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Aims and Scope of IJPHS

The International Journal of Public Health and Health Sciences (IJPHS) aims to publish original articles and contributions relevant to public health and medical sciences. IJPHS is published by the Praboromajchanok Institute for Health Workforce Development (PBRI), Ministry of Public Health, Thailand. It is a non-profit, peer-reviewed, open-access, international, scientific journal that publishes articles in areas of health sciences disciplines. The scope of the IJPHS is broad, covering the following categories: original articles, reviewed articles, special articles, case reports, correspondence, and others in the fields of public health, medical sciences and related allied health, especially the following areas:

- Health policy and management, health care and services
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- Environmental and occupational health
- Health technology and data management
- Global health and Sustainable Development Goals(SDGs)
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- Community health, dental public health, community pharmacy, toxicology, and other relevant health issues of health and medical sciences.

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Editorial Statement

The First International Conference on Advancement in Health Sciences Education and Professions: *Synergy and Reform for Better Health* or iHSEP2019 which is organized by the Praboromrajchanok Institute, the Ministry of Public Health during November 11-13, 2019 at The Miracle Grand Convention Hotel, Bangkok, Thailand.

We were so pleased to see so many colleagues, educators, policy makers, health practitioners and professions, researchers, academic professors, friends and families from various corners of the world, all in one place! There were 15 cohosts from universities and institutes of ten countries, including Youjiang Medical University of Nationalities, China, Matsuyama University of Human Environments, Japan, Association of Indonesian Nurse Education Center (AINEC), Alma Ata University, Indonesia, Sari Mutiara University, Indonesia, Champasak Health Science College, Laos PDR, Savannakhet Health Science College, Laos PDR, Waikato Institute of Technology, New Zealand, Nanyang Polytechnic International, Singapore, Malardalen University, Sweden, University of East Anglia, UK, Capital University, USA, Southern New Hampshire University, USA and Elsevier. Almost 500 participants participated in this excellent event with 69 oral presentations and 107 poster presentations. We hope all participants will return next year with even more colleagues for iHSEP2020!

This conference provided a unique opportunity for all of us. I would like to take this opportunity to express my gratitude to all delegates and sponsors for their full support, cooperation and contribution to this conference. Thank you all participants from all regions of Thailand and other countries. You all make this conference a memorable moment.

The editorial board of IJPHS sincerely hope that the members, faculty members, students, medical, nursing and public health personnel as well as alumni who are interested in obtaining more detail from original articles, reviews, and other to use or transform research information into teaching and research fields. In this issue, IJPHS is consisting of five interesting topics covering public health and medical sciences which you can download articles in the journal at the website <https://www.tci-thaijo.org/index.php/ijphs>.



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Original article

Experimental Studies of Automate Temperature and Relative Humidity Control System to Minimize Adverse Health Effects

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Abstract

Relative humidity is directly related to human thermal comfort. Relative humidity also has indirect effects on the growth and existence of contagious diseases and allergies, especially within the enclosed area where the air-conditioning system has been installed. However, the air-conditioning system can only control the temperature at a stable level; typically, an air conditioning system cannot automatically control relative humidity. The system still needs a special device to increase or reduce relative humidity, which would increase the cost of the system.

The objective of this research is to improve and investigate the effectiveness of split-type air-conditioning system to control relative humidity (RH) and temperature level in the bedroom by using a low cost, newly designed large memory microcontroller unit sensor. This sensor would cooperate with air-conditioning system to control bedroom temperature and relative humidity within the range $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and $55\% \text{RH} \pm 1.5\% \text{RH}$. This range was chosen to reduce the indirect effect of relative humidity on the occurrence of allergies and the existence of diseases. The sensor detects the temperature and relative humidity within the bedroom and sending the commands to the air-conditioning system to adjust these parameters through an infrared blaster. The sensor operates on an automated, changing operation mode that can turn on the drying mode of the air-conditioning system to dehumidify the air in the bedroom. The tested bedroom in this study was 16 m^2 with a 12,000 BTU air-conditioning system for system performance evaluation.

In this experimental study, the air conditioner initially operates in cool mode. If the bedroom's relative humidity is over than 60%RH, the sensor will automatically send the command to change the air-conditioner to operate under dry mode until the relative humidity is reduced to close at $55\% \text{RH} + 1.5\%$. After reaching the optimum humidity, it will switch back to run at its initial setting again. In contrast, if the bedroom's relative humidity is lower than 50%RH, the sensor will automatically send the command to increase the air-conditioner's temperature setting by 2°C under cool mode, until the relative humidity is close to $55\% \text{RH} - 1.5\%$. After reaching this RH, it will swap back to its initial setting. This operation procedure will continue until the user turns off the bedroom air-conditioning system. Our hypothesis is that the newly designed air conditioning system with the large memory microcontroller unit with an improved sensor improvement could control temperature and relative humidity in the bedroom to keep steady at average $\pm 0.65^{\circ}\text{C}$ from setting temperature and at an average relative humidity of 56.15 % RH.

Key words: Health Effects, Temperature and Humidity Control, Thermal Comfort

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Introduction

The purpose of this experiment is to minimize indirect health effects of relative humidity that impact some people who are living in bedrooms with installed air-conditioning systems. Some people suffer from nasal obstruction, nose or eye irritation, sore throat, cough, and other symptoms due to non-optimal humidity from air-conditioning systems. Air conditioning systems also directly affect human thermal comfort, which is the reaction that a human feels about heat and cold (Holm D & Engelbrecht FA, 2005). Relative humidity also affects the growth and existence of diseases, contagious diseases, and allergies, and organisms causing diseases such as bacteria, fungi, viruses, and protozoa (Baughman & Arens, 1996).

Sometimes it is more beneficial to use the air-conditioning system on “Dry Mode,” which is an air-conditioner function that efficiently extracts humidity from the bedroom. Using Dry Mode will cause the fan in air-conditioner to operate at a slower speed, resulting in a cooler evaporator coil that condenses water vapor as the air-conditioner blows out the dry air through the appliance. In general, people manually use their air-conditioner remote control to swap between Dry or Cool Mode. This is due to the fact that air conditioners usually do not have an automated function that switch between Dry or Cool mode in response to humidity changes in the bedroom. However, a feature to automatically move between Dry or Cool mode would be ideal because people cannot

Research Methodology

We designed a new, low-cost temperature and humidity sensor to operate with an air-conditioning system to automatically change its operation mode to the drying mode and cooling mode. The system contains an Arduino Pro Mini microcontroller board as the main controller

wake up to adjust the air-conditioner's humidity mode at night.

In the previous work, the researchers designed a new, low-cost temperature and relative humidity sensor to read present temperature and relative humidity within the bedroom. This sensor also automates the adjustment of temperature and relative humidity parameters by sending the commands to the air-conditioning system through an infrared blaster. This system automatically turns on the drying mode of the air-conditioning system to dehumidify the air when relative humidity is too high (Thongkhom & Veangkum, 2019). This previous study showed that this new system with a temperature and humidity sensor could keep control temperature and relative humidity to keep steady at average $\pm 0.65^\circ\text{C}$ from setting temperature and relative humidity at average 58.02% RH by automatically switching on dry mode air-conditioning system when needed. However, the average % RH is the marginal relative humidity control. There are limitations of the selected microcontroller unit's internal memory of sensor that should impact with the commands being sent through the infrared blaster to the air-conditioner. For example, it is important a person operating or designing the air conditioner precisely adjust air-conditioning system parameters like fan speed or provide for some temperature range to flexibility control relative humidity in the bedroom. So, this research article would like to offer another methodology to improve sensor performance.

unit. It also uses an element sensor DHT22 to read the present temperature and humidity of the bedroom and to send the commands to the air-conditioner via an infrared (IR) blaster that functions like the air-conditioning system's remote controller. One advantage of this microcontroller unit board is its special small

size (8 mm x 33 mm). Another good feature is that power consumption goes down to 23 μ A (0.023 mA) with the 5 V in power-down sleep (PDS). Thus, this system is more efficient than other microcontroller units, and suitable to use as a standalone implement in a designed system. But, the drawback of the microcontroller is the large amount of data or the long length of command that must be sent for changing each operation mode of the air-conditioning system. Each signal may contain up to 228 bits per command because it contains a lot of information like temperature, fan speed, sleep timing, swing style, etc. However, the Arduino Pro Mini has only 2K SRAM to manipulate variables when it runs. This is not enough memory to completely support changing operation mode that was demonstrated in a previous experiment. For these reasons, we chose another

microcontroller unit board to support these requirements. We selected the Arduino Mega microcontroller unit board for better storage options. Figure 1 shows the device specifications for both the Arduino Mini and Mega. It has large memory of 8K SRAM to manipulate the IR blaster command variable and to completely control and change air-conditioning system operation when necessary. But the disadvantages of Arduino Mega microcontroller unit board are its large board size (53.3 mm x 102 mm) and higher power consumption (3.9 mA with 3.3 V, PDS mode, disable or bypass some onboard components) than Arduino Pro Mini board.

The block diagram of newly designed with a large memory sensor is shown in Figure 2 & 3 show the prototype picture of newly designed sensor in this experiment.

Boards	Microcontroller	Operating Voltage/s (V)	Digital I/O Pins	PWM Enabled Pins	Analog I/O Pins	DC per I/O (mA)	Flash Memory (KB)	SRAM (KB)	EEPROM (KB)	Clock (MHz)	Length (mm)	Width (mm)	Cable	Native Network Support
Uno	ATmega328	5	14	6	6	20	32	2	1	16	68.6	53.4	USB A-B	None
Leonardo	ATmega32u4	5	20	7	12	40	32	2.5	1	16	68.6	53.3	micro-USB	None
Micro	ATmega32u4	5	20	7	12	40	32	2.5	1	16	48	18	micro-USB	None
Nano	ATmega328	5	22	6	8	40	32	2	0.51	16	45	18	mini-B USB	None
Mini	ATmega328	5	14		6	20	32	2	1	16	30	18	USB-Serial	None
Due	Atmel SAM3X8E ARM Cortex-M3 CPU	3.3	54	12	12	800	512	96	×	84	102	53.3	micro-USB	None
Mega	ATmega2560	5	54	15	16	20	256	8	4	16	102	53.3	USB A-B	None
MO	Atmel SAMD21	3.3	20	12	6	7	256	32	×	48	68.6	53.3	micro-USB	None

Figure 1. Device specifications for Arduino Mini and Mega microcontroller boards

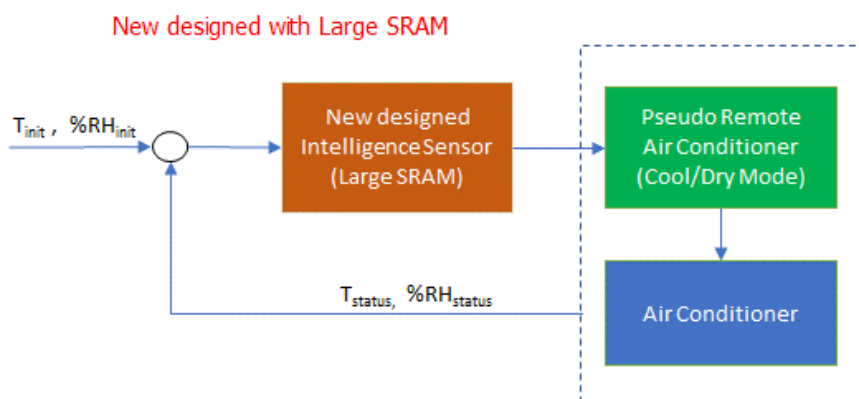


Figure 2. Block diagram of newly designed sensor system

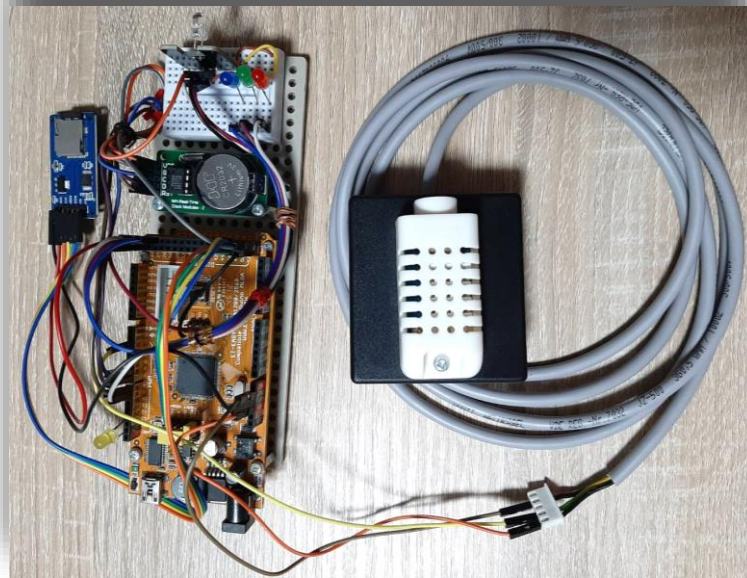


Figure 3. The full system newly designed with large memory microcontroller unit sensor

Study Population and Sample

The bedroom size was about 4 x 4 x 2.2 meters. In this experiment, we installed a 12,000 BTU air-conditioner. The bedroom was located on the 3rd floor of a 3-story townhome containing 2 walls with mirrors and 2 walls made of concrete. The bedroom layout is represented in Figure 4. Each night 3

people live in the bedroom. The researchers used both the old newly designed sensor and the newly designed with a large SRAM sensor to collect data for the temperature and relative humidity of the same bedroom (Figure 5).

The Bedroom with old newly designed Sensor and newly designed with large memory sensor

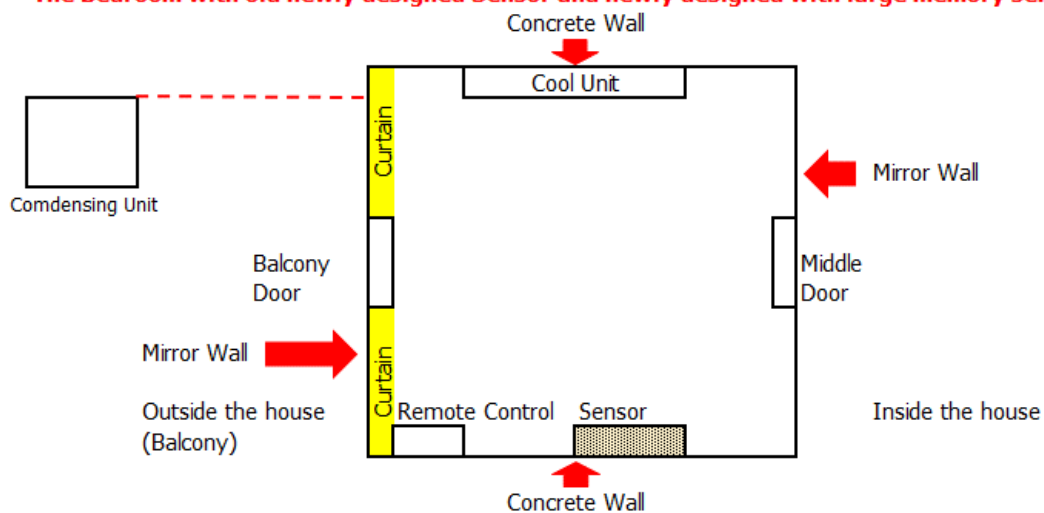


Figure 4. Bedroom layout in the experiment

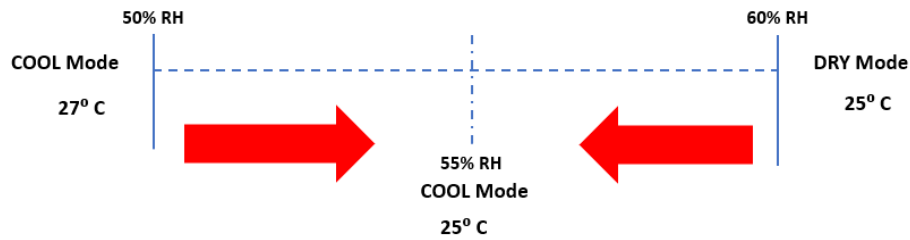


Figure 5. Dehumidify Method

Study Design

The newly designed with larger memory sensor was designed to control bedroom temperature and relative humidity with the dehumidify method that is shown in Figure 5. This method aimed to control the temperature and relative humidity to close the target at 55% relative humidity (RH) and 25°C cool mode. Normally, the users initially start to operate air-conditioners with cool mode per their setting temperature requirement. When the bedroom relative humidity is running higher than 60% RH, the sensor will automatically send the command to change the air-conditioner to operate under dry mode

Data Collection

The temperature and relative humidity measurements in the bedroom are collected every night for 4 weeks using both sensor types from 22:00 pm at night on one night until 05:00 am on the next day. The

Data Analysis

For newly designed sensor with larger memory microcontroller unit's performance evaluation, we used the average temperature offset from setting temperature of the bedroom's air-conditioning system. We

Results

The raw temperature and humidity data from the old newly designed (sensor#1) and the newly designed sensor with large memory microcontroller (sensor#2) were shown in Table 1, and Figure 5 & 6. Table 2 represents the average temperature and humidity for each data collection method. Statistical

until the relative humidity is reduced to 55% RH +1.5%. Then it will swap back to run at the initial setting again. In contrast, if the bedroom's relative humidity is running lower than 50% RH, the sensor will automatically send the command to increase the air-conditioner's temperature setting to +2°C under cool mode until the relative humidity is increased to close at 55%RH -1.5%. Then it will swap back to run at initially setting as well. This operation procedure will continue until the user turns off the bedroom air-conditioner.

temperature and relative humidity raw data that are received from the sensors will be kept in the system's SD (secure digital) cards' data loggers every 15 minutes (28 data points per night) for further data analysis.

also used the average relative humidity in each day within the same period time as comparison. This was done to control for relative humidity within the optimum range.

analysis comparing results from the old newly designed (sensor #1) and the newly designed sensor with large memory microcontroller is shown in Table 3. In Table 3, the ANOVA analysis showed that the means for the relative humidity, expressed in a percentage, were not significantly different

from each other ($p > 0.05$ for 95% confidence interval). But the results of the Levene test showed that their variances were significantly different ($p\text{-value} < 0.05$ for 95% confidence interval), and that the sensor #2 was more effective. In Figure 3, the observed relative humidity of the newly designed sensor with

large memory microcontroller and the old newly designed sensor both showed relatively stable relative humidity readings. However, the newly designed sensor's relative humidity was closer to the target goal of $55\% \text{ RH} \pm 1.5\%$ than old newly designed sensor per hypotheses.

Table 1 Temperature and Humidity data from 2 differently designed sensors

Seq.	Room Temp	Room Humidity	Room Temp Sensor #1	Room Humidity Sensor #1	Room Temp Sensor #2	Room Humidity Sensor #2
1	27.57	55.92	28.88	56.98	25.66	56.14
2	25.97	52.68	26.16	51.18	25.86	54.48
3	25.39	53.41	25.8	49.75	25.74	57.04
4	25.91	58.12	26.2	55.36	25.86	56.22
5	25.63	61.58	26.08	60.45	25.14	59.48
6	25.81	61.04	25.48	57.42	25.42	57.51
7	25.61	60.49	25.68	61.24	25.66	56.65
8	25.79	60.22	25.36	55.57	25.42	58.51
9	25.76	61.68	25.68	56.08	25.98	56.84
10	25.73	63.19	25.36	57.23	25.26	55.31
11	26.11	62.93	26	56.84	25.74	56.57
12	26.05	65.58	25.64	53.05	25.94	56.44
13	25.93	65.45	25.68	57.95	25.58	55.86
14	25.77	64.9	25.2	58.97	25.54	56.82
15	25.89	64.76	25.4	58.88	25.74	53.20
16	26	66.45	25.76	58.91	25.82	56.77
17	26.01	67.41	25.6	59.37	25.9	56.55
18	26.03	65.05	25.52	59.52	26.1	54.29
19	26.19	66.76	25.8	61.53	26.26	57.22
20	26.11	67.24	25.76	57.96	26.1	57.07
21	26.07	64.9	25.64	57.59	26.14	55.00
22	26.11	67.7	25.8	63.61	26.1	57.33
23	25.91	67.55	25.4	60.39	25.82	57.83
24	25.83	65.9	25.16	55.06	25.86	55.21
25	25.88	68.73	25.32	62.70	25.82	57.93
26	25.75	67.87	25.2	63.65	25.54	58.13
27	25.81	67.06	25.36	54.63	25.62	55.78
28	25.95	70.43	25.52	62.92	25.74	59.58

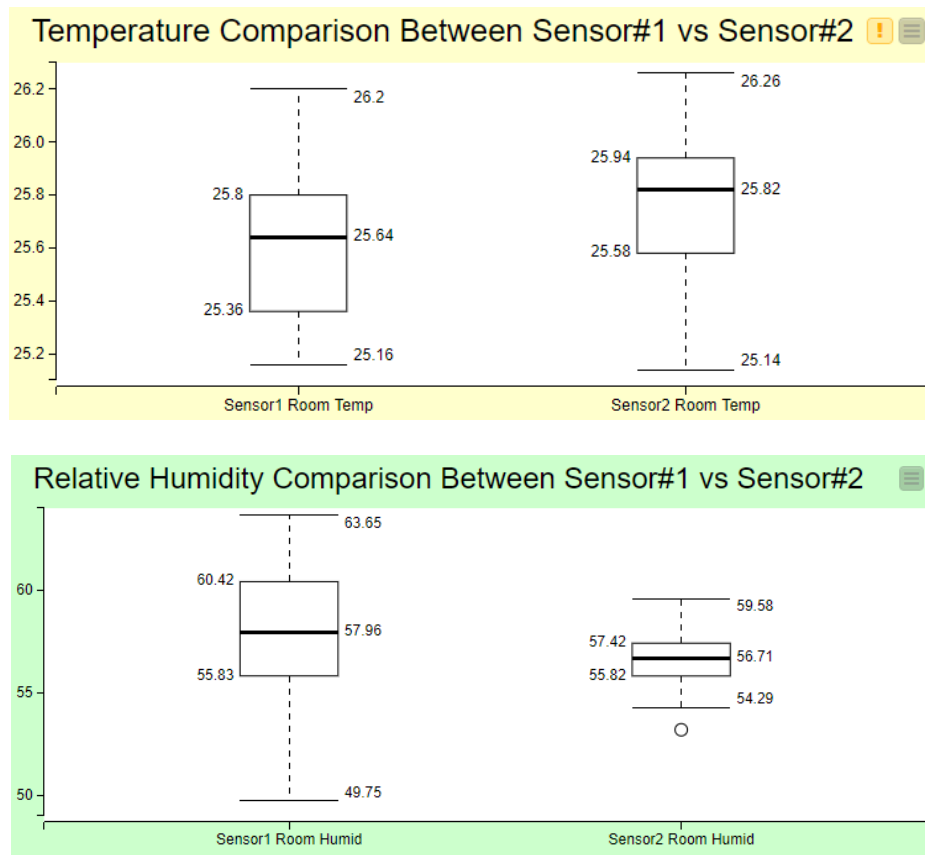


Figure 5. Box plots for temperature and relative humidity data from 2 differently designed sensors

Table 2 Descriptive table of temperature and humidity data from 2 differently designed sensors

One-way analysis of variance (ANOVA)

Descriptive Statistics

Confidence Interval (CI) Probability: 99.0%

	Group	N	Missing	Missing Group	Mean	Std. Deviation	Std. Error	CI (Lower Bound)	CI (Upper Bound)
Humidity	Sensor1 Room Humid	28	0	0	58.0282	3.4971	0.6609	56.1971	59.8593
Humidity	Sensor2 Room Humid	28	0	0	56.6343	1.4639	0.2767	55.8678	57.4008
Humidity	Total	56	0	0	57.3312	2.7478	0.3672	56.3515	58.311

Table 3 Levene test and ANOVA analysis result of 2 sensors

Levene Test

The Levene Test is used to test for the equality of variances.

	F	df 1	df 2	p-Value
Humidity	13	1	54	0.0007

ANOVA

	Source	Sum of Squares	df	Mean Square	F	p-value
Humidity	Between Groups	27.2025	1	27.2025	3.7853	0.0569
Humidity	Within Groups	388.0605	54	7.1863		
Humidity	Total	415.263	55			

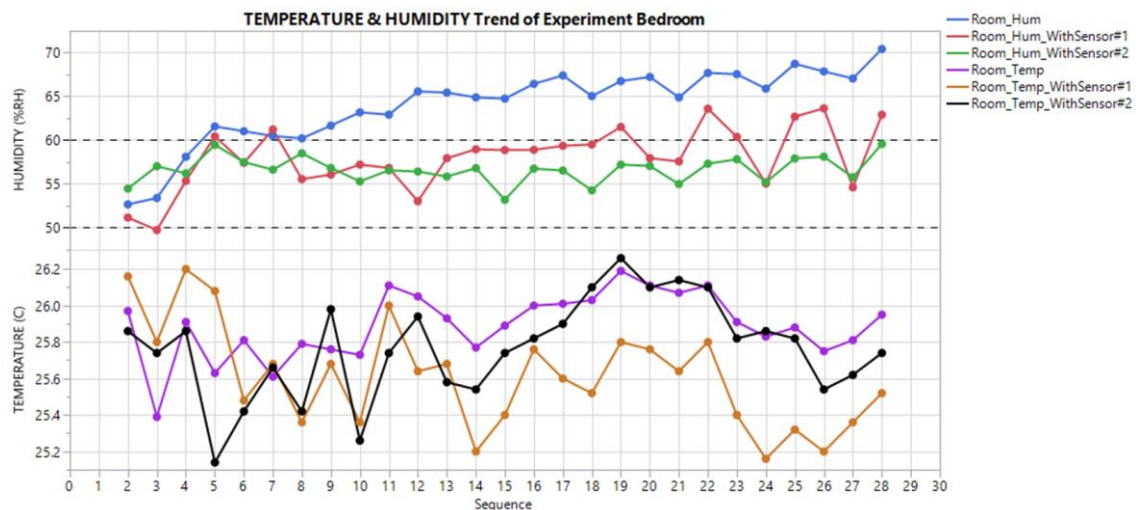


Figure 6. Temperature and relative humidity data from 2 differently designed sensors over sampling time period

Discussion and Conclusions

This experimental study found that the dry mode air-conditioning system is more effective at extracting humidity from the bedroom when conditions are humid, but not too hot. These conditions occur especially at night time. So, the bedroom with newly designed temperature and relative humidity with large memory sensor installation could control temperature and relative humidity to keep steady at average $\pm 0.5^{\circ}\text{C}$ and relative humidity at average 56.35% RH by dry mode air-conditioning system implementation. It is

ideal to maintain relative humidity within 50% – 60%RH per expectation. However, the newly designed sensor is 39% more expensive than the old newly designed sensor due to more efficiency of newly selected microcontroller unit with a large SRAM impact.

The relative humidity level control methodology within the bedroom by dry mode air-conditioning system depends on many factors such as the positioning of air-conditioning system installation, type of building material (concrete or mirror wall,

etc.), external environment surrounding the bedroom, bedroom placement within the building, etc. These factors may affect the room's relative humidity level control results. Thus, designing of an air conditioning system for another room may not be able to follow

the same design as this experiment. In the future, the artificial intelligence sensor system (AI) is a future work candidate. An AI system would assess the bedroom environment and takes actions to control relative humidity in varied conditions.

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Original article

Effect of Nursing Interventions on Depression Treatment in Depressive Patients: A Meta-Analysis

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Introduction: Depression accounted for 4.4% of total disability-adjusted life years (DALYs) in worldwide. In 2020, due to increasing incidences of depression and immense impacts of this condition, research about depression has grown in many different research fields, such as medicine, nursing, psychology, and social science. We wanted to synthesize previous literature on interventions to reduce levels of depression and improve patient outcomes in order to develop evidence-based clinical practice guidelines for treating depression. **Objectives:** To analyze characteristics and the effect sizes of studies about nursing interventions conducted to reduce symptoms of depressive patients in Thailand. **Methods:** Inclusion criteria included: 1) being an experimental or quasi- experimental research, 2) examining impact of a nursing intervention to reduce depression symptoms among patients in Thailand, 3) published during 2006-2013. Twenty-eight studies met all the inclusion criteria and were selected. Data was extracted a research characteristics recording form based on materials developed by Glass, McGraw, and Smith (1981). Descriptive statistics were used to analyze content and research methods. **Results:** All studies were conducted using quasi- experimental design. Most of the studies used psychological interventions (n=24), and a small proportion used cognitive therapy (n=5). One-third of studies had a sample size between 10-20 samples (n=10). Half of the studies utilized a one-group pretest-posttest design to test the effectiveness of the intervention was used as hypothesis testing of the interventions (n=14). About 21% of the included studies were conducted between 3 and 5 weeks (6 studies). Based on the results from the 28 studies, the standardized mean difference (d) for measures of depressive symptoms was 2.57. We considered this standardized mean difference to be large when considering the type of study that was conducted. The operation focused on mental health. Nursing practice focuses on the social care and influences as well (d = 2.48, 2.07 and 2.93). **Conclusion:** This study suggested that depression treatment should be an integrated operation that includes psychological care, nursing, social care, and of course, the people with depression themselves. The results of our meta-analysis should encourage the patients to seek out integrated treatments.

Keywords: Depression, Meta-Analysis, Nursing Interventions

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Introduction

According to a report of World Health Organization (WHO), major depression was one of the top ten diseases causing the greatest health burden, based on Disability Adjusted Life Years (DALYs) (Murray et al, 1996). One DALY is equivalent to losing one year of full health. It combines years of life lost due to premature mortality and years lived with a disability due to a disease or health condition being prevalent in a population (Murray et al, 1996). Depression accounted for 4.4% of total DALYs in 2000. In 1996, about 10.7% of the world population had depression. Approximately, 10-25 % of female and 5-12% of male have depression (WHO, 2010). In 2020, it was estimated that depression would be the fourth leading cause of disease burden (WHO, 2010). Depression causes the largest amount of non-fatal DALYs, accounting for almost 12% of total DALYs worldwide. Economic and social impacts from major depression are ranked in second place worldwide, which is lower than heart disease and arteriosclerosis.

In Thailand, depression is increasing in all age groups and genders (Eakvarungkul, 2015). Depression may be increasing in Thailand due to tremendous changes within society and the economy, devastation due to natural disasters, drug and criminal issues and unsafe conditions. A survey showed that Thailand had 93,566 patients suffering from depression in 2005 (about 149.90: per 100,000 populations). Depression was ranked the fifth among diagnosed psychiatric symptoms in Thailand (Department of Health, MOPH Thailand, 2007). Increasing incidence and

immense impacts of depression have spurred more research about the biomedical, socio-medical, and psychological aspects of depression than in the past.

Based on our literature review, we found that the first group of research studies on depression were conducted in 1974. Since then, researchers have continuously conducted more research about depression. By 2013, the depression research in Thailand appeared in more than 300 papers. Our review found that depression research in Thailand has developed from descriptive to experimental research. Thai research on depression has been diverse, including many different research problems or research questions, objectives, and designs. Therefore, the aim of our study was to synthesize research conducted to reduce depression in Thai patients that were published from 2006 to 2013 through meta-analysis. We calculated the effect size measuring the effectiveness of the intervention on lowering the levels of depression patients with depression. Our goal is that our study results can help develop evidence-based practice guidelines to improve the nursing care for patients with depression. We hope to answer the question: What kind of nursing interventions help to the lower levels of depression the most? The main objective of this study was to identify published studies on depression treatment in depressive patients in Thailand published from 2006 to 2013, including the characteristics of depression research studies conducted in Thailand and the effect size of nursing intervention research on decreasing depression of depressive patients in Thailand.

Material and Methods

Population and Sampling

Using the **PICOS** format, we defined the eligibility criteria for inclusion in our meta-analysis as follows:

1. **P**articipants: Patients living in Thailand or treated at Thai hospitals for depression
2. **I**nterventions: Nursing intervention conducted to reduce depression
3. **C**omparisons: Patients receiving nursing intervention compared to patients not receiving intervention (between-group comparison); or patients tested for depression symptoms before and after intervention (within-patient comparison)

Data collection

Finding and Identifying Studies

We conducted electronic and manual searches from university database related to mental health database for studies conducted from 2006 to 2013. The last search was made on (insert data here). We used limited keywords and combination regarding the relevant words including key terms such as: *Depress**, depression, depressive disorder and depression therapy. We included the term cognitive therapy since this form of treatment typically incorporates behavioral interventions. We manually searched for a complete copies of studies from university library and organization's departments. We reviewed all studies and removed duplicates. If a title and the researchers' name were repeated, we discarded one of the copies. We screened all research studies based on its inclusion criteria. The resulting list of articles

Coding and Data Extraction

This study's authors and a research coordinator evaluated methodological quality of studies and extracted data from studies. The researchers developed a data form with two parts to extract relevant data from the

4. **O**utcomes: Measurement of depression symptoms

5. **S**tudy design: Experimental or quasi-experimental

We restricted our search to peer-reviewed studies published from 2006 to 2013. We only included studies with complete statistical data such as mean and standard deviation for comparison groups with results from the t-test or F-test. This data was used to calculate effect sizes for studies included in the meta-analysis

and book chapters was retrieved and reviewed. Additional meta-analyses on the same topic were identified in the texts of these reviews and a second series of articles and book chapters were retrieved.

Initially, 46 studies matching our criteria were identified. After culling based on several criteria, we had 28 studies for analysis. Ten were excluded because they were superseded by more extensive or methodologically rigorous reviews of the same literature. Six were excluded because they did not clearly distinguish intervention from other interventions. One was excluded because it addressed process variables rather than outcome. One study was excluded because it did not focus on any specific psychological disorders.

studies that were chosen. Part 1 contained basic demographic information and descriptive characteristics. Part 2 contained details related to characteristics of research. The form included questions with multiple

choices and fill-in answers. First, the researcher filled out the form. Next, the researcher asked 3 experts to review the draft record and provide comments. We also tested for content validity including accuracy,

Data analysis

We used a computer program to calculate statistics for demographic characteristics and effect sizes for the impact of nursing interventions on reducing depression symptoms. We calculated descriptive statistics such as frequency and percentage were estimated. We also calculated effect sizes using the standardized mean difference for all individual studies

Results

The characteristics of depression research in Thailand were as follows:

All studies were conducted at academic institutions (n=28). 96.40% of the research was conducted by institutions granting master degrees (n=27). 50% (n=14) of studies were conducted by Chulalongkorn University. 78.50% of studies (n=22) were conducted in the nursing field. 46.4% (n=13) of studies were conducted in 2008.

Regarding the research methodology, all of studies were quasi-experimental studies. For the study population, 85.7% of the studies examined patients (n=24), 46.4% (n=13) included both genders. 67.9% (n=10) of the studies had 10-20 study subjects. 28.60% (n=8) of the studies included teenagers. 57.1% (n=22) of studies selected participants using purposive sampling technique. 53.6% (n=14) of the studies studied 1 group, in which all patients received the intervention 21.4% (n=6) of the studies performed the intervention for 3 to 5 weeks. Most of the studies (82.1%, n=23) used t-test for data analysis. With respect to intervention, 85.6% (n=24) used a psychological intervention, 17.7% (n=5) used a cognitive therapy, 10.7% (n=3) used a cognitive behavioral therapy, and 10.7% (n=3) used a

precision, suitability, and consistency of language and agreement among experts. The researchers revised the record forms following experts' comments.

according to Glass, McGraw, and Smith⁶. We used Pearson correlation test to the relationship of different study characteristics (such as study sample size) with effect size, which was measured using standardized mean. We used the Kruskal-Wallis Test to compare effect sizes among several different types of interventions.

supportive therapy. The pooled outcomes of nursing interventions for depression in Thailand were as follows:

After calculating the effect size measures in 28 studies, we found that the standardized mean difference for nursing interventions to reduce depression was $d = 2.57$. This SMD is fairly large when considering the type of intervention that was used. The interventions focused on mental health. The SMD was also large for other interventions focusing on social nursing and a mix of the big influences as well ($d = 2.48, 2.07$ and 2.93).

Most variables for characteristics of the studies had low correlation levels with the effect size. For example, sample size had a small positive correlation with effect size ($r = 0.135$). There were small negative correlations between effect size with duration of the experiment or intervention ($r = -0.175$) and the practice of nursing ($r = -0.145$).

We did not find significant differences in the reduction of depression symptoms when comparing different types of nursing interventions to reduce depression of depressive patients. We compared the different impacts of psychological intervention, social intervention, and mixed

intervention) by the Kruskal-Wallis Test. (Correct interpretation. After testing for content validity and for agreement among our

three experts, we found the level of acceptance to be 0.79.

Discussion:

Characteristics of research on nursing practice to reduce the level of depression in depressive patients

The majority of patients (85.72%) were studied were depressed and sad. In studies of depression, depression has been diagnosed both in males and females, including those who are during adolescents. In studies in the United States, the prevalence of depression among White males was 7% and among white females was 12%. Study of Runggreankulkij (2010) found that depression can happen to people of all ages. Both women and men in Thailand had equal prevalence equal for depression. The size of the study samples in the experimental studies varied from 10-20 participants. This may be the optimum sample size for this kind of research. Selected participants ideally should ideally represent the overall population. This is especially important in experimental and quasi-experimental research, which is used to determine an appropriate sample treatment. (intervention). The acquisition of the sample using a probability, mainly to store specific. So researchers sampled a group that they felt best matched the overall population with depression.

Cognitive therapy was the most common types of nursing practice to treat depression found in the experimental studies, followed by group therapy, behavioral idea, the supportive therapy and self talk. Depression may be due to the accumulation of thought, perception, and negative feelings to a patient and their environment. These negative feelings distort reasons. The cognitive therapy aims to correct negative thinking to become more suitable (Beck et al, 1961) by stimulating the depressed person to see know and understand and can analyze the effect. Treatment is focused on people with depression speaking, thinking, and analyzing situations to distinguish the effects of negative thinking and to learn how to modify the idea for themselves. Over time, depressed patients develop mechanisms to adapt to stressful or threatening situations by developing their own abilities. In accepting the consequences of choice without thinking about punish themselves about depressed behaviors and the situation, Beck Steer &, Garbin (1988) recommend (therapy to cope with the problem. These techniques can be effective to reduce depression to milder levels.

The outcomes of nursing interventions to reduce levels of depression in depressive patients.

The combined effect size of the nursing practice interventions described in 28 studies to reduce the levels of depression was 2.57. This result provides evidence that nursing activities that were used in these studies can reduce depression. Upon review of the different studies, we found that these interventions fit within the framework of the nursing theory and provided credible evidence that their

interventions had conceptual bases. However, many individual differences, including age, education, illness experience, health care experience determine what types of nursing intervention best suit individual patients with depression. Thus, the relationship between nurses and those with depression is very important so that patients will trust the advice and assistance of the nurse caring for them.

The relationship between effect sizes of the intervention with methodological features of clinical research

We found consistently low correlation between effect sizes of the intervention with methodological features of the research. Sample size had a positively correlation with the effect size ($r = 0.135$). There was a weak negative correlation with the duration of the trial and the nature of nursing practice ($r = -0.175$ and $r = -0.145$, respectively). This suggests that it is important to use the correct sample size for your research. In quasi-experimental and experimental research, the goal is to determine the appropriate treatment of the sample. For Intervention research studies, researchers also must take into account how well their study sample represents the overall population. However, the effect size of the intervention may be low due to errors in measurement. The discrepancy between the measured effects of an intervention and the actual effects may arise from various factors. For example, the male gender of the researchers or research

assistant during data collection may make female participants less comfortable with giving true responses or may result in biased data collection due to gender bias.

We found no significant differences in effect sizes among different types of nursing intervention to treat depression. We found that each type of nursing intervention was provided within the framework of the nursing theory. Each study also examined if their particular activity or program reduced levels of depression. The conceptual framework must be clear and the choice of nursing theory needs to be correct to provide a clear foundation framework for the study. However, weaknesses of the studies in our review include that studies often had small samples and study subjects were not completely chosen random. The lack of random sampling makes it difficult to generalize the findings to the overall population.

Implications for sustainable health development:

1. Nursing care for depressed patients should encourage the use of the various areas of nursing practice combined. Psychological therapy and social care should be provided for depressive patients appropriately to achieve

optimal mental health and treatment for depression.

2. Research should be relevant to the adding to the database of knowledge for nurses to reduce depression among their patients.

Conclusion

Results from this study suggested that depression treatment should be an integrated operation that includes psychological care, nursing, social care, and of course, the people with depression themselves. The options include the preparation of the information

about the patient and a personalized plan designed by nurses to reduce the level of depression based on the most up-to-date medical evidence and literature on such patients.

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Original article

Daily Life Monitoring for Older Adults by Thai Family Caregivers

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Abstract

The objective of this study was to explore family caregivers' experiences of monitoring the daily life of older adult relatives. The grounded dimensional analysis approach was applied. Twenty Thai family caregivers were recruited using the method of theoretical sampling. Data were collected through face to face in-depth interviews. Dimensional analysis proceeded with data collection. Findings indicated two distinct types of daily life monitoring, 'in-house monitoring' and 'remote monitoring'. The four integrated strategies of daily life monitoring; observing, questioning, listening, and demonstrating were discovered. Changing caregivers' life and identifying what to do were indicated as consequences of daily life monitoring which these were influenced by those monitoring strategies and the perception of caregivers on information which they gain. These findings can guide nurses and health personals in supporting caregiving families in order to keep the home care continue.

Keywords: Caregiving, monitoring, older adult

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Introduction

Monitoring the daily life of older adults in their home environment can provide a means to assess their health and well being. In certain situations, monitoring activities of daily living can be used to measure both physical and cognitive decline. In Thai families, it was found that monitoring is a type of care provided for older family members (Wongsawang et al.,2013). In relation to the monitoring, abilities of older adults to perform activities of daily living were commonly assessed. The reason is that the activities are conditions which able to reflect the person's capacity of self-care and

to reflects on their abilities to live independently in their house.

Noticing dependency was a threshold of dependent caregiving, (Wongsawang et al.,2013). Therefore, it is important to know how family caregivers notice dependency in term of how family caregivers monitor the daily activities of older adults. However, little is known about monitoring care, a type of caregiving, which related to changes in daily activities of older adults. This study was aimed to achieve the understanding of how Thai family caregivers monitor the daily life of the older adult family member.

Research Methodology

In this study, a grounded dimensional analysis, a form of grounded theory (Bowers, 1987) was applied as the method of inquiry.

Participants and Recruitment

A total of 20 participants, family members were recruited personal contacting with nurses and health personnel who work at health centers in the Ratchaburi province. To achieve this, access to participants was obtained by individual verbal invitations for participation at the place where they live and where the researcher met them. Additionally, with an informal conversation with whomever around, the research would gain the information of individuals, family units, conditions and other information that related mostly to theoretical sampling.

Participants for this study were self-identified as providing care to a parent-in-law,

spouse, or others who age 60 years and over. The majority of the participants were female (17 of 20), got married (18 of 20). More than half of them (11 of 20) were daughters. Most of them live with the older adults (15 of 20) while 2 of them live in the commutable distance (less than 10 kms). More than half of them work outside the home (8 of 15). The participants provided care to 10 older members who were primarily male (6 of 10). Most of the older members were bed bound or totally dependent (8 of 10) and all of them had at least one offspring living in the same house.

Data Collection

In this study, the data were generated through in-depth interviews with 20 family caregivers. Interviews, 30- 40 minutes in

length, were conducted in- person. The interviews were taped, note and transcribed verbatim by the researcher.

Data Analysis

The three phases of grounded dimensional analysis ~~was~~ were used for data analysis. The early phase consists primarily of open coding, the middle phase uses axial

coding for the integration of categories and dimensions, and the final phase uses selective coding to form a theory or conceptual model. Practically, processes of doing the research

were not linear rather than simultaneously occurred during data collection and data analysis. The trustworthiness of this study

Ethical Approval

To protect the rights of human research subjects, the proposal, research procedures, and subject consent form was approved by the ethics committee of

Results

The findings of this study demonstrated that daily life monitoring for older adults was a type of care which aims to ensure the older adults get what they need, to know what caregivers should do, and to prevent negative consequences of providing care. There were two distinct types of daily life monitoring, in-house and remote

1. Type of daily life monitoring

Family caregivers described that as their parents or spouse get older and become dependent; they will not allow them to be alone in their house. The older adults need to have someone to be-with during days and overnights. By being-with the older adults, the caregivers will be able to monitor what it was going on with the older adults, to know what older persons needs and to make sure the older persons get what they need. Moreover, the purpose of monitoring is to prevent accidents, particularly falling, in and around their living place. Activities of older persons on a daily basis which normally observed were feeding, mobility, defecating and passing urine.

If any caregivers were not available for in-house monitoring, finding someone to replace this task was necessary. It could be the replacement by a short home visit during the absent of the ordinary caregivers. In case, there was no family member available for replacement, the ordinary caregivers mostly could not go outside or need to wait until the care was replaced by someone.

Family caregivers indicated that in-house monitoring was keeping an eye-on older person. All dependent older adults had

was censured by consistency use of the grounded dimensional analysis, member checking, peer debriefing, and monitoring.

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monitoring. In order to provide these two types of monitoring, five integrated strategies included observing, listening, questioning, and demonstrating were applied. Consequences of ADLs monitoring were influenced by both monitoring strategies and the perception of caregivers on information which they gain.

at least one family member to look after them during a day and overnight. A caregiver who was a being-with older person described what she checked during the day.

"I check her often during the day. I check her groves. I check her dressing. I check her Foley's catheter. I checked whether it is retained...." (Da, 21 years old)

In order to keep an eye-on the older adults during a day, it allowed caregivers to do work in their house and take some time to watch the older persons.

"I took care of him. I did things in a house for a while then I come to watch him. When he wants to defecate, he wants to go to the..... I have to look over him to make sure that he would not fall or get any other problems. (Pun, 68 years old)

For the night, the reasons were to protect the older persons from the crucial situation which leading to falling and dying (such as breathing obstacle). By sleeping nearby or close to the older persons, the caregivers will be able to listen to what older persons do during the night.

"When he sleeps, if there are any sounds, sound of coughing, blowing the nose, or whatever sound, I would watch and

checked. Sometimes I ask; ‘Why you did not sleep?’ (Pun, 68 years old)

In many occasions, integrated of in-house monitoring methods were used in order to make sure that data that the caregivers gain was right. In order to keeps an eye on the older adults, observing, questioning, listening, and demonstrating were integrated to carry out the monitoring tasks.

The remote monitoring mostly was done by family members who live separately from older persons. Family caregivers indicated that remote monitoring was calling to check what older persons do. Many older adults had at least one family member to call and check during a day but not over a night.

2. Strategies of daily life monitoring

In order to provide in house and remote monitoring, four integrated strategies;

2.1 Observing

‘Rang’ (energy to do works and daily activities) was a significant component of what caregivers observe. ‘Rang’ was chanced on a daily basis. Caregivers indicated that daily activities of frail older adults were primarily observed with the intention of identifying how much “Rang” the older adults had for each day. This would permit caregivers to detect changes in older adults.

“She has less “Rang”. In case, she has “Rang” she does each and everything. Suppose, she has no “Rang” she would lie on

2.2 Questioning

In relation to in house monitoring, questioning was supplemented when occurrences were hard to observe such as physical symptoms, the needs for toileting, hungriness.

“I ask him, sometimes: ‘Are you a headache?’ I ask him when I saw him touch his head or I found that his skin was hot.” (Pun, 68 years old)

Pass experiences of caregivers was a condition of what to ask. When the caregivers evaluated that they will get answers after asking older adults some

In order to work on remote monitoring, phone call was a general method for routine checking. Doing conversation, it allowed older adults to tell what they need, what they were doing, what they feel.

The remote monitoring was often supplemented by visiting and through reports from in-house monitoring caregivers. This would allow distant caregivers to confirm what they got through a phone.

“When they have issues regarding Grandma, they will always call me to let me know how things are going. I normally go back home once a month.” (Napa, 45 years old)

observing, listening, questioning, and demonstrating were applied.

her bed. I could notice it. Commonly, she is an active person.” (Niece, 30 years old)

The information in relation to the daily activities of older persons sometimes was evaluated by circumstance observation. For example, caregivers did not observe how much food was taken by older persons but what they observe was how much food was left in containers.

“I check the boiled rice. If the rice pot was empty, that means she ate a lot. By doing this I would know how much rice that I should cook for the next meal (Niece, 30 years old)

question, they will use this method for monitoring. It was a supplement monitoring method to confirm the information which the caregivers previously gain from observing.

On the other hand, questioning is a the main strategy of remote monitoring which was done by phone calling. Family members have a phone call to older adults often. Some family caregivers call to their loved one every day, once and more. While some family caregivers call once or twice a week. These depend on the ability to perform the daily life of older adults and the nature of each family.

A caregiver who lives away from an older person described what she calls and checked during the day.

“I call my mom at least two times a day, one time is about 10.00 am. and another time is about 18.00 pm. I want to know what she was doing if she OK. I would tell her to have breakfast if she did not. (Dang, 60 years old)

As caregiving in Thai families were done by more than on family members, most of the family caregivers in each family communicated with each other to report or

2.3 Listening

In relation to listening, caregivers listened to what their older family members said and what sound was made when the older adults do daily activities. Generally, the older adults speak their voice out when their physical symptoms were presented. Moring is the

2.4 Demonstrating

Caregivers asked older care-receivers for demonstrating some daily activities such as eating and walking. By watching how the older persons perform their daily activities, the caregivers make sure that the information

3. Consequences of daily life monitoring

Consequences of daily life monitoring were influenced by both monitoring

3.1 Changing caregivers' life

Various consequences of providing in-house monitoring were explained among the caregivers. In-house monitoring decreased caregivers' personal time and ability to care for themselves. Moreover, it would able to changed caregivers' emotion. For example, one caregiver explained her feeling when she was keeping her eye-on older adults during a day and was not able to go outside.

“Boring, when I go outside, I always worry about him. I could go outside for a

get the information in relation to the change of older adults. The question which was generally asked by distance monitoring caregivers were: ‘How about mother or father?’

“Every morning, I call Lek and Yai (elder sisters) and ask about any day-to-day matters such as whether she has woken up, she has done anything, and she had food. (Napa, 45 years old)

usual time which most the family caregivers hear the voices from older adults.

“She tells me directly what she is being. She would tell me she got this, she got that (what she feel)” (One, 30 years old)

which they got from observing or listening was correct. There were some activities which caregivers never ask for demonstrating. These included, for example, toileting, grooming, dressing, going up and downstairs.

strategies and the perception of caregivers on information which they gain

while. Then I have to come back home. I could not spend much time outside the house. When it is meal time, I have to be at home. I am worried that he might hungry” (Pun, 68 year-old)

The caregivers experienced angry in case the dependent older persons gave no respond by not answering. A caregiver mentioned that she was not able to attend social activities outside the house.

"It would like to join an elderly club. But I could not. He faints. So I could not go. In case I would like to go wherever, I could be outside for a short time." (Thonglor, 75 years old)

The same caregiver indicated that providing care limited her for taking care of herself.

"I would like to have an eye operation. I cannot go for it. Who will take care of them (my husband and my adult son)."...I have many diseases. I have DM., cholesterol, hypertension, and kidney problem. Sometimes I have medication on time. Some time I do not. I have to cook for them. ... (Thonglor, 75 years old)

A consequence of keeping an eye-on older person at night was not having enough sleep.

3.2 Identifying what to do

As a result of daily life monitoring, identifying what to do base on the ability of the older adults to perform daily life activities and care needs. The identifying of care needs were mostly, individual caregivers' identification, based on their perception which related to their past experiences. The characteristic of daily physical activities of older persons was recognized as "common and uncommon daily activities". The example situations which most frequently noticed by

Doing nothing

The caregivers may do nothing if they perceive that the occurrence of those older adults was common. For example, a caregiver did not give any response to the daily behavioral changes of the older persons as she indicated that it was a common behavior.

"I do nothing. I did not tell anyone. He did like this for a long time. I think his brain did not work. ...Someday, he disappointed. I told him that you could not eat this food. Suddenly, he threw the food away." He became like this since he had brain operation" (Pun, 68 years old)

"I have not enough sleep sometime. I feel dizzy when I woke up. It happened sometime. It was about once a couple of months." (Pun, 68 years old)

Conflicts could occur when in-house and remote monitors did not understand the role of each other even the role of themselves. The remote monitoring was not always provided positive consequences on in-house caregivers. Some of them feel uncomfortable when they were called for checking what caregivers and dependent older adults were doing.

"I am not feeling good, she does not a thing but she always calls and checks what is going on with mom. It seems like she is checking what I am doing." (Pee-Noy, 45 years old)

family members as 'uncommon activities' were not active, eating less, suffering from constipation.

Even though, the response to the change of daily activities might not be the same across families and within the family, the properties of responding to the daily life monitoring generally composed of doing nothing, providing what care-receivers need, reporting information and organizing what needs to be done.

It was a case where the older person's request not believed, respected or responded to. One male older adult was judged by his family to be much less dependent than he 'pretended' to be. His requests for assistance to the toilet were ignored.

"...My father, he is lazy. ...He did not want to help himself. ... Whenever we tell him to do a/the thing, he argues. He disobeys. ... He always lies on his bed. When he needs toilet he would move up and walk but he did not." (Tik, 41 years old)

Providing hands-on care

The response to the information after monitoring would be made if the caregivers perceive that it was uncommon. For, example, a caregiver found that it was uncommon when someone did not stool for 2-3 days. Instead of waiting for some more days, the caregiver assisted the older persons by giving him a medication.

"I would observe. Suppose he did not stool for a couple of day, I would give him a laxative." (Pun, 68 years old)

Reporting information

The information gained from monitoring was often passed on to other caregivers in the family. After having seen any significant situation some of the caregivers would call others regardless of the distance. It was not unusual for that in-house monitor to report to distance monitor about what they could see occurring problems

Organizing what needs to be done

For some caregivers, they did not provide hands-on when the care was need. But they involve in family caregiving by organizing what needs to be done. Contacting some other family members, getting

Discussion and Conclusions

Monitoring care was indicated as a type of care in the previous study (Wongsawang et al.,2013). These findings add more understanding on how the monitoring care was performed and what consequences of monitoring were. In order to perform monitoring, in-house and remote monitoring were applied by Thai family members. The finding was confirmed that in-house monitoring as called "keeping an eye on" is a significant strategy for family caregiving in Thai context whereas, questioning is employed besides using unobtrusive observation (Dangdomyouth et al.,2008). The finding presents the significance of those family members who stay apart as they were able to provide remote monitoring.

A participant described how it differs among proving care when the care-receiver was able to take care by their own and when the caregiver found that she needs to involve more in caregiving as the older person really need cares from her.

"The difference is, I have to come to feed her on time by this tube. I used to prepare a meal for her in the morning and then gone. ... Right now, we have to give food to her by the tube because she was not able to feed herself. ... "(Ni,30 years old)

unmet needs. When monitoring caregivers were different from hands-on caregivers, the hands-on caregivers would often report directly to those monitoring caregivers. If the monitoring caregiver and the managing caregiver were different persons, they generally kept very close contact.

medication, purchasing personal belongings were example strategies for organizing. This mostly explained by distant caregivers who identify themselves as primary caregivers.

According to the present findings, increased attention should begin to find ways of how to assist individuals and families to provide in house monitoring. Planning should aim to support them in order to replace in-house caregivers when they did not available for in-house monitoring or short time replace to provide a self-time for caregivers. Supportive service for home care should aim to find outsiders who will be able to take roles of both in-house and remote monitors. Preparing technology for remote monitoring using a smartphone application, smart home technology or data mining is essential. These will allow family caregivers to observe or keep their eyes on their older adults. Understanding of common and uncommon

activities of older adults should be educated by a nurse in any community. The new knowledge from this study will assist nurses and health policymakers to conduct a

monitoring guide line which aims to ensure that the quality of care for each individual older adult will be met.

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Original article

Multidimensional Perspective Quality of Life among Patients with Stroke in UPT Social Service Further Age of Binjai Social Service North Sumatera Province, 2019

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Abstract

Stroke causes defects that affect quality of life. The change in the quality of life is multidimensional in the form of physical, psychological, level of independence, social, environmental, and the spiritual. The purpose of this research is to explore multidimensional perspective of the quality of life among patients with stroke at UPT. Social services elderly Binjai. Research design is a study of phenomenology with a transcendent approach. Its population is the entire elderly who have stroke disease. Participant's retrieval techniques with purposive sampling as many as eight participants. Data collection instruments using voice recorder, interview guides and field notes. Data collection with an interview in-depth and open-ended questions. Data analysis using Colaizzi and Nvivo methods version 12.0. The results showed that stroke patients experienced changes in the physical dimensions of declining physical strength, changes in comfort and sleep disorders. Psychological dimension of self-image change, positive prejudice, memory decline. The dimension of self-reliance is tool dependency, change in work ability, drug dependence. Social dimension occurs social change and sexual needs. Environmental dimensions, increased environmental comfort changes, source of income and low disease information. The spiritual dimension, the occurrence of increased proximity to God, so that the process of self-adaptation. These six dimensions strongly affect each other in the quality of life changes in stroke patients. Recommended to the health care unit to pay attention to the dimensions of life quality of stroke patients in meeting the needs of both physical and mental.

Keywords: Multidimensional quality of life, stroke

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Introduction

According to the *World Health Organization* (2018) of the 10 highest disease causes of death, stroke is the second position of the world's leading cause of death. In Indonesia, the highest prevalence of stroke was in East Kalimantan, ranked 2nd in Yogyakarta and then 3rd in North Sulawesi. North Sumatra ranks 23rd of the stroke sequence in Indonesia (Riskesdas, 2018). The cause of stroke itself is due to interruption of blood supply in the brain, usually due to rupture of blood vessels or blockages by blood clots. This causes interference with the supply of oxygen and nutrients in the brain resulting in brain tissue damage (WHO, 2019). Damage to brain cells in a stroke causes disability so that stroke sufferers lose productivity and must pay a large cost for rehabilitation care (Bariroh et al., 2016). The level of physical and mental disability in stroke patients will inevitably affect the

quality of life of these patients (Bariroh et al., 2016).

Quality of life can be interpreted as an individual's perception of their position in life (WHO, 2019). Quality of life is a subjective and multidimensional aspect. Subjectivity means that the quality of life can only be determined from the point of view of the patient himself (Setiyawan, et al, 2015). The results of Masniah (2017) study showed that there were 5 themes of Quality of Life in Post-Stroke Patients, namely changes in self-ability, psychosocial spiritual impact, changes in quality of life, healing support, efforts to seek help in health services. Therefore, it can be concluded that post-stroke patients experience physical and functional disorders of the body that are long-term and cause disruption of psychological, social and spiritual responses that affect changes in quality of life.

Research Methods

This research uses a descriptive phenomenological approach. focuses on one's life experience. The phenomenon examined in this study is the perspective of the quality of life dimensions of patients with stroke in UPT . Elderly Social Services Binjai Social Service. This research was conducted in April to July 2019.

Purposive sampling was used for participant recruitment. The eight key informants were participated to provide

information related to the problem studied. . Data collection tools in this study were demographic data questionnaires, interview guides and field notes. Data collection technique in this study was in-depth interview which conducted by the researchers. The durations of interviews were 30 -60 minutes Data saturation had been achieved. *Collaizi* approach and Nvivo software version 12.0 Pro were used for data analysis.

Results

Based on the results of the analysis of the interview results obtained six themes, namely the physical, psychological, level of

independence, social, environmental, and spiritual.

Subthemes Found in Themes

1. Physical Dimension

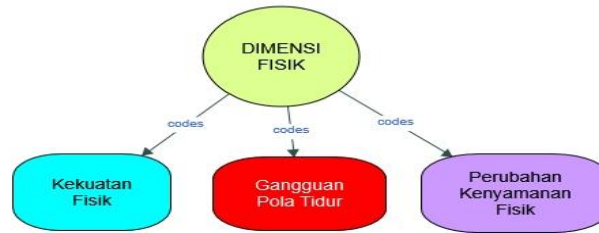


Figure 1. Scheme Model Subtheme on Physical Dimensions

The subthemes are physical strength, disturbed sleep patterns, and changes in physical comfort. The three sub-themes above are new findings based on the results of the interview.

2. Psychological Dimension

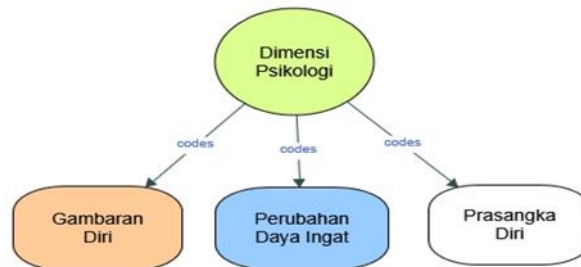


Figure 2. Scheme Model Subtheme on the Psychological Dimension

The subtheme is self-image, memory changes and self-prejudice. The three sub-themes above are new findings based on the results of the interview.

3. Dimension Level of Independence



Figure 3. Scheme Model Subdivision in Dimension Level of Independence

The subthemes are Tool Dependence, Drug Dependence, and Changes in Work Ability. The three sub-themes above are new findings based on the results of the interview.

4. Social Dimensions

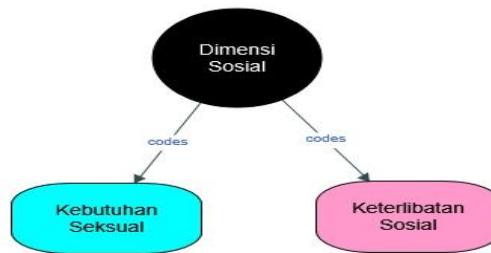


Figure 4. Scheme of Model Subtheme on Social Dimensions

The sub-theme is Sexual Needs and Social Engagement. The two sub-themes above are new findings based on the results of the interview.

5. Environmental Dimensions

The sub-themes are Environmental Comfort, Disease Information and Income Change. The three sub-themes above are new findings based on the results of the interview.

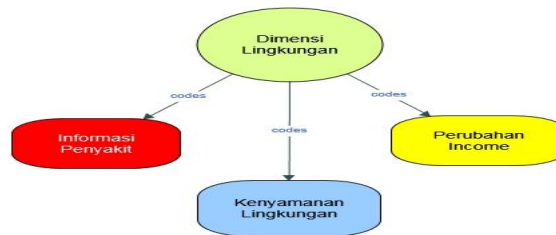


Figure 5. Scheme Subtheme Model on Environmental Dimensions

6. Spiritual Dimension

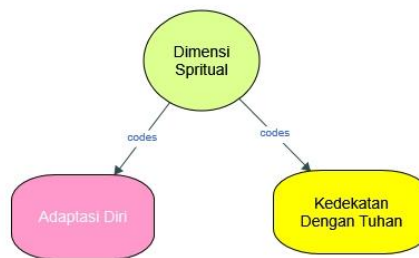


Figure 6. Scheme of the Subtheme Model on the Spiritual Dimension

The subtheme is self-adaptation and closeness to God. The two sub-themes above are new findings based on the results of the interview

Discussion

Physical dimensions

Physical Strength

All participants shared about his Physical Strength from eight participants found the same three statements, 4 the same statement and one different statement. Found three participants who stated that they could still do their daily activities independently.

While 4 out of 8 participants stated that, they could do their daily activities with the help of tools and one participant stated that he did not use mobility aids, could do some daily activities but only wanted to sit in his bed.

Changes in Physical Comfort

All participants shared about the Change of Comfort in themselves. From eight participants found the same three statements, 4 the same statement and 1 different statement. Found three participants who stated that they experienced changes in comfort that is pain at a certain time. Whereas

4 out of 8 participants stated that, they had experienced changes in pain much better than before and 1 participant stated that he did not experience pain, but he felt weak when his limbs wanted to be lifted for example when he wanted to stand up.

Sleep disorder

Most of the participants talked about her sleep disorder. From the participant's statement found 4 similar statements and 1 different statement. Found 4 participants who stated that they experience sleep patterns due to discomfort such as pain in the limbs and

head so that they wake up at night. While 1 in 5 participants who experienced sleep disorders said that he had a sleep disorder because his eyes would not close because of the stressor he experienced, such as remembering his family.

Psychological Dimension

Self-image

All participants shared about each participant's self-image. From 8 participants found 7 the same statement, and 1 different statement. Found 7 participants who stated that they experienced changes in appearance that is their limbs. But now things are getting better, like they used to say it's hard to talk

because their lips are falling down but now it's back to normal. Likewise, their limbs that have begun to function. While 1 participant stated that he experienced physical changes but until now there has been no change that he felt.

Change in memory

Most of the participants told about the Change of Memory in themselves. From the statements of 3 participants found all three stated the same thing. All three participants stated that they experienced a decrease in

memory since having a stroke such as forgetting to put items, past memories, and sometimes forgetting things they want to do. Functional disorders caused by stroke are very diverse. One of them is memory loss

which in layman's terms is called senile / forgetful. In the medical aspect, dementia is a problem that is no less complicated than the problems found in other chronic diseases.

Self-Prejudice

All participants shared about the Prejudice of each participant. From 8 participants found 2 similar statements, and 6 different statements. Found 2 participants felt inferior so that one of them did not want to leave the guesthouse for fear of being ridiculed, and the other one felt like dying alone because it was fun to die. While 6 out of

Dimension Level of independence

Tool Dependency

Some participants shared about the tool dependency experienced by the participants. From the statements of 2 participants found both stated the same thing. Both participants stated that they use tools

Drug Addiction

The participant said about drug dependence experienced by participants. From the statements of 2 participants found both stated the same thing. Both participants

Change in Work Ability

All participants shared about the Change in Work Ability experienced by each participant. From 8 participants found 7 the same statement, and 1 different statement. Found 7 participants who stated that they previously had jobs in various places and

Social Dimensions

Social Involvement

Most participants shared about Social Involvement. From 5 participants found all said the same thing, they always participated in activities such as gymnastics twice a week, recitation / devotion, devotions for non-

Someone who experiences memory loss will definitely experience a decrease in quality of life (Harsono,2007).

8 participants stated that at first they felt ashamed of not wanting to leave the room so they withdrew. But after a long time they saw their friends there having the same disease and even worse, they finally accepted their condition and felt the same fate, so they were eager to recover.

that are sticks to do their activities everyday. Without the stick the participant felt unable to sustain his body and was afraid of falling due to weakness in his body.

stated that they must take daily medication to improve their comfort such as sleeping pills or pain relievers.

have their own income. But after a stroke they lost their jobs due to the paralysis they suffered. While 1 participant stated that she was previously a housewife, only taking care of the house. With his current situation he can only take care of himself.

Muslims, and also they took part in mutual cooperation activities held once every 2 months at the Nursing Home even though they were only can pull out the grass in front of their guesthouse.

Sexual Needs

Most participants shared their Sexual Needs. From 6 participants found all the same statements. They reveal that they still have sexual appetites, but when those feelings come they try to ignore them and hold back.

But one of the participants said if he was masturbating when the feeling came. Participants also said they wanted to have a life partner for storytellers or their spouses so they did not feel lonely.

Environmental Dimensions

Environmental Comfort

Most of the participants talked about Environmental Comfort. From the participant's statement found 2 similar statements, 2 the same statement and 2 different statements. Found 2 participants who stated that they felt at home in the Panti because they felt they were not burdensome to anyone, because at home they felt reluctant and felt troublesome around them. Two other

participants said that they felt at home in the Panti because they had many friends who were in the same boat, while at home the participants felt alone and lonely. The remaining 2 participants said they felt at home at the Panti because at the Panti felt calm, while at home they were always noisy, noisy, even their families did not accept their presence there.

Income Change

All participants shared about the Changing *Income* of each participant. From 8 participants found the same 6 statements, and 2 different statements. Found 6 participants said that they get their income only from visitors who want to give to them. If there are

no visitors they don't have income (money). 1 other participant said that he got money aside from the visitors but also from his family who regularly visited him. And 1 participant again said he got income (money) apart from visitors, also from his pension fund.

Disease Information

All participants shared Disease Information. From the participant's statement found 4 similar statements, 3 similar statements and 1 different statement. Found 4 participants stated that participants get information about the disease only from where he received treatment. 3 other

participants said that participants obtained information about the disease from the community / family apart from the place of treatment. 1 participant again said that he did not find out information about his illness because he was embarrassed to ask, and it was useless to find out about it.

Spiritual Dimension

Closeness with God

All participants shared about Proximity to God. From the participant's statement found 3 the same statement, 4 the same statement and 1 different statement. It was found 3 participants stated that the participants were still doing their worship either praying, worship services for non-Muslims and praying 5 times for Muslims. 4

other participants said that the participants only prayed for safety and healing, but did not pray because they were unable to do so. One participant again said that he still prayed for his recovery but did not pray because of his limitations, but always did fasting on Thursday.

Self-Adaptation

All participants delivered about Adaptation to each participant. From the participant's statement found 2 similar statements, 5 the same statement and 1 different statement. It was found 2 participants stated that initially they could not accept their condition when they had a stroke, but due to the encouragement of people around the eventual participant accepted his condition. Five more participants said that at

first they did not accept their current situation, but finally they were grateful and accepted their situation gracefully because they were aware of the participants themselves, apparently there were many people around them who were worse but still tough. 1 participant was initially unable to accept his situation now, therefore participants finally had resigned and hoped to just die so as to calm down.

Conclusion

This study was conducted to look for an in-depth overview of the Multidimensional Perspectives of *Quality of Life for Stroke Patients* at UPT . Elderly Social Services Binjai Social Service. Identified subthemes are important points that affect the

dimensions of the quality of life of stroke patients. The quality of life of stroke patients consists of six dimensions, namely physical, psychological, level of independence, social, environmental and spiritual.

Physical Dimension

In the physical dimension, it was obtained that all participants experienced changes in physical strength so that it could affect the ability to carry out daily activities. In addition, there is also a change in physical

comfort in all participants in the form of pain and disturbance of sleep patterns to most participants who are most likely due to a sense of physical and mental discomfort that will affect the quality of life of stroke patients.

Psychological Dimension

In the Psychological dimension, it was found that all participants experienced changes in self-image in the form of changes in the appearance of each participant, a change in memory of some participants, and

self-prejudice that creates negative thinking due to weakness / limitations due to stroke, and positive thinking that arises because they begin to make peace with yourself and get motivation from around.

Dimension Level of Independence

In the dimension of Independence, it is found that some participants are dependent on drugs and some other participants are dependent on tools to support their

movements. In addition, all participants experienced decreased ability to work due to limitations so that all participants lost their jobs.

Social Dimensions

In the social dimension, it was found that the majority of participants still participated in every social activity despite its limitations, but were enthusiastic because they saw their friends participating. And almost all participants said that they still had

sexual desire , only that each participant had differences in overflowing. Most participants said they wanted to have a life partner again with the reason that they have a life partner and are not lonely anymore. Fulfillment of

this social dimension will certainly improve the quality of life of stroke patients.

Environmental Dimensions

On the environmental dimension, it was found that almost all participants did not find out more about the disease from the surrounding environment, only getting information from the place of treatment. In addition, almost all participants expect income from visiting guests, and only a small

portion receives from the family. However, almost all participants felt comfortable living in the environment because of the same feeling and felt cared for so that the participants felt at home and did not want to return to their original place.

Spiritual Dimension

In the spiritual dimension referred to in this study is the ability to adapt and closeness to God. All participants have accepted their condition with surrender and sincerity so that after the acceptance all

participants now increasingly improve their closeness to God. Fulfillment of this spiritual dimension will certainly improve the quality of life of patients with stroke.

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Author Guideline and Instruction

International Journal of Public Health and Health Sciences (IJPHS)

Instruction for Authors & Guidelines (Revised March 18, 2019)

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1.1. The International Journal of Public Health and Health Sciences (IJPHS) is published by Praboromajchanok Institute for Health Workforce Development (PBRI), a higher educational institute of Ministry of Public Health, Thailand. PBRI is consisting of 39 Sirindhorn Colleges of Public Health, Kanchanabhishek Institute of Medical and Public Health Technology and Abhaibhubejhr College of Thai Traditional Medicine Prachinburi, 30 Boromarajonani College of Nursing and Nursing Colleges under Praboromarajchanok Institute for Health Workforce Development, Ministry of Public Health, Thailand.

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6.3. All papers should be organized to include the following: a title page, abstract, text, acknowledgments, references, figure legends,

tables and figures. Each of the elements should begin on a separate page.

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Originals

Yuychim, P., Niratharadorn, M., Siriumpunkul, P., Buaboon, N. (2018). Effects of a Family Participation Program

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Thesis/dissertation

Hom, K. E. (2018). *Association of Air Pollution with Longitudinal Changes in Arterial Stiffness and Correlated of*

Longitudinal Changes in Arterial Stiffness in the Multi-Ethnic Study of Atherosclerosis (MESA). A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctoral of Philosophy, University of Washington.

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