and the process of collecting data; requesting the permission to collect data, and data screening of the participants.
2. Once approval was received from the Deputy Dean of the Faculty of Nursing, Muak Lek campus, the researchers contacted and met the instructors of the sample group to explain and clarify the purpose of the research in detailed steps and the timing of data collection in order to be able to use the location and ask for cooperation with the research.
3. Preparation of Six Research Assistants
   - 3.1 The qualifications of research assistants were: should be a junior nursing student who has done a course in introduction to nursing research, should volunteer to participate in the research and should be able to travel to collect the data on Muak Lek campus on the days when they no class.
   - 3.2 The scope and duties of the research assistants was to prepare the freshman nursing students of Asia-Pacific International University for participation in the stress management programs which included three activities 1) recording problems and stress management, 2) stress management and 3) recording problems about stress issues.
   - 3.3 Training the Research Assistants
     - 3.3.1 The researchers reported the objectives of the research and explained 1) the instruments for collecting data including the Suanprung Stress Test -20, 2) preparation of the freshman nursing students at Asia-Pacific International University, 3) the stress management program and 4) the rights of the sample group.
     - 3.3.2 The researchers trained the research assistants for about 2-3 hours and gave them the opportunity to ask questions and to try out the data collection tools.
4. The researchers randomly selected 60 nursing students. These students completed the self-evaluation report on stress using the Suanprung Stress Test-20. Using the scores from this pre-test the students were assigned into the experimental or control groups by pair-matching similar scores and genders. Therefore, characteristics of both groups were kept similar.

Data Collection

1. After the experimental group was selected according to the criteria, the researchers establish the relationship with the participants; clarified the objectives and details of the research, rights of protection and requests for the cooperation in participating in the research and had them sign the consent form to participate in the research.
2. Participants completed the personal data questionnaire and the Suanprung Stress Test-20.
3. The process of conducting the experiment had three steps as follows:

Week One

Activity One Problem-recording and stress management. The participants were divided into groups of six to discuss (about 30 minutes) opinions about, problems regarding, and techniques to manage stress. The problems discussed were recorded in a notebook.

Activity Two Relaxation exercises to reduce stress. This was a whole group activity. The researchers demonstrated to the participants how to do relaxation exercises for reducing stress and muscle relaxation training (about 15 minutes) and gave them the pamphlet "Exercise to Reduce Stress" which had the same content as the activity. It was is to be taken home and reviewed.

Week Two

The experimental group recorded the problems of their stress and how they managed the stress on their own, in a notebook.

Week Three

Activity Three Problem-recording of stress issues. The participants were again divided into groups of six to. Each group evaluated the problems of stress that they had encountered and how they managed their stress. This was the summary from their recording (about 30 minutes).

4. After activity three was completed, the research assistants checked the stress level by using the post-test survey, (about 5 minutes).

The Control Group

Week One

1. After the control group was selected according to the criteria, the researchers established relationships with the participants; clarified the objectives and details of the research, rights of protection and requests for cooperation in participating in the research and had them sign the consent form to participate in the research.
2. Participants completed the personal data questionnaire and the Suanprung Stress Test-20.

Week Two

The control group performed their normal daily activities.

Week Three

The research assistants evaluated the stress levels by using the post-test survey, (about 5 minutes).

Data Analysis

The data were analyzed by using statistical software and the statistical significance level was 0.05. The data from the questionnaire were analyzed using descriptive statistics. The average score of stress levels was analyzed by a one sample t-test. And the comparison of stress levels between the intervention group and the control group by using an independent sample t-test.

Results and Discussion

Before the experiment, the average stress level of the participants was found to be 45.28, (Table 1) which was higher than the set criteria of 41 (according to the Suanprung Stress Test-20 of Department of Mental Health) with statistical significance of 0.05. This demonstrated that the freshman nursing students of Asia-Pacific International University acquired high level of stress due to their adjustment to the teaching in higher education, making and adapting to new friends and

new activities. Similarly,Uratnamani (2016), found that grade 12 students in Thailand had a high level of stress (56.6%) due to factors related to family expectations for university entry and the amount of work assigned during study, with statistical significance of 0.05. In addition, the study of stress in freshman nursing students at Boromarajonani Nursing College, Nonthaburi Province by Tanheng and colleagues (2013) discovered that 30% of the students have a little higher stress level than normal and 4.3% of them have higher or much higher level of stress than normal. Most of this stress comes from studying. As for the methods of stress management, it can be divided into two types; managing stress by solving the problems or managing stress by modifying the feelings or reactions to the problems.

After the intervention the stress level of the experimental group was lower than the control group with a statistically significance level of 0.05 (Table 2). From this result, it can be surmised that the integration of the stress management program, adapted from the theory of Lazarus (1966), helped the freshman nursing students to recognize the problems in their daily lives. These problems may have affected their stress levels. Group activities are a possible way to deal with these problems: By asking members of the group to find ways/techniques to manage stress in order to create a variety of ideas for stress management. Subsequently, in the face of stress, students can apply these stress management approaches correctly to reduce their stress levels. This is consistent with the research of Charnkasit (2012), where group activities were used for the improvement of stress among nursing students who had to adapt themselves to teaching in the Air Force. After they received the stress management program, the experimental group had lower stress scores. And there was a significant increase in their adaptation scores after the experiment, with statistical significance of 0.05.

As for the control they had higher stress levels than those receiving the stress management program. In research done by Khumthong (2013), after the intervention, 56% had a slight decrease in stress and 20% had a decrease in stress to their normal mental health level. In this research, of those in the experimental group, 72% reduced their stress levels to a normal mental health level, 24% had a slight decrease, and 4% had a decrease in their stress level to a very good state of mental health. When comparing the differences in ratio on the level of stress between the experimental group and the control group, only with those who had stress, were the results different.

Table 1
Mean score of stress of freshman nursing students (before intervention n = 60)

Stress score	Criteria for scoring 41/100 points (Suanprung Stress Test-20, Department of Mental Health)			
	Mean	*SD*	*t*-value	Sig
Pre-test	45.28	10.48	3.26*	0.002

**p < 0.05*

Table 2
Comparison of the mean scores of stress of freshman nursing students at Asia-Pacific International University between the experimental group and the control group

Stress score	Experimental group (*n* = 30)		Control group (*n*=30)			
	*M*ean	*SD*	Mean	*SD*	*t*-value	Sig
Post-test	39.90	10.00	46.57	12.46	-2.20*	0.032

**p < 0.05*

Conclusion and Recommendation

Conclusion

Before the experiment most of the freshman nursing students at Asia-Pacific International University had high levels of stress compared to the standard levels of Suanprung Stress Test-20, and the Department of Mental Health. After receiving the integration of stress management program that engages group activities to manage stress, stress relief exercises and reevaluation of group program management, the students that received the stress management program had reasonable levels of stress while those that did not high stress levels.

Recommendation for Further Research

The duration of the research should be increased in order to have more time for the integration of stress management program, to follow up on the continuum of the students' stress management and to make the stress management program more beneficial. This study should be done with the nursing students of other years to promote mental health so that the students will be able to manage their stress by themselves. Finally, the school administrators should use these results as a guide for mental health promotion and for prevention of the problems that result from being stressed.

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