THE STUDY OF HEALTH INFO-GRAPHIC MESSAGE DESIGN IN EXERCISE IN

HEART DISEASES TOWARDS THAI ADOLESCENT'S INTENTION IN CHANGING

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<u>The Study of Health Info-graphic Message Design in Exercise in Heart diseases towards Thai Adolescent's intention in Changing behavior</u> (103 pp.)

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ABSTRACT

Health communication is taking a huge important part in society nowadays and people are showing more awareness about their health concerns. The World Health Organization reported that one of the most serious health issues that cause death is heart diseases. So, how communication could help in decreasing a number of populations suffering from heart diseases is the topic found very interesting. This study aimed to finding an effective communication tool both in designing health message content and health media that could change one's behavior. Two hundred Thai adolescents were participated in this study by completing the questionnaires via Google Form. Frequency, Descriptive statistic, Independent T-test, and Two ways ANOVA were used to analyze the data via SPSS 17.0 (SPSS, Inc.) Loss framed message was found to be more effective in audiences' comprehension than gain framed message. Behavioral beliefs, normative beliefs, and control beliefs were the moderating variables. However, there were no significant differences. Further research suggests measuring real behavioral change and including a process to measure participants' message attendance.

Keywords: Message framing, exercises, heart diseases, Info-graphics, Process of behavior change

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Health and communication arts might seem as a different field that goes separately. In contrast, this difference is parallel together in a way of human living. One's can helps promote another to improve the quality of people's life.

Good communication in healthcare context can enhance understanding and ability of people to comprehend complicated health information and also make their decision on having health treatment.

Making medical information more accessible and attractive is one of the most important goals, especially among baby boomer generation. People want to access to good quality and trustworthy healthcare information in order to make their best decisions about health problem or health issue that they are facing on. (McCrorie, 2016)

As coming to the digital age, electronic devices such as computer, laptop, and mobile phone were being used in people's daily living. So the information could be delivering easier in online world. Searching about symptoms, illness, or any health issue are very easy and useful, but in a negative way people can get wrong information about health and cause negative outcome if they did not look carefully. Health communication is now taking a huge part in delivering messages to people through many channel and format for making a healthy life and decreasing the number of people having serious health problems.

According to *The top 10 causes of death*. (n.d.), the major cause of death in nowadays is heart disease. The World Health Organization reported that in year 2018, ischemic heart disease and stroke are the world's biggest killer, i.e. more than half (54 percent). Many health organizations around the world including American College of Cardiology, National Heart, Lung, and Blood institute, WHO, and so forth pay their attention to prevent and promote good care and concern about heart disease. Although, there are some Thai health media content such as the info-graphics about heart disease released and published by President of the Association for Emergency Medicine of Thailand in the latest May 2018. People are still wondering and curious about exercise in heart disease. In conclusion, health media in Thailand is not in the step that can gain people's awareness on heart disease.

Heart disease or Cardiovascular disease (medical term) includes all the diseases of heart and circulation such as coronary heart disease; a disorder of the blood vessels of the heart that can lead to heart attack, heart attack, congenital heart disease, congestive heart failure hypertension, and stroke. (Cardiovascular disease, n.d.)

Video clip, animation, text, or an info-graphic are the examples which are being used popularly to create health understanding and comprehension among general people. Specifically, info-graphic is the format that is becoming more interesting because it is simple and uncomplicated. Also, key messages showing on info-graphics is essential. According to Siricharoen (2013), info-graphics or information visualization is use to communicate information more effectively and clearly by using graphical means to attract people's interest because of the lifestyle that have been changing shows that quicker and easier process of understanding is needed.

As info-graphics is a visually communicating information that creatively create for general people to enhance their understanding and ability to make a decision with their health issue that they're facing on. McCrorie (2016) said that well-designed info-graphics is a useful communication tool for counseling the patient about the treatment. Furthermore, info-graphics can be used to overcome the language barriers.

According to Thompson (2015), Info-graphics, abbreviated from "information graphics," are a popular and effective means of taking complex ideas and information (e.g., theory and research findings) and representing them in a visual format that is clearly and quickly understood. Making complicated information about health become a simple and easy way for an ordinary people to understand by using an info-graphic as a health message is very important for improving people's quality of life. As a receiver, when they can easily understand the information of the sender by just looking at it for only once they will like it and we can call it as the successful process of communication.

Nowadays, many organizations use the benefit of message framing, loss and gain-framed message, in each specific type of disease for health promotion and risk reduction. Different diseases need different outcomes of using each type of message framing on individuals' people. Based on previous finding, Macapagal (2015) said that loss-framed messages were intended to be more effective with greater risk and uncertainty disease such as sexually transmitted infections. On the other hand, gain-framed messages got more effective result with safe or certain outcomes such as preventive behaviors of condom use.

However, the impact of Thai's health messages that specifically exhibit the result of using info-graphics in exercise for preventing and protecting heart disease has remained largely unexplored. No previous studies have studied whether loss-framed message or gain-framed message is more effective to create intention to change behavior in exercise for preventing and protecting heart disease in Thailand.

So, this research paper will study the info-graphics message design and their effectiveness of loss-framed message and gain-framed message in an info-graphic about exercise for preventing and protecting heart disease towards Thai's adolescent attitudes and their willing to change. In addition, the type and way to create an info-graphic as a well-designed communication tool and communication theories will also include in this research.

1.2 Objective of study

1. To examine the relationship between gain-framed message and exercise in heart disease as perceived by Thai's general people.

2. To examine the relationship between loss-framed message and exercise in heart disease as perceived by Thai's general people.

3. To examine the relationship between message framing and Thai's attitude.

4. To examine the relationship between message framing and Thai's intention in willing to change their behavior.

1.3 Scope of study

This research is carried out to find the relationship between health info-graphic message framing in exercise in heart disease towards Thai's general people attitudes and their perception in willing to change their behavior related to exercise in heart disease. The population of the research is Thai adolescent.

We focus on the info-graphic's message framing as an independent variable. Participants' attention, comprehension, yielding, retention, and intention in changing the behavior are dependent variables. Furthermore, we have three moderate variables; Behavioral beliefs, normative beliefs, and control beliefs.

The study will be applied with the quantitative approach by using a survey method.

1.4 Research Questions

RQ1: Is there a statistically significant difference on audiences' attention by gain and loss framed message info-graphic about exercises for preventing heart disease?

RQ2: Is there a statistically significant difference on audiences' comprehension by gain and loss framed message info-graphic about exercises for preventing heart disease?

RQ3: Is there a statistically significant difference on audiences' yielding by gain and loss framed message info-graphic about exercises for preventing heart disease?

RQ4: Is there a statistically significant difference on audiences' retention by gain and loss framed message info-graphic about exercises for preventing heart disease?

RQ5: Is there a statistically significant difference on audiences' behavioral change by gain and loss framed message info-graphic about exercises for preventing heart disease?

RQ6: Does behavioral beliefs, normative beliefs, and control beliefs statistically moderate the effect of Gain-Loss framed message info-graphic about exercises for preventing heart disease on audience responses?

1.5 Research Hypotheses

HP1: There is a statistically significant difference on audiences' attention by gain and loss framed message info-graphic about exercises for preventing heart disease.

HP2: There is a statistically significant difference on audiences' comprehension by gain and loss framed message info-graphic about exercises for preventing heart disease.

HP3: There is a statistically significant difference on audiences' yielding by gain and loss framed message info-graphic about exercises for preventing heart disease.

HP4: There is a statistically significant difference on audiences' retention by gain and loss framed message info-graphic about exercises for preventing heart disease.

HP5: There is a statistically significant difference on audiences' behavioral change by gain and loss framed message info-graphic about exercises for preventing heart disease.

HP6: Behavioral beliefs, normative beliefs, and control beliefs statistically moderate the effect of Gain-Loss framed message info-graphics about exercises for preventing heart disease on audience responses.

1.6 Significance of the Study

This research study is important in our world right now because heart disease is one of the serious issues that cause death. The number of people affected by this disease would be increasing day by day from their sedentary life style, eating habits, or heredity. On the another hand, health communication has been an increased interest in the use of health information technology and it is becoming more popular in our world right now as we are stepping in the digital age and people care more about their health. In addition, this topic has remained largely unexplored in Thailand.

The finding of this research will show out the effective way of health communication in delivering health message about exercise in heart disease to the receiver for preventing and protecting them from struggling in this disease.

The finding will redound to the benefit of using appropriate message framing in exercise in heart disease to both senders and receivers. Sender such as an organization

or hospital or even health professional carrier will know the most effective way to

promote health and give the information about exercise in heart disease to all

receivers. On the other hand, receiver will get the most effective information that can

help them having good health and habits.

CHAPTER 2

LITERATURE REVIEW

Human being is complicated by nature and everyone is trying to find what the reasons of the difference. People have many options in one situation but why they end up doing or acting those behaviors? So, why people act or behave differently and what are their reasons is the question that happens in everyone's mind in everyday life and surely it is essential to understand and need to be study. Imagine how great it would be if you can understand what the different reasons of people's behavior are and predict how people would react in different situation.

In this study, researcher studied two communication theories that related to human behavior. Firstly, The Theory of Planned Behavior is one of the successful health communication theory that study about what are the factor of human's intention that will lead to become an individual's behavior especially their health behavior. Do people eat a healthy food just because all of their friends were eating or he/she really want to have a good health? Do people start to exercise because of their role model? Or Do people love to have an annual checkup or they did because they have a good attitude with one of the best healthcare? These can happen through many channel of health communication.

Secondly, learning what are the stage of changing behavior of human is also essential because every change of human has a reason. Knowing and determining the stage of each person in each scenario is very important so that we can know either they are ready to be change or not, if no, what are their problems. The Trans-

theoretical Model of Health Behavior Change will answer you about the six stages of change in human behavior.

However, both theories related and goes along the way together in human life. As shown in Figure 2.1, in each person, they all have different behavioral belief, normative belief, and control belief. These factors can affect one's individual causing the difference in human action or behavior. In addition, it also can predict that the person is in pre-contemplation phase or contemplation phase according to Theory of Planned Behavior. Majority of people who have positive behavioral belief, normative belief, and control belief is meaning that they are more likely to be in contemplation stage which people are more aware about an advantages and disadvantages of changing behavior. On the other hand, who got negative behavioral belief, normative belief, and control belief are more likely to be in the pre-contemplation stage which people are not intending to take any action or can be called as resistant or unmotivated person. They are not ready to be change.

Moreover, the preparation stage in Theory of Planned Behavior is overlapping with the intention stage in Trans-theoretical Model of Health Behavior Change. As shown in figure 2.1, in Theory of Planned Behavior, it is the stage that people are intending to take action in the immediate future before leading to "action" stage in Theory of Planned Behavior or as "behavior" in Trans-theoretical Model of Health Behavior Change.
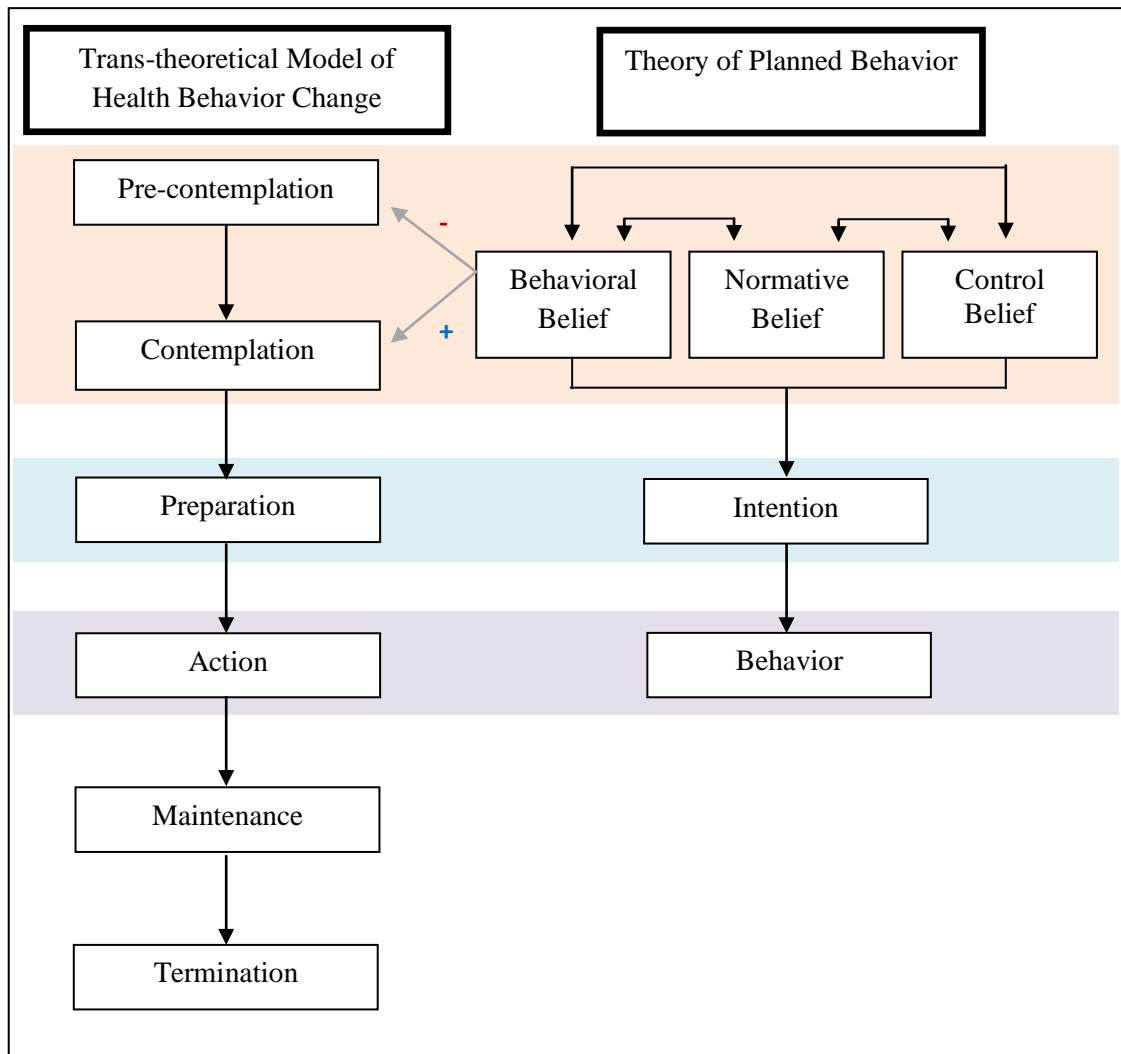
Figure2.1: Mixed model of Theory of Planned Behavior and Trans-theoretical Model

of Health Behavior Change

The detail of both theories will be discussed next.

The Trans-theoretical Model of Health Behavior Change

The Trans-theoretical Model of Health Behavior Change (TTM) is one of the

most acceptable models about health behavior change. The model involves six step of

the progress of change; pre-contemplation, contemplation, preparation, action,

maintenance, and termination. In the process of changing behavior, people need to

apply and move step by step.

Firstly, starts with pre-contemplation phrase, in this step people will not intend to take any action. There is no motivation in each individual's one. Uninformed or under-informed about behavior is one of the reason why people are still in this step. Their behavior might be avoided searching, talking, or thinking about their behavior.

Secondly, when a person starts to pay more interest and more awareness about changing behavior means that they move to the contemplation step. They will intend to change their behavior in the next six months. However, most of people stuck in this step for a long period of time.

Thirdly, as if a person prefers to change their action or behavior in the immediate future, about a month, will be stated as they are in the preparation stage. These individuals have a plan to take an action. For examples: searching for more information, buying a self-help book, talking with professionals, or consulting a counselor.

Next, Action is the fourth step of TTM. In this step, people have made some change to their behavior and lifestyles within the past six month.

Then, after an action was done, maintenance is another progress step. People are doing to prevent relapse and maintaining the action. Normally about 6 months to 5 years.

Lastly, termination stage, in this stage no matter anything happens people will not return to their old unhealthy habit that they did in the past. 100% self-efficacy will be showed in the individual's one. However, least of people reach this step because

the realistic goal might be lifetime maintenance. (Prochaska, J. O., & Velicer, W. F., 1997)

According to Han (2017), TTM, as a successful framework for behavior change, was used to investigate college students' stages of motivational readiness. Questionnaire was their research's measurement tool to identify the association between sedentary behaviors and physical activity based on the Trans-theoretical Model of Health Behavior Change. The result showed that they found lack of association between psychological determinants and physical activity. The research result also reported that participants in later stages were likely to change more that participants in the earlier stages.

The Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is the theory that predicts an individual's intention that will lead to affect each individual's behavioral change. The theory was intended to explain how and why people are intended to change their behavior. Surely, it has been used successfully to predict and explain a wide range of health behavior. The TPB consider 3 types of belief that lead to the result of changing behavior; Behavioral beliefs, normative belief, and control beliefs.

Firstly, behavioral belief is the attitudes of each person toward the behavior. Can be described as the favorable and unfavorable attitudes on behavior. It is mostly reflect the belief of performing behavior. What the benefits of doing this action or what the benefits of not doing this action are the examples of this topic. Secondly, a normative belief refers to the belief about whether mostly people approve or disapprove on your action or behavior; we also can call this as the subjective norms.

Moreover, an action or behavior that a group of people do or act as the standard is called social norms. Lastly, control belief is a belief of individual about their confident of taking action. Person's perception and factors of the ease or difficulty of performing a behavior were included in this section. (LaMorte, 2016)

Combining all these three sections together will result in the form of intention. Individual's intention can produce and impact behavior change.

However, perceived behavior control later was showing that it strong effect that can lead to changing behavior. The construct of the theory was later added. Nevertheless, Giles (2014) said that there is no clear evidence to conclude that control belief's definitely lead to behavior change but it was frequently presented that it is the most significant predictor of intention and behavior.

According to Giles (2004), the Theory of Planned Behavior was used to predict 100 undergraduate student's blood donor behavior. The research resulted that TPB is a useful predictor. Moreover, their finding supported that self-efficacy as a control beliefs made a greater relationship to create intention and lead to behavior change, to compare to other variables.

As recent study in year 2015, the Theory of Planned Behavior has been applied to predict the physical activity of 483 children and adolescents in North American and European countries. The result of this study supported that attitude and perceived behavioral control were significantly relating to intention. However, the study also reported that TPB was significantly neither show less predictive of behavior when the participants were nor a university level, also when the measures were not taken as a self-report. (Wang, 2015)

Moreover, researcher also study the processes of change from The Trans-theoretical Model of Health Behavior Change, researcher found that process of change can also affected by the activities that people participate on. It is an essential guide that can move people from stage to stage. In this study, researcher wants to apply a health info-graphic to the participant as a consciousness raising to increase health aware of people , dramatic relief to make people fear to get disease and move them emotionally, and self reevaluation to determine one's self image with the gain-loss framed message. (Prochaska, 1997)

As shown in Figure 2.2, researcher put "health info-graphic" as a factor in process of change to inform all participants and can move participants from pre-contemplation stage to contemplation stage in Trans-theoretical Model, also to increase people's behavioral belief in Theory of Planned Behavior.
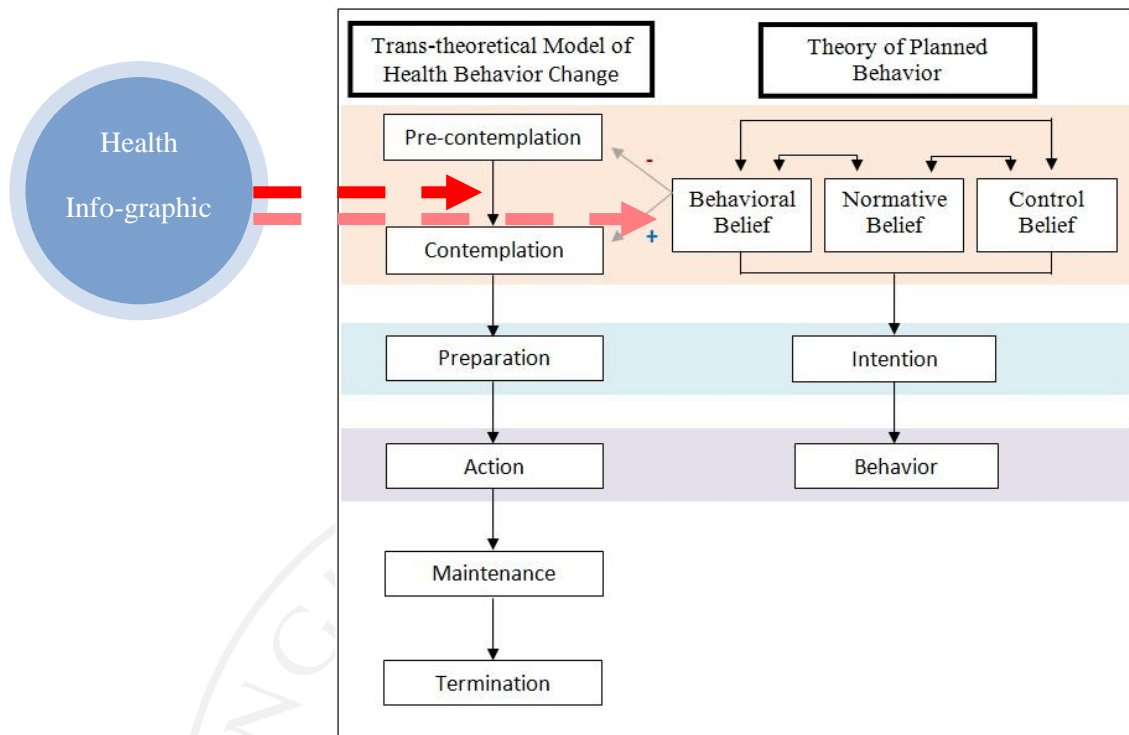
Figure2.2: Mixed model of Theory of Planned Behavior and Trans-theoretical Model

of Health Behavior Change with health info-graphic

Health communications

The number of people use social media and social networking site has been

increasing these day as same as the increasing of the number of people facing or

having risk to severe health problem such as heart diseases. So, Health

communication is now taking a huge part in the online nowadays for sending and

receiving health messages, moreover, it has been increasing uses to build relationship

between health organization and publics. The worldwide studies show that the

benefits of health communication through online media provide advantages both in

term of healthcare providers as well as patients or general people who need health

information. More awareness about health is becoming more popular and also leads to

better understanding. Craig (2013) said that about eighty percent of Americans access

in the social networking site to search for information about health. They can find and

communicate about heath by themselves in the online world by using social media.

The most searched relate to specific diseases that affected that person or their relative.

(Pentescu, 2015)

Social media and social networking sites is "a group of Internet-based

applications that allow the creation and exchange of user generated content" (Kaplan

and Haenlein, 2010, as cited in Craig, 2013). The most widely used social networks or

social media are Facebook, Twitter, Youtube, and Wikipedia. From the potential of

using these online networks, health organizations and health professionals pay

attention to this point.

Popular social media such as Facebook has been the most favorable way in

communicating. A Facebook group is a public platform that enables people who have

same interest to join and share the related information. As there are many groups and

pages that address common medical conditions and provide health information to

raise awareness about health in these day. According to Abramson (2014), Facebook

provide many unique benefit that distinct from other online communities; Facebook

Pages and Facebook group. All Facebook members has their right to see and likes

Facebook Pages for receiving information, moreover, its enables and allows that

person to directly communicate with other users. Besides, Facebook Group created by

the Facebook user for the purposes of member or a small group for discussions. For

examples, from recent study has shown that Facebook make a rare diseases becoming

easier to people who are facing with the rare disease by communicating and discussing in the Facebook group. (Walker, 2013)

Many health organizations use these advantages of Facebook to create health platform in communicating health information. For examples, Hospital in Thailand such as Bangkok Hospital, Samitivej Hospital, Lerdsin Hospital, Chulalongkorn Hospital etc. use Facebook to communicate with their customers. Moreover, nonprofit health organization such as ThaiHealth also uses Facebook platform as one of their way in communicating health information. However, the study of health communication on Facebook group is more popular than on Facebook Pages. (Walker, 2013)

As recent study Abramson (2014), the qualitative case study about Breast Cancer through Facebook has been done to raise awareness about breast cancer. Moreover, the study uses the function of Facebook as a health communication tool. This studied was successfully spread awareness and increasing the good attitude and behavior towards general people by the use of Facebook as a health communication tool but for this studied there are some topics that still remain questioning because the overall of the study focus on the awareness rather than education. So the accuracy of the information still not specifies enough.

Another online media platform which is also famous in health communication is Twitter. Health organizations such as American Heart Association, The Government Phamaceutical Organization, ThaiHealth, Siriraj Hospital, or even person who are known as Health professional such as Doctor etc. use Twitter as a health disseminator

to creates and encourages people to aware and improve their health, besides, this online health platform can build relationship among health professionals, patients, and also general people who interesting in health information. Twitter provides hashtag that people can tweet and use the same hashtag to be grouped in one; this is the most frequently used as an interactive tool in Twitter.

According to recent study, Park (2015) studied the use of Twitter for Health promotion and public engagement, the research resulted that Twitter has been used to create conversations between public and health organization. Currently, it is the most sociable tool in health communicator's social media which is fast and quiver. Based from the finding, the accounts that represent the popular and trustable organization would be the one that people re-tweet. Some health organization re-tweet one another shows the value of original tweet.

In conclude, many online media platform has been use to creates health communication these day, each of the platform have its uniqueness but all require the same purpose. However, the way they present their messages and the types of content they use are the point that we need to concern to create the effective communication in health that can reach the communication objectives. We couldn't agree more that Info-graphic is one of the new communication tools in digital era that are becoming more interesting by it simple present as a familiar phrase that everyone familiar with "*A picture is worth a thousand words*".

Info-graphics

In today's world, everything has been adapted and transformed to be as easy as it could be. Also with the sharing of information especially information that are hard to understand such as medical or health information. Many of the receivers are suffering from information overload and hard in processing, they need to have time or be very patience to get the information they want. But this is in the past, for now, if anything that is hard to understand they will skip and ignore it, so the sender won't get any attention from them. However, we now have a communication tool which is a visually communicating information or as we known as "Info-graphics".

Info-graphics are a visually representation of information that creatively create up to be simple, straight to the point, and help readers/receivers to understand the key messages. Evidence suggests that when information is representing as a graphic it will lead to reach more understanding and ability in making decision. Using as a health communication tool, improving the relationship between the health professional and patient is also one of the benefit of using info-graphics. (AD, 2016) The context and the key messages will be presented in an easy way to be able to access and share. Furthermore, info-graphics help with the learning process of receivers. (Siricharoen, n.d.) Moreover, info-graphics not only help with the understanding, decision making, and learning process, it also use as a communication tool to overcome language barrier.

Nowadays, info-graphics is not new in health circle but it becoming more popular and interesting as many health organizations already use info-graphics to communicate medical information to publics and also with their patients. However, the design of info-graphic is important to bring out the effective communication tool.

Info-graphics design

Info-graphics was designed differently in many different platforms via both online media (Facebook, websites, etc.) and traditional communication resources (poster, newspaper, etc.) to enhance our understanding. Bar chart and pie chart are one of the simple info-graphic design uses for visualizing data. Allowing us to explore the data and get more understanding. Besides, we can see the standard of creating info-graphic, for examples, heading should be put at the center and should be underlined. (Siricharoen, n.d.)

In this research study, examples of type of info-graphic will be discussed. An isotype arrays info-graphic is one of the types of info-graphic that usually use to represent quantity. It is useful to communicate part to whole relationship of an outcomes (positive and negative), also as a ratio. (AD, 2016)
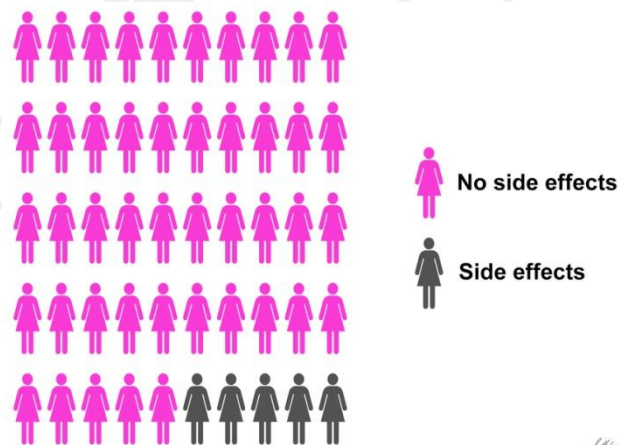
Figure 2.3: Example of isotype arrays info-graphic A

Figure 2.3 use an isotype arrays to communicate the relationship between women who got side effects (grey) and who haven't got side effects (pink). These can

allow receivers who receive the message to easily judge and understand their further

risk by the ratio of an icon.

Figure2.4: Example of isotype arrays info-graphic B

Figure 2.4 show the proportions of women employed in different countries in

year 1930.

Word cloud, another famous type of info-graphics, it is the use of text in

different way. Color, size, prominence, and style of text are use differently to eye

catching the viewers. Communication can be emphasizing by those factors. For

examples, the important word might be written in a big, prominent, and clear text.

Figure 2.5: Example of word cloud info-graphic

Figure 2.5 Word cloud info-graphic show the important of word communication by using different color, size, prominence, text, and position.

Moreover, as we are using many social media platform, info-graphics size is another factor that we have to over think carefully before creating info-graphics. In general, an ideal info-graphic size is must not be more that 600 x 1,800 pixels to be fit to general info-graphic websites and blogs. However, they are a specific size for each of the online platform. For example, Facebook allows you to submit an info-graphic with the size between 403 x 403 pixels and 2048 x 2048 pixels. Google plus allows you to submit info-graphics from 497 x 373 pixels up to 2048 x 2048 pixels (What are the Best Sizes for Infographic Design and Promotion?, 2018). From the report, *The Science Behind the Most Popular Infographics* ,2017 reported that info-graphics are most popular uses in health topic and the most popular color uses in health info-

graphic are blue, 27%, green, 25%, and red, 18%. Furthermore, health info-graphic did best in Facebook and Pinterest. However, experiences are essential and important to create effective info-graphics.

<u>Message Framing</u>

Gain framed and loss framed message has been the most successfully type of health communication in promoting health and reducing risk of health problem. However, the impact of framed messages on exercises behavior on preventing heart diseases in young people and adolescent in Thailand, as well as moderators of these effects, has still remained largely unexplored. How the information is framed can affect people's decision and behavior so it is an interesting topic to study in these days.

Gain framed message is the message that present the information about behavior that can emphasize the benefit when doing an action or show the result when you performing an action. However, gain framed message statement can be both written about good things that will happen to you and also bad thing that will not happen. (Rothman, 2006) For examples, "If you exercise regularly, you will have a healthy life." (Good thing), "If you exercise regularly, you will not get fat." (Bad thing)

Loss framed message is the message that present the information about the outcomes as if you fail to take an action or you not doing the action. (Rothman, 2006) For examples, "If you don't exercise regularly, you will become fat", or, "If you don't exercise regularly, you will get a higher risk to be heart disease when you're old"

Gain framed messages were proposed to be more effective and can persuade more audiences when it used in the safe, certain, or low risk health issues (e.g. promoting interest of screening mammography and breast self-examination for preventing health problem), on the other hands, Loss framed messages were proposed to be more effective and persuasive when the messages were used in the higher risk, uncertain health issues, or risk of an unpleasant outcome. (e.g. quitting smoking) (Macapagal, 2017)

However, even the same message frames work differently in different people. According to Macapagal (2017), their team presented that the factor that impacting sexual health message framing are individual characteristics such as gender, age, etc., partner characteristic, and message presentation as the message that are presented first would be more effective than second.

Moreover, the result of gain and loss framed message were not 100% fixed. Bosone (2017) said that on their team study, the present data showed that loss-framed message is more persuasive than a gain- framed message only with a person that are facing in those situation as highly personally relevant.

Heart diseases

Heart disease or Cardiovascular diseases (CVDs) are a disease which occurs from the disorders of blood vessels and heart such as Coronary heart disease (CAD), Rheumatic heart disease, Cerebrovascular disease etc. These diseases can cause death due to heart attacks and strokes. Heart attack occurs when the blood clot blocked the blood flow in the blood vessel of the heart which when the clot completely blocks the

way of the blood flow, the heart muscle that supplied by that artery will got damaged. However, there are many different degrees of heart attack due to the severity of diseases. People after heart attack can return to their normal living or may be death. (What is Cardiovascular Disease?, 2018)

In the report, *Cardiovascular diseases (CVDs)* (2018), reported that cardiovascular diseases are the world's biggest killer which causes around 15.2 million deaths in 2016. Not only in year 2016, but these diseases have remained the causes of death for about 15 years.

In the past, heart diseases typically occur in middle and later age; most in people age 50-70 years old. Nowadays, there are many countries found that heart diseases can be seen in young children and this trend keeps increasing. According to the report, *04 childhood youth 04 06 17 - World Health Organization*, 2017 said that percentages of young people who have risk factor to heart diseases are increasing and its start in youth. For examples, 14% of children age between 13-15 years old around the world smoke cigarettes, which is the risk factor lead to heart diseases. 15.2% of teenage were inactive (did not participate in ≥60 minutes of physical activity that increased their heart rate and cardiovascular endurance) which girls were more likely to be inactive than boys (19.2% versus 11.2%). (Benjamin, et al., 2017) Furthermore, these risk factors lead to the result of 30.2% of people age ≥18 years old in year 2014 do not engage in leisure-time physical activity which is the major risk factor of heart diseases or cardiovascular diseases. Certainly, the harmfulness of inactivity is much more dangerous than we think. Benjamin, et al. (2017) said that physical inactivity is a major risk factor that cause Cardiovascular diseases and stroke. According to their

guideline on physical activity, they recommend that children must get at least 60 minutes (aerobic exercises and muscle and bone strengthening exercises) of daily physical activity. Besides, at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity aerobic exercises per week were recommended for adults. As their surveyed, only 36.5% of children and 44.0% of adults met these criteria. Moreover, physical inactivity not only helps prevent the risk of heart diseases but also improve health in all ages and groups.

In conclude, the number of young people having heart diseases is statistically increasing in these days. Young aged people who are inactivity or known as sedentary lifestyle is more likely to risk to heart diseases, the world's biggest killer nowadays, and we should concern at this point. Many organizations are now finding the way to help decreasing these trends and hope all children will reduce their risk of becoming unhealthy and develop heart diseases when they all grow up. Surely, health communication is one of the famous ways to fix with this problem in our world right now.

Research Question and Research Hypothesis

RQ1: Is there a statistically significant difference on audiences' attention by gain and loss framed message info-graphic about exercises for preventing heart disease?

HP1: There is a statistically significant difference on audiences' attention by gain and loss framed message info-graphic about exercises for preventing heart disease.

RQ2: Is there a statistically significant difference on audiences' comprehension by gain and loss framed message info-graphic about exercises for preventing heart disease?

HP2: There is a statistically significant difference on audiences' comprehension by gain and loss framed message info-graphic about exercises for preventing heart disease.

RQ3: Is there a statistically significant difference on audiences' yielding by gain and loss framed message info-graphic about exercises for preventing heart disease?

HP3: There is a statistically significant difference on audiences' yielding by gain and loss framed message info-graphic about exercises for preventing heart disease.

RQ4: Is there a statistically significant difference on audiences' retention by gain and loss framed message info-graphic about exercises for preventing heart disease?

HP4: There is a statistically significant difference on audiences' retention by gain and loss framed message info-graphic about exercises for preventing heart disease.

RQ5: Is there a statistically significant difference on audiences' behavioral change by gain and loss framed message info-graphic about exercises for preventing heart disease?

HP5: There is a statistically significant difference on audiences' behavioral change by gain and loss framed message info-graphic about exercises for preventing heart disease.

RQ6: Does behavioral beliefs, normative beliefs, and control beliefs statistically moderate the effect of Gain-Loss framed message info-graphic about exercises for preventing heart disease on audience responses?

HP6: Behavioral beliefs, normative beliefs, and control beliefs statistically moderate the effect of Gain-Loss framed message info-graphic about exercises for preventing heart disease on audience responses.
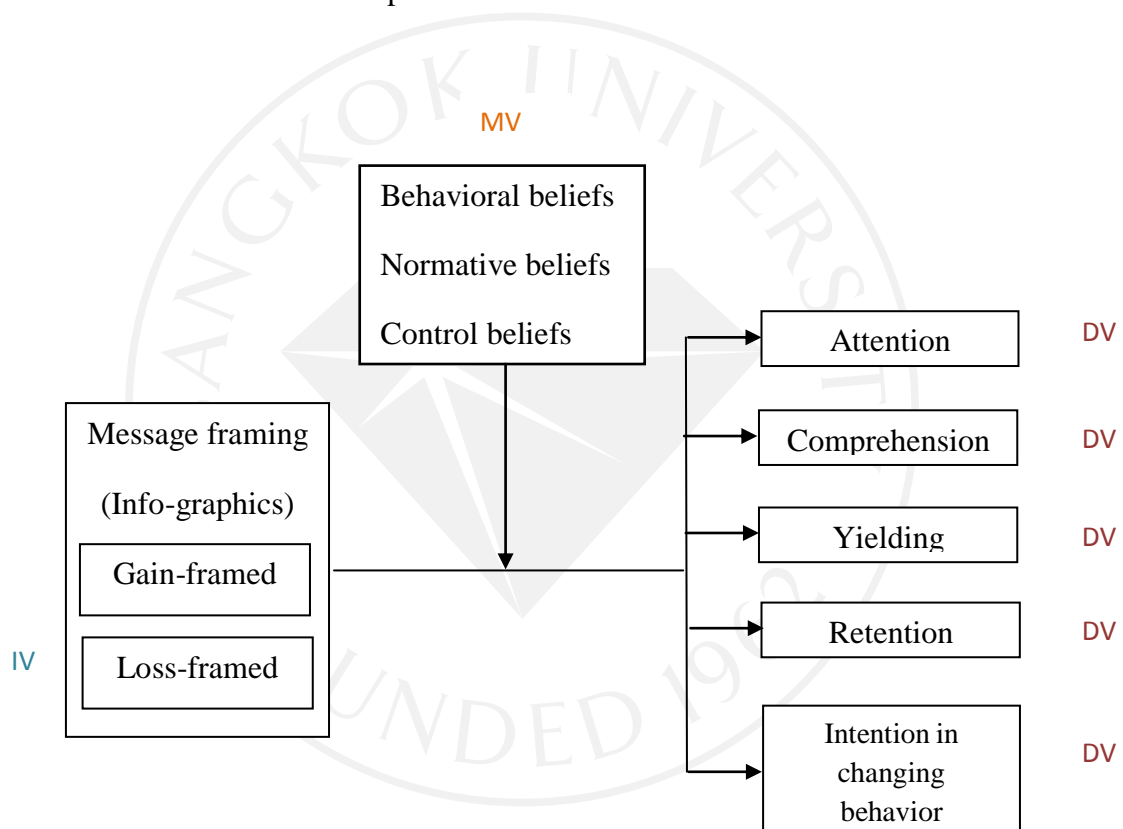
Figure 2.6: Theoretical Framework

IV= Independent variable

DV= Dependent variable

MV= Moderating variable

CHAPTER 3

METHODOLOGY

The literature review in Chapter 2 on health communication and theory about exercises in preventing heart diseases has clearly indicated the importance of combining both health knowledge and communication concept and theory together. These two fields of studies have given the research both breadth and depth. This chapter aims to reveal the methodology of research study. This chapter is composed of the following sections:

3.1 Research Design

3.2 Population and Sampling Method

3.3 Research Instrument

3.4 Research pretest

3.5 Data Collection Procedure

3.1 Research Design

This research study aims to study the effect of message framing (gain-loss framed) on health info-graphics about exercises in preventing heart diseases. Also study human health behavior stage of change and their plan of change.

Qualitative research approach was used in this study to collect the data of 200 respondents to show the effect of message framing on health issue about exercising

for prevent heart diseases towards Thai adolescent's attitude and intention in changing behavior.

However, researcher was considered about ethical considerations, so all participants were clearly been notified by researcher about the research objectives and method. Moreover, all participants were agreeing to participate voluntarily and willingly in this research study. They were free to refrain from providing any information and withdraw from the study without repercussions at any time before or during the study.

3.2 Population and Sampling Method

The population of the research is Thai people whoever in age between 10-19 years old, or called as adolescents as WHO defined. (Adolescent health, 2018) Both male and female were included. This group of people was chosen to be the sample of this study as they are in the age of learning in nowadays digital era. They have their own ability to think independently on a decision about exercise behavior.

The study was applied with the quantitative research approach with mixed-sampling method by online questionnaire, Google Form. Google Form was spread out mainly through researcher's Facebook and Line asking for whoever qualifies as a Thai adolescent in age between 10-19 years old to join this study. Moreover, the questionnaire has been asked to share and spread to others to get various participants All 200 participants were requiring filling in the questionnaire to collect the statistic information.

3.3 Research Instrument

Online questionnaire was created via Google Form to be easy and comfortable to all participants to access the questionnaire. The questionnaire was divided into 7 sections as follows.

Section 1: Demographics

Age (10-12years old, 13-15 years old, and 16-19 years old), gender (male and female), and current education of each participant were asked in this section to identify the personal data of each participant.

Section 2: Family background

This section was to identify each participant background simply about who are they stay with and what is the level of their family background by asking them about their parents' income. We can know their simple based information of their family.

Section 3: Exercise habits

In this section was to identify and separate participants into 2 groups:

3.1 Participants who does exercise regularly

The question was asked "Do you normally exercise?" So whoever answer "Always (7 days/week)", "Usually (5-6 days/ week)", "Often (3-4 days/ week)", or "Occasionally (1-2 days/ week)" will be classified in this group and will lead to section 4.

3.2 Participants who does not exercise regularly or do not do exercise

Continue from 3.1, participants who answer "Once in more than a week", and "Never" in the question "Do you normally exercise?" will be classified as not exercise regularly. The questionnaire will lead to ask more about their behavior in the past. Either they tried to do exercise or not, and what are the reason. Besides, they will be asked about their intention on start doing exercise. If the participants intend to do exercise, the question about exercise planning will followed.

Section 4: Media exposure about health information

Knowing the nowadays health information channel that general people approach and what type of health content that people require or has an interesting on are the objectives of this section. So, this section was divided in to 2 part as follow:

4.1 Channel

All participants will be asked to rate 6 type of media that they exposed (Facebook, Instagram, Television, Magazine, Radio, and websites) by giving the score from 0 to 5. Scored zero "0" means that they never expose this type of media on health issue, and scored five "5" means that they always expose this type of media on health issue.

4.2 Types of content

All participants will be asked to rate 5 type of health content from their opinion that which type of content they want or have an interesting on the most to talk about health issue (Passage, Video clip, Info-graphic, News, and Audio-voice record). The rating scale was from 0 to 5. Scored zero "0" represent that they were not

interesting and scored five "5" represent that they were very interesting on those types of content.

Section 5: Moderating variable on changing behavior

This section refers to Chapter 2 about the theory of planned behavior. We try to find other variable that cause change to individual's behavioral change.

5.1 Attitude toward exercise behavior

All participants will be asked to select the best answer to the statement given based on their attitudes and opinion on exercise whether they are "strongly agree", "agree", "neither agree nor disagree", "disagree", "strongly disagree".

They are 5 statements given:

- Exercise can prevent heart disease.

- Heart disease can cause from inactivity (not exercises).

- Regular exercise can lowering blood pressure.

- I know how to exercise for preventing heart disease

-Keeping blood pressure under control from exercise regularly will reduce the chance of the person to develop heart disease.

5.2 Subjective and Social norms

All participants will be asked either they have family, friends, or any role model that inspire them to do exercise or not. If yes, then who inspired them?

5.3 Behavior control

This section was to asked about their personal behavior control and their self-efficiency and required them to rate whether they are "strongly agree", "agree", "neither agree nor disagree", "disagree", "strongly disagree" on the statement.

There are 3 statements given:

- I confidently think that exercises are not a hard thing to do and I can do it.

- I confidently can imagine myself growing up and being healthy.

- I confidently can manage my time to do exercises.

Section 6: Knowledge about heart disease

Appropriate time for exercise, risk of heart diseases, and normal level of blood pressure were been asked to test all participants' simple knowledge about exercises in heart diseases and heart diseases.

Section 7: Info-graphics

This section wants to evaluate the effect of Gain and Loss framed info-graphic. Both type of info-graphic was created by the researcher based on literature review about info-graphic design. Furthermore, both of them were been consulted and accepted by three specialists in info-graphic design. The info-graphics were provided and followed by 5 section of question.

Each of the section was asked to evaluate audiences' attitude, comprehension, yielding, retention, and behavioral change.

3.3.1 Interpretation of the scale

Table 3.1: Criteria for degree of satisfaction dimension

Opinion toward the statement	Score	Meaning
Strongly agree with the statement	5	Strongly agreeable
Agree with the statement	4	Agreeable
Neither agree nor disagree with the statement	3	Neutral
Disagree with the statement	2	Disagree
Strongly disagree with the statement	1	Strongly disagree

Table 3.2: Criteria for degree of frequency

Frequency toward the access of health media	Score	Meaning
Always	5	100% access to health media
Frequently	4	80% access to health media
Sometimes	3	50% access to health media
Occasionally	2	30% access to health media
Never	1	0% access to health media

Table 3.3: Criteria for degree of interesting

Interesting rates toward type of content	Score	Meaning
Very interesting	5	Very interesting
Somewhat interesting	4	Somewhat interesting

(Continued)

Table 3.3 (Continued): Criteria for degree of interesting

Neutral	3	Neutral
Not interesting	2	Not interesting
Not at all interesting	1	Not at all interesting

3.4 Research pretest

The questionnaire was developed in Thai and English language. Professor adjusted and examined the wording and order of the questions. The researcher adjusted the unclear questions and order of the questions. 30 of the online questionnaire (Google Form) were distributed and collected via researcher's Facebook and Line to test reliability of the questions. SPSS program was used to check whether the entire questions in the questionnaire are clear to all respondents.

Cronbach's alpha coefficient was used to test the reliability of the instrument. The result was presented as follow:

Table 3.4: The reliability of the instrument

	Number of items	Reliability Statistics (Cronbach's Alpha)
Behavioral beliefs question set	5	0.837
Normative beliefs question set	3	0.686
Control beliefs question set	3	0.750
Attention question set	3	0.807

(Continued)

Table 3.4 (Continued): The reliability of the instrument

Comprehension question set	3	0.784
Yielding question set	3	0.855
Retention question set	3	0.816

3.5 Data Collection Procedure

Data collection procedure was described as follows:

3.5.1 An online questionnaire was created via Google Form under advisor's comment and recommendation.

3.5.2 Gain and Loss framed message info-graphic was designed by researcher under professor's comment and recommendation.

3.5.3 The questionnaire include health info-graphic were distributed online via Line and Facebook to 200 Thai participants whoever in aged between 13-19 years old.

3.5.4 Data was collected in Google Form and interpret by SPSS program.

CHAPTER 4

DATA ANALYSIS

This chapter reveals the results of descriptive findings and the finding of six hypotheses given in chapter two. Independent t-test and two-way ANOVA were used to conduct the analysis.

Researcher shall start with the table summarize the result of descriptive finding and hypothesis finding and testing. Then, detail of each result will follow.

4.1 Descriptive Statistics

4.2 Inferential Statistics

4.1 Descriptive findings

Table 4.1.1: Summarize table of descriptive findings

Descriptive findings: Demographic data (200respondents)		
Gender	Percentage	Frequency
Male	37 %	74
Female	63 %	126
Age range	Percentage	Frequency
10-12 years old	14.0 %	28
13-15 years old	23.5 %	47

(Continued)

Table 4.1.1(Continued): Summarize table of descriptive findings

16-19 years old	62.5 %	125
Exercise habits	**Percentage**	**Frequency**
Never	16.0 %	32
Once in more than a week	21.5 %	43
Occasionally (1-2 days/ week)	33.5 %	67
Often (3-4 days/ week)	17.0 %	34
Usually (5-6 days/ week)	8.0 %	16
Always (7 days/week)	4.0 %	8
Basic knowledge about health and heart diseases.	**Percentage**	**Frequency**
Score 0/3	6.0 %	12
Score 1/3	32.5 %	65
Score 2/3	58.0 %	116
Score 3/3	3.5 %	7
Media exposure about health	**Score**	**Mean score**
Facebook	0-5	3.00
Instagram	0-5	2.74
Television	0-5	2.70
Magazine	0-5	1.73
Radio	0-5	1.46
Website	0-5	3.06
Participant's satisfaction	**Score**	**Mean score**

(Continued)

Table 4.1.1(Continued): Summarize table of descriptive findings

toward type of health content		
Passage	0-5	2.67
VDO	0-5	3.60
Info-graphic	0-5	3.49
News	0-5	2.71
Audio	0-5	1.89

Demographic Data of the Samples

The demographic information of 200 participants responded to the questionnaire include gender, age range, and their exercise habits. The descriptive analysis of the frequency and percentage of the samples are summarized in the following tables.

As shown in Table 4.1.1, the descriptive findings revealed that majority of respondents are female (63%, n=126) then followed by male (37%, n=74)

As shown in Table 4.1.1, the descriptive findings revealed that majority of respondents are in aged between 16-19 years old (62.5%, n=125), followed by aged between 13-15 years old (23.5%, n=47), and aged between 10-12 years old (14.0%, n=28)

As shown in Table 4.1.1, the descriptive findings revealed that majority of respondents exercise 1-2 days per week (33.5%, n=67), followed

by once more than a week (21.5%, n=43), 3-4 days per week (17%, n= 34), never do exercise (16%, n=32), 5-6 days per week (8%, n=16), respectively. Only 4% of respondents did exercise every day (4%, n=8)

Researcher separate respondents into two groups; respondents who exercises regularly (62.5%, n=125) and not exercise regularly or never do exercise (37.5%, n= 75).

In 75 respondents who did not do exercise regularly or never do exercise, the descriptive findings revealed that the majority of respondents had tried to do exercise in the past (75.4%, n=46) but they quitted. The top three reason of quitting exercise are because they have no enough time to do exercise (67.4%, n=31), followed by 13% of respondents said that they've got hurt from doing exercises (13%, n=6), and 10.9% said that they don't like to do exercises (10.9%, n=6). However, from 46 respondents who had tried to do exercises in the past, majority of them said that they would like and intend to do exercise again within 6 months (65.2%, n=30)

Next, the descriptive statistic of participant's health media exposure and the satisfaction on types of health content will be shown as follow.

As shown in Table 4.1.1, the descriptive analysis of media exposure about health indicated that majority of respondents expose to Facebook as a health media (X=3.00, SD=1.51), followed by website (X=3.06, SD= 1.56), Instagram (X=2.74, SD= 1.71), television (X=2.70, SD= 1.52), magazine (X=1.73, SD= 1.55), and radio (X=1.46, SD= 1.47), respectively.

As shown in Table 4.1.1, the descriptive analysis of respondents' satisfaction on types of health content indicated that majority of respondents had highest satisfaction on VDO (X=3.60, SD=1.17), followed by info-graphic (X=3.49, SD= 1.28), news (X=2.71, SD= 1.30), passage (X=2.67, SD= 1.36), and audio (X=1.89, SD= 1.42), respectively.

Furthermore, researcher asked 3 basic knowledge questions about exercises and heart disease. The questions included: What is the time that we should exercise to have good health and preventing heart disease?, What is the risk factors of heart disease?, and What is the normal blood pressure?

As shown in Table 4.1.1, the descriptive analysis of respondents' basic knowledge about exercises and heart disease indicated that majority of respondents got score of 2 out of 3 question (58%, n=116), followed by score of 1 out of 3 (32.5%, n=65), score of 0 out of 3 (6%, n=12), and 3 out of 3 (3.5%, n=7), respectively.

4.2 Inferential Statistics

Table 4.2.1: Summarize table of hypotheses finding

Hypotheses finding and testing.		
Hypotheses	**Result**	**Meaning**
H1: There is a statistically significant difference on audiences' attention by gain and loss framed message info-graphic about exercises for preventing	Non-significant	Gain and Loss framed message showed the same affect to audiences'

(Continued)

Table 4.2.1(Continued): Summarize table of hypotheses finding

heart disease.		attention.
HP2: There is a statistically significant difference on audiences' comprehension by gain and loss framed message info-graphic about exercises for preventing heart disease.	Significant	Loss framed message affect audiences' comprehension more than Gain framed message.
HP3: There is a statistically significant difference on audiences' yielding by gain and loss framed message info-graphic about exercises for preventing heart disease.	Non-significant	Gain and Loss framed message showed the same affect to audiences' yielding.
HP4: There is a statistically significant difference on audiences' retention by gain and loss framed message info-graphic about exercises for preventing heart disease.	Non-significant	Gain and Loss framed message showed the same affect to audiences' retention.
HP5: There is a statistically significant difference on audiences' behavioral change by gain and loss framed message info-graphic about exercises for preventing heart disease.	Non-significant	Gain and Loss framed message showed the same affect to audiences' behavioral change.

Table 4.2.1(Continued): Summarize table of hypotheses finding

HP6: Behavioral beliefs, normative beliefs, and control beliefs statistically moderate the effect of Gain-Loss framed message info-graphic about exercises for preventing heart disease on audience responses.	Non-significant	Behavioral beliefs, normative beliefs, and control beliefs were not the factors that moderate the effect of Gain and Loss framed message. However, more detail will be described later.

As shown in Table 4.2.2 and 4.2.3, an independent sample t-test was conducted to compare the effect of gain and loss framed message toward audiences' attention, comprehension, yielding, retention and behavioral change. SPSS 17.0 (SPSS, Inc.) was used to conduct the analysis

HP1: There is a statistically significant difference on audiences' attention by gain and loss framed message info-graphic about exercises for preventing heart disease.

An independent sample t-test was conducted to compare the effect of gain and loss framed message toward audiences' attention .There was no significant difference

in the scores for gain framed message (M=3.89, SD= 0.79) and loss framed messages (M= 3.97, SD= 0.86); t (398) = 1.01, p=0.313

HP2: There is a statistically significant difference on audiences' comprehension by gain and loss framed message info-graphic about exercises for preventing heart disease.

An independent sample t-test was conducted to compare the effect of gain and loss framed message toward audiences' comprehension. There was a significant difference in the scores for gain framed message (M=3.92, SD= 0.73) and loss framed messages (M= 4.09, SD= 0.74); t (398) = 2.27, p=0.024

Concluded that loss framed message was significantly affect audiences' comprehension more than gain framed message.

HP3: There is a statistically significant difference on audiences' yielding by gain and loss framed message info-graphic about exercises for preventing heart disease.

An independent sample t-test was conducted to compare the effect of gain and loss framed message toward audiences' yielding. There was no significant difference in the scores for gain framed message (M=4.02, SD= 0.82) and loss framed messages (M= 4.04, SD= 0.78); t (398) = 0.268, p=0.789

HP4: There is a statistically significant difference on audiences' retention by gain and loss framed message info-graphic about exercises for preventing heart disease.

An independent sample t-test was conducted to compare the effect of gain and loss framed message toward audiences' retention. There was no significant difference in the scores for gain framed message (M=4.04, SD= 0.77) and loss framed messages (M= 4.02, SD= 0.72); t (398) = 0.247, p=0.805

HP5: There is a statistically significant difference on audiences' behavioral change by gain and loss framed message info-graphic about exercises for preventing heart disease.

An independent sample t-test was conducted to compare the effect of gain and loss framed message toward audiences' behavioral change. There was no significant difference in the scores for gain framed message (M=2.66, SD= 0.70) and loss framed messages (M= 2.67, SD= 0.70); t (398) = 0.143, p=0.886

Table 4.2.2: Respondents' statistics

	Gain=1, Loss=2	N	Mean	Std. Deviation	Std. Error Mean
Attention	1	200	3.8867	.78898	.05579
	2	200	3.9700	.85797	.06067
Comprehension	1	200	3.9183	.72945	.05158
	2	200	4.0850	.74198	.05247
Yielding	1	200	4.0167	.82110	.05806
	2	200	4.0383	.79794	.05642
Retention	1	200	4.0400	.76827	.05432
	2	200	4.0217	.71677	.05068

(Continued)

Table 4.2.2 (Continued): Respondents' statistics

| Behavioral change | 1 | 200 | 2.6550 | .69887 | .04942 |
| | 2 | 200 | 2.6650 | .69656 | .04925 |

Table 4.2.3: Independent t-test analysis

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Attention	Equal variances assumed	.352	.553	-1.011	398	.313
	Equal variances not assumed			-1.011	395.236	.313
Comprehension	Equal variances assumed	.229	.632	-2.265	398	.024
	Equal variances not assumed			-2.265	397.885	.024
Yielding	Equal variances assumed	.009	.924	-.268	398	.789
	Equal variances not assumed			-.268	397.675	.789

Table 4.2.3 (Continued): Independent t-test analysis

Retention	Equal variances assumed	.466	.495	.247	398	.805
	Equal variances not assumed			.247	396.099	.805
Behavioral change	Equal variances assumed	.041	.839	-.143	398	.886
	Equal variances not assumed			-.143	397.996	.886

After independent t-test was used to measure the different outcome between gain and loss framed message, researcher can conclude that only audiences' comprehension shows the differences. Then, two way anova was conducted on the influence of independent variable (message framing) and moderating variable (Behavioral beliefs, normative beliefs, and control beliefs) on audiences' comprehension. Message framing included 2 types of messages (gain framed message and loss framed message). Behavioral beliefs, normative beliefs, and control belief included 3 groups (high, medium, and low)

HP6: Behavioral beliefs, normative beliefs, and control beliefs statistically moderate the effect of Gain-Loss framed message info-graphic about exercises for preventing heart disease on audience responses.

There wasn't an interaction effect between message framing (gain-loss framed message) and behavioral beliefs to audiences' comprehension (F=0.838, p=0.433). However, simple main effects analysis showed that there are significantly effect of message framing to comprehension (F=5.570, p=0.019) and main effect of behavioral beliefs to comprehension (F=28.734, p=0.000)

However, the difference of audiences' comprehension which classify by message framing and behavioral beliefs will be considered next.

Table 4.2.4: Two way anova analysis (message framing*behavioral beliefs and
comprehension)

Between-Subjects Factors		
		N
Gain=1,	1	200
Loss=2	2	200
Behavioral	High	232
Beliefs	Medium	150
	Low	18

(Continued)

Table 4.2.4 (Continued): Two way anova analysis (message framing*behavioral

beliefs and comprehension)

Tests of Between-Subjects Effects					
Dependent Variable: Comprehension					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	30.897[a]	5	6.179	12.997	.000
Intercept	1848.499	1	1848.499	3887.958	.000
Message framing	2.648	1	2.648	5.570	.019
Behavioral Beliefs	27.322	2	13.661	28.734	.000
Message framing * Behavioral Beliefs	.797	2	.398	.838	.433
Error	187.324	394	.475		
Total	6623.556	400			
Corrected Total	218.221	399			
a. R Squared = .142 (Adjusted R Squared = .131)					

Table 4.2.4 (Continued): Two way anova analysis (message framing*behavioral

beliefs and comprehension)

Pairwise Comparisons						
Dependent Variable: Comprehension						
(I) Behavioral Beliefs	(J) Behavioral Beliefs	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
High	Low	1.108[*]	.169	.000	.777	1.440
	Medium	.349[*]	.072	.000	.207	.491
Medium	High	-.349[*]	.072	.000	-.491	-.207
	Low	.759[*]	.172	.000	.421	1.097
Low	High	-1.108*	.169	.000	-1.440	-.777
	Medium	-.759*	.172	.000	-1.097	-.421
Based on estimated marginal means						
*. The mean difference is significant at the .05 level.						
a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).						

When compare between a group of audience who has high, medium, and low

behavioral beliefs, researcher found that all 3 groups had significantly different

comprehension. (Mean difference= 0.349,0.759, and 1.108, p=0.000) as table above shown.

As the graph shown above, audiences' behavioral beliefs were divided into 3 groups; high, medium, and low. The behavioral beliefs on gain framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 4.126, 3.729, and 2.815) as orders. The behavioral beliefs on loss framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 4.239, 3.938, and 3.333) as orders.

Looking on each group of behavioral beliefs, researcher found that it showed increasingly differences from high to low behavioral beliefs. In high behavioral beliefs group, there are just a few differences between gain and loss framed message. However, more differences were showed in the medium and low behavioral beliefs group; Low behavioral beliefs group showed the most difference within these 3 groups.

Estimated Marginal Means of Comprehension
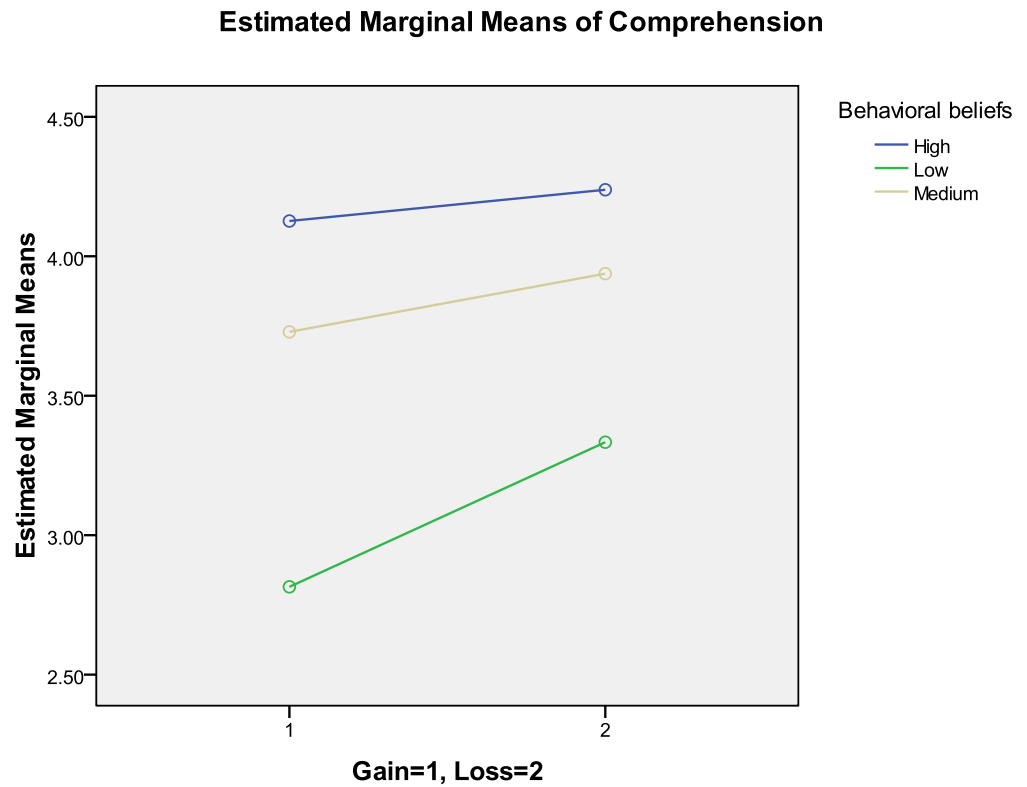
Figure 4.1: Plot graph shows the effects of moderating variable A

Table 4.2.5: Two way anova analysis A

Dependent Variable: Comprehension					
Gain =1, Loss =2	Behavi oral beliefs	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	High	4.126	.064	4.001	4.252
	Mediu m	3.729	.080	3.572	3.885

(Continued)

Table 4.2.5(Continued): Two way anova analysis A

	Low	2.815	.023	2.363	3.267
2	High	4.239	.064	4.113	4.364
	Medium	3.938	.080	3.781	4.094
	Low	3.333	.230	2.881	3.785

There wasn't an interaction effect between message framing (gain-loss framed message) and normative beliefs to audiences' comprehension (F=0.041, p=0.960). However, simple main effects analysis showed that there are significantly effect of message framing to comprehension (F=5.184, p=0.023) and main effect of normative beliefs to comprehension (F=3.080, p=0.048)

However, the difference of audiences' comprehension which classify by message framing and normative beliefs will be considered next.

Table 4.2.6: Two way anova (message framing*normative beliefs and comprehension)

Between-Subjects Factors		
		N
Gain=1,	1	200
Loss=2	2	200
GroupSSnorms	High	96
	Low	150
	Medium	154

(Continued)

Table 4.2.6 (Continued): Two way anova (message framing*normative beliefs and

comprehension)

Tests of Between-Subjects Effects					
Dependent Variable: Comprehension					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	6.127[a]	5	1.225	2.276	.046
Intercept	6062.397	1	6062.397	11261.920	.000
Message framing	2.791	1	2.791	5.184	.023
Normative beliefs	3.306	2	1.653	3.070	.048
Message framing * Normative beliefs	.044	2	.022	.041	.960
Error	212.094	394	.538		
Total	6623.556	400			
Corrected Total	218.221	399			
a. R Squared = .028 (Adjusted R Squared = .016)					

(Continued)

Table 4.2.6 (Continued): Two way anova (message framing*normative beliefs and

comprehension)

Pairwise Comparisons						
Dependent Variable: Comprehension						
(I) Normative beliefs	(J) Normative beliefs	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
High	Low	-.108	.096	.259	-.297	.080
	Medium	-.232[*]	.095	.015	-.420	-.045
Low	High	.108	.096	.259	-.080	.297
	Medium	-.124	.084	.142	-.289	.042
Medium	High	.232[*]	.095	.015	.045	.420
	Low	.124	.084	.142	-.042	.289
Based on estimated marginal means						
a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).						
*. The mean difference is significant at the .05 level.						

When compare between a group of audience who has high, medium, and low

behavioral beliefs, researcher found that all 3 groups had significantly different

comprehension. (Mean difference= 0.108, 0.124, and 0.232, p=0.015, 0.142, and 0.259) as table above shown.

As the graph shown above, audiences' normative beliefs were divided into 3 groups; high, medium, and low. The normative beliefs on gain framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 3.771, 4.030, and 3.898) as orders. The normative beliefs on loss framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 3.972, 4.177, and 4.062) as orders.

Looking on each group of normative beliefs, researcher found that all three groups got the higher means score in loss framed message and medium normative beliefs group got the highest means score. However, more difference between gain and loss framed message were showed in the high normative beliefs group.
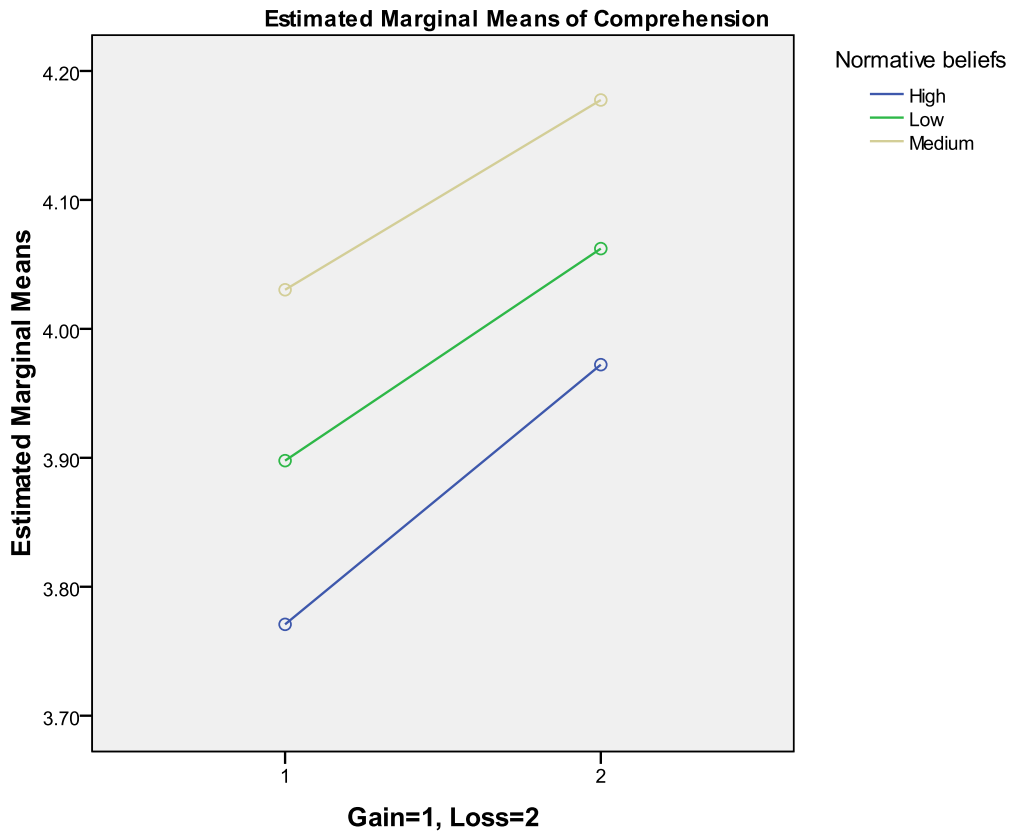
Figure 4.2: Plot graph shows the effects of moderating variable B

Table 4.2.7: Two way anova analysis B

3. Gain=1, Loss=2 * Normative beliefs					
Dependent Variable: Comprehension					
Gain =1, Loss =2	Normative beliefs	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	High	3.771	.106	3.563	3.979
	Medium	4.030	.084	3.866	4.195

(Continued)

Table 4.2.7 (Continued): Two way anova analysis B

	Low	3.898	.085	3.731	4.064
2	High	3.972	.106	3.764	4.180
	Medium	4.177	.084	4.013	4.342
	Low	4.062	.085	3.896	4.229

There wasn't an interaction effect between message framing (gain-loss framed message) and control beliefs to audiences' comprehension (F=0.395, p=0.674). However, simple main effects analysis showed that there are significantly effect of message framing to comprehension (F=4.880, p=0.028) and main effect of control beliefs to comprehension (F=26.520, p=0.000)

However, the difference of audiences' comprehension which classify by message framing and control beliefs will be considered next.

Table 4.2.8: Two way anova (message framing*Control belief and comprehension)

Between-Subjects Factors		
		N
Gain=1,	1	200
Loss=2	2	200
GroupBHC	High	220
	Low	24
	Medium	156

(Continued)

Table 4.2.8 (Continued): Two way anova (message framing*Control belief and

comprehension)

Tests of Between-Subjects Effects					
Dependent Variable: Comprehension					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	28.675[a]	5	5.735	11.921	.000
Intercept	2370.318	1	2370.318	4927.055	.000
Message framing	2.348	1	2.348	4.880	.028
Control beliefs	25.517	2	12.758	26.520	.000
Message framing * Control beliefs	.380	2	.190	.395	.674
Error	189.546	394	.481		
Total	6623.556	400			
Corrected Total	218.221	399			
a. R Squared = .131 (Adjusted R Squared = .120)					

Table 4.2.8 (Continued): Two way anova (message framing*Control belief and

comprehension)

Pairwise Comparisons						
Dependent Variable: Comprehension						
(I) Control beliefs	(J) Control beliefs	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
High	Low	1.064[*]	.149	.000	.770	1.357
	Medium	.209[*]	.073	.004	.066	.352
Low	High	-1.064[*]	.149	.000	-1.357	-.770
	Medium	-.855[*]	.152	.000	-1.154	-.556
Medium	High	-.209[*]	.073	.004	-.352	-.066
	Low	.855[*]	.152	.000	.556	1.154
Based on estimated marginal means						
*. The mean difference is significant at the .05 level.						
a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).						

When compare between a group of audience who has high, medium, and low

behavioral beliefs, researcher found that all 3 groups had significantly different

comprehension. (Mean difference= 0.209, 0.855, and 1.064, p=0.000, 0.004) as table above shown.

As the graph shown above, audiences' control beliefs were divided into 3 groups; high, medium, and low. The control beliefs on gain framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 4.082, 3.846, and 2.889) as orders. The control beliefs on loss framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 4.212, 4.030, and 3.278) as orders.
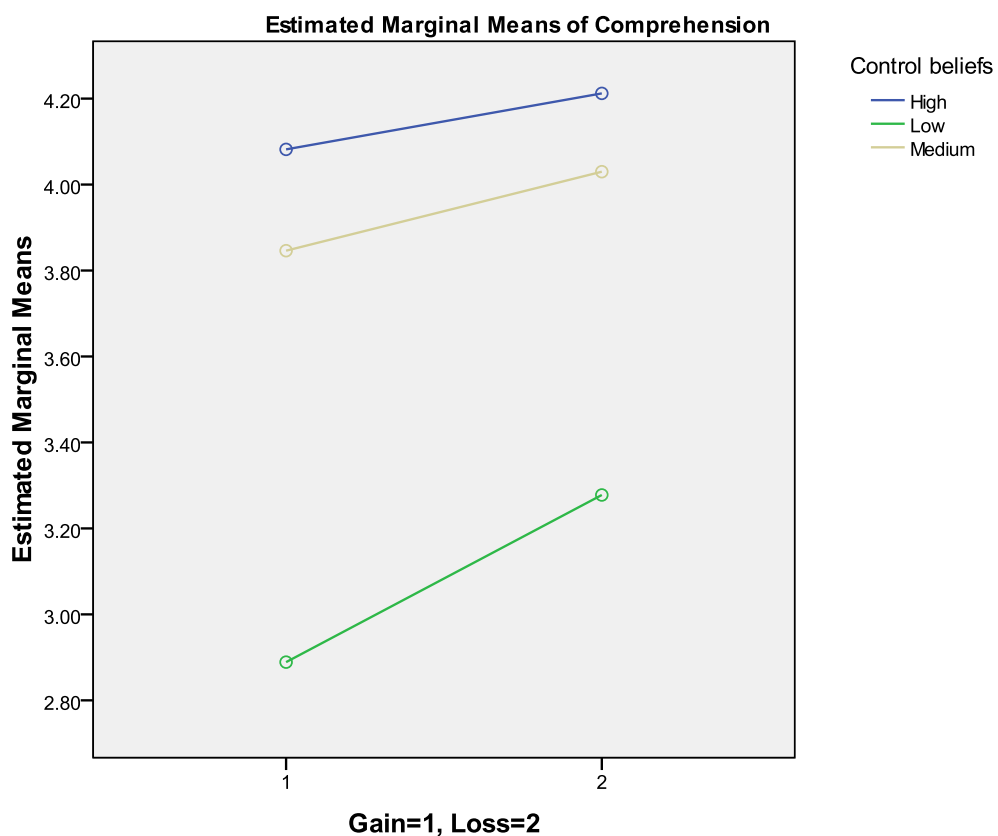
Figure 4.3: Plot graph shows the effects of moderating variable C

Table 4.2.9: Two way anova analysis C

3. Gain=1, Loss=2 * Control beliefs					
Dependent Variable: Comprehension					
Gain =1, Loss =2	Control beliefs	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	High	4.082	.066	3.952	4.212
	Medium	3.846	.079	3.692	4.001
	Low	2.889	.200	2.495	3.283
2	High	4.212	.066	4.082	4.342
	Medium	4.030	.079	3.876	4.184
	Low	3.278	.200	2.884	3.671

As the graph shown above, audiences' control beliefs were divided into 3 groups; high, medium, and low. The control beliefs on gain framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 4.082, 3.846, and 2.889) as orders. The control beliefs on loss framed message which divided into 3 groups (high, medium, and low) were reported (Mean= 4.212, 4.030, and 3.278) as orders.

CHAPTER 5

DISCUSSION

This present study was to examine the relationship between Loss-Gain framed messages info-graphic and Thai adolescent's intention in willing to change their behavior on the topic of exercises to prevent heart diseases.

Furthermore, how messages have been used in each framing and how to make an effective info-graphic was discussed by the researcher. Learning and adapting communication theories is another objective of this study.

This chapter discussed the summary of the findings and discussion of the study. Besides, research applies in business, limitations and future recommendations were also provides in this chapter as follows.

5.1 Summary of the Descriptive Findings and Discussion

5.2 Hypothesis summary and discussion

5.3 Conclusion of the research

5.4 Research apply in business

5.5 Limitation of the Study and Future recommendations

5.1 Summary of the Descriptive Findings and Discussion

Descriptive findings revealed that majority of two hundred respondents, about 33.5%, did exercises 1-2 days per week and the trend of respondents gone in the way

of did less exercises (less than 1 day per week) and never did exercise. These can conclude that majority of Thai adolescent were in the level of risk of having sedentary life style and having heart disease in the future because of not doing exercise. According to Benjamin, et al. (2017), said that physical inactivity is a major risk factor that causes cardiovascular diseases and stroke. Researcher agreed with this result because nowadays even if more people start caring about their health and start doing exercise but it stills not enough and schools should foster them since there were young.

In addition, talking about their knowledge about heart disease, the finding revealed that respondents' basic knowledge was still in low to moderate range. In all three questions that researcher asked all respondents, majority of them can correctly answered two out of three questions, but others mostly put the correct answer just only one question out of three questions. These can also concluded that most of Thai people are still lack of knowledge about heart diseases and exercises in heart diseases. According to Peltzer (2018), studied about the risk awareness of ASEAN university student, include university in Thailand, and found that risk factor of cardiovascular diseases were emerged in adult so education about risk factors in the university environment may help to decrease and prevent the subsequent of Cardiovascular diseases. Besides, Saengsuwan (2017) had studied about knowledge of stroke in Thai patient and found that patient's knowledge about stroke and risk factors in cardiovascular disease were still unsatisfactory. Moreover, Saengsuwan (2017) also mentioned that the low level of knowledge was a problem that needs an urgent policy to improve educational system.

Furthermore, from this study we found that the top three channel that our respondents were exposed about health were Website, Facebook, and Instagram (X=3.06, 3.00, and 2.74) as follows. Certainly, Website, Facebook, and Instagram got the higher rate of exposing about health more than television, magazine, and radio. As we are in the digital era, new media is often characterized as highly interactive digital technology that could attracted and persuaded more effectively. However, types of content were also important in health communication. Researcher found that participants preferred to receive health message as a VDO clip the most, followed by info-graphics, and News. (X=3.60, 3.49, and 2.71) as follows. As researcher study about Thailand's media consumption, researcher also found that VDO becoming more popular and Facebook is the famous social media in Thailand with 49 million users, traditional media has declined. However, Facebook reach will decrease in year 2018 and future so Instagram and Twitter will gain more attraction in the future. (Bangkok Post Public Company Limited, n.d.)

5.2 Hypothesis summary and discussion

As the statistic data shown in chapter four, Independent t-test analysis revealed that there is only audiences' comprehension, hypothesis two, that shows significantly different between Gain framed message and Loss framed messages. Researcher can conclude that Loss framed messages effect audiences' comprehension more than Gain-framed message because loss framed messages is purposed to be more effective when using with higher risk diseases (Macapagal, 2017) when Loss-framed messages was used people will fear to get the disease and the bad result, surely heart diseases is a higher risk disease which is one of the major cause of death and it is a health issue

that can cause an unpleasant outcome. As the loss framed message make people more aware about their health, this might attract audiences to pay more attention to what the message were trying to say so it resulted as people understand to the message more in Loss framed message.

However, even though message framing did not show significantly difference to audiences' attention, yielding, retention, and behavioral change but we couldn't certainly judge that loss framed message and gain framed message show the same effect because there're more other factors that are related and need to be study. According to Bosone (2017), the result of gain and loss framed messages are not one hundred percent fix because they found that loss framed message might affect more only if the persons are facing in the situation. In this case, it is meaning that if the persons are having problem that they are going to have heart disease loss framed message will get higher rate of effectiveness. Moreover, frequency and order of exposing the media are also related to the result. (Macapagal, 2017)

Besides, as findings shown in chapter 4, Behavioral beliefs, normative beliefs, and control beliefs were not moderate the effect between message framing and audience responses. Although no moderate effect between message framing and behavioral beliefs, normative beliefs, and control beliefs showed, it did affect the main effect which are message framing and those three moderators; Behavioral beliefs, normative beliefs, and control beliefs. Nevertheless, it is still unclear why it doesn't moderate audiences' comprehension. This indicates the differences between gain and loss framed message.

5.3 Conclusion of the research

In summary, the present study found that Thai adolescent are still lack of knowledge and awareness about exercises and heart diseases. These can increase the number of people encounter with heart disease when they get older in the future. However, in this digital era, health communication is very important to create awareness, knowledge, or even a better health in people. So, from this study researcher can conclude that Website, Facebook, and Instagram are the media that Thai adolescents were exposed too. Besides, the types of content that they mostly prefer to get health information are VDO clip, info-graphic, and news.

However, message framing pay an important part in transferring message from one to another. Even though the result showed just only one significant, audiences' comprehension, loss-gain framed message are still interesting and it is the factor that can cause different outcomes. From this present study, loss framed message showed a better outcome in making understanding about exercises in heart diseases in Thai adolescent. However, more other factors such as personal characteristic, timing, frequency still need to be clarify and need further study.

In addition, from this present study behavioral belief, normative beliefs, and control beliefs didn't show moderate effect to audiences' comprehension but it showed the main effect to message framing and three moderators.

5.4 Research apply in business

Based on the conclusion of the research, researcher suggests that these results can help the health organization in creating effective communication tool. From this present study, Thai adolescent still need more education tool about exercises in preventing heart diseases before they get older and suffering with heart diseases in their future.

Firstly, Health business could get into education system to create more health awareness in people. Anyone who relate with an educational system need to plan more strategy to create media or communication tool as a VDO clip, info-graphic, or news and it would be best via Websites, Facebook, or Instagram in order to attract and educate Thai adolescent about exercises and heart diseases. In business, health campaign, health application, or even health cartoon would be interested.

Secondly, message framing still important when writing or creating a message to persuade people. Any messages use should be appropriate, both to people and diseases. Sender should study about target audiences' characteristic too. As a strategic communicator, Loss framed message need to be used when the diseases were high risk, for example heart diseases, to create fear in people. Bringing out what they afraid for encouraging them to perform what are good for their health so that they will not receive those negative outcomes.

Moreover, create appropriate environment or building self efficiency would help because intention of people can change by their behavioral belief, normative belief, and control beliefs.

5.5 Limitation of the Study and future recommendation.

Several limitations should be noted. First, real behavioral outcome was not measured. In this study, researcher can only ask participants about their intention to change behavior but researcher can't conclude that participants will start changing their behavior or not in their real life. For future recommendation, researcher recommends to take more time in collecting information. Measure their real behavioral change within a month, two months, or six month would be interesting according to the process of change in the Trans-theoretical Model of Health Behavior Change. So, from this present study's result, it is still unclear whether message framing can certainly effect to people behavioral change. Secondly, although participants were instructed to expose and read carefully the message on both info-graphics given and also the question on questionnaire, but researcher couldn't measure the message attendance and no processing were used in this study. For future recommendation, face to face interview or face to face questionnaire would be better, because at least we can see the attention of participants while doing our questionnaire.

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APPENDIX

Online questionnaire (via Google Form)

This questionnaire is part of the independent study project required for Bangkok University students in Master of Communication Arts (International Program). This questionnaire aims to examine general people's responses to the exercises in Heart disease info-graphic. If you are in age between 10-19 years old, please take at least 10 minutes to participate in this study. Please answer the entire question in this given questionnaire./ แบบสอบถามชิ้นนี้เป็นส่วนหนึ่งของการศึกษาค้นคว้าอิสระโดยนักศึกษาปริญญาโท คณะนิเทศศาสตร์ สาขาการสื่อสารสากล มหาวิทยาลัยกรุงเทพ เพื่อศึกษาผลของสื่อเกี่ยวกับการออก กำลังกายเพื่อป้องกันการเกิดโรคหัวใจ หากคุณอยู่ในช่วงอายุ 10-19 ปี โปรดใช้เวลาอย่างน้อย ประมาณ 10 นาที เพื่อตอบแบบสอบถามชิ้นนี้ โปรดตอบคำถามทุกข้อในแบบสอบถามชิ้นนี้

1. Age /อายุ *

   o   10-12 years old/ปี

   o   13-15 years old/ปี

   o   16-19 years old/ปี

2. Gender /เพศ *

- Male/ชาย

- Female/หญิง

3. Please specify your school or university that you are now study in.

/โปรดระบุสถานศึกษาที่คุณกำลังศึกษาอยู่ *

_____

4. Who do you stay with? /คุณอาศัยอยู่กับใคร *

- Father/บิดา ข้ามไปที่คำถามข้อ *5*

- Mother/มารดา ข้ามไปที่คำถามข้อ *7*

- Father and mother/บิดาและมารดา ข้ามไปที่คำถามข้อ *9*

- Guardian/ ผู้ปกครอง ข้ามไปที่คำถามข้อ *14*

- Alone/ คนเดียว ข้ามไปที่คำถามข้อ *13*

5. What is your father occupation? /อาชีพของบิดา *

- Office worker/ พนักงานบริษัท

- Self employment/ ธุรกิจส่วนตัว

- Government officer/ ข้าราชการ

o อื่นๆ:_____

6. Your father monthly income. /รายได้ต่อเดือนของบิดา *

o <30,000 baht/บาท

o 30,001 - 50,000 baht/บาท

o 50,001 - 70,000 baht/บาท

o 70,001 - 100,000 baht/บาท

o >100,000 baht/บาท

o no income/ไม่มีรายได้

ข้ามไปที่คำถามข้อ *17*

7. What is your mother occupation? /อาชีพของมารดา *

o Office worker/ พนักงานบริษัท

o Self employment/ ธุรกิจส่วนตัว

o Government officer/ ข้าราชการ

o อื่นๆ:_____

8. Your mother monthly income. /รายได้ต่อเดือนของมารดา *

o   <30,000 baht/บาท

o   30,001 - 50,000 baht/บาท

o   50,001 - 70,000 baht/บาท

o   70,001 - 100,000 baht/บาท

o   >100,000 baht/บาท

o   no income

ข้ามไปที่คำถามข้อ *17*

9. What is your father occupation? /อาชีพของบิดา *

o   Office worker/ พนักงานบริษัท

o   Self employment/ ธุรกิจส่วนตัว

o   Government officer/ ข้าราชการ

O   อื่นๆ: _____

10. Your father monthly income. /รายได้ต่อเดือนของบิดา *

o   <30,000 baht/บาท

o   30,001 - 50,000 baht/บาท

o   50,001 - 70,000 baht/บาท

o   70,001 - 100,000 baht/บาท

o   >100,000 baht/บาท

o   no income/ไม่มีรายได้

11. What is your mother occupation? /อาชีพของมารดา *

o   Office worker/ พนักงานบริษัท

o   Self employment/ ธุรกิจส่วนตัว

o   Government officer/ ข้าราชการ

o   อื่นๆ: _____

12. Your mother monthly income. /รายได้ต่อเดือนของมารดา *

o   <30,000 baht/บาท

o   30,001 - 50,000 baht/บาท

o   50,001 - 70,000 baht/บาท

o   70,001 - 100,000 baht/บาท

o   >100,000 baht/บาท

O   no income/ไม่มีรายได้

ข้ามไปที่คำถามข้อ *17*

13. Household monthly income. /รายได้ต่อเดือนของครอบครัว *

o   <30,000 baht/บาท

o   30,001 - 50,000 baht/บาท

o   50,001 - 70,000 baht/บาท

o   70,001 - 100,000 baht/บาท

o   100,000 - 200,000 baht/บาท

o   >200,000 baht/บาท

o   no income/ไม่มีรายได้

ข้ามไปที่คำถามข้อ *17*

14. Who do you stay with? (please specify) /คุณอาศัยอยู่กับใคร โปรดระบุ *

15. What is your guardian occupation? /อาชีพของผู้ปกครอง *

- o Office worker/ พนักงานบริษัท

- o Self employment/ ธุรกิจส่วนตัว

- o Government officer/ ข้าราชการ

- o อื่นๆ: _____

16. Your guardian monthly income. /รายได้ต่อเดือนของผู้ปกครอง *

- o <30,000 baht/บาท

- o 30,001 - 50,000 baht/บาท

- o 50,001 - 70,000 baht/บาท

- o 70,001 - 100,000 baht/บาท

- o >100,000 baht/บาท

- o no income/ไม่มีรายได้

17. Do you normally exercise? (Exercise= at least 60 mins/day) /คุณออกกำลังกายเป็น

ประจำหรือไม่ (อย่างน้อย 60 นาทีต่อวัน) *

- o   Always (7 days/week) ข้ามไปที่คำถามข้อ *26*

- o   Usually (5-6 days/ week) ข้ามไปที่คำถามข้อ *26*

- o   Often (3-4 days/ week) ข้ามไปที่คำถามข้อ *26*

- o   Occasionally (1-2 days/ week) ข้ามไปที่คำถามข้อ *26*

- o   Once in more than a week ข้ามไปที่คำถามข้อ *19*

- o   Never ข้ามไปที่คำถามข้อ *19*

18. Have you tried to do exercise regularly in the past? /คุณเคยพยายามที่จะออกกำลังกาย

เป็นประจำหรือไม่ *

- o   Yes/เคย ข้ามไปที่คำถามข้อ *19*

- o   No/ไม่เคย ข้ามไปที่คำถามข้อ *25*

19. What type of exercise have you been doing? /โปรดระบุประเภทของการออกกำลังกายที่

คุณเคยปฏิบัติ *

_____

20. Why do you quit exercises? /โปรดระบุเหตุผลที่ทำให้คุณหยุดออกกำลังกายดังกล่าว *

- ○ I don't like to do exercises/ ฉันไม่ชอบการออกกำลังกาย

- ○ I have no enough time to do exercises/ฉันไม่มีเวลาสำหรับการออกกำลังกาย

- ○ I got bad impression in exercises/ฉันมีประสบการณ์ที่ไม่ดีเกี่ยวกับการออกกำลังกาย

- ○ I got hurt from exercises/ ฉันเคยได้รับบาดเจ็บจากการออกกำลังกาย

- ○ อื่นๆ:_____

21. Do you intend to start exercise in this 6 months?/คุณตั้งใจที่จะเริ่มออกกำลังกายภายใน

6 เดือนนี้หรือไม่ *

- ○ Yes/ ใช่ ข้ามไปที่คำถามข้อ *22*

- ○ No/ ไม่ใช่ ข้ามไปที่คำถามข้อ *25*

22. What exercise are you planning to do? (Choose all that apply)/คุณมีแผนการการออก

กำลังกายประเภทใด (สามารถเลือกตอบได้มากกว่า1ข้อ) *

- ○ Running/วิ่ง

- ○ Swimming/ว่ายน้ำ

- o Boxing/ชกมวย

- o Tennis/เทนนิส

- o Dance/เต้น

- o Yoga/โยคะ

- o Fitness/ฟิตเนส

- o อื่นๆ:_____

23. When will your plan begin?/ แผนสำหรับการออกกำลังกายของคุณจะเริ่มขึ้นเมื่อไหร่ *

- o In a month/ ภายใน 1 เดือน

- o Within 6 months/ ภายใน 6 เดือน

- o About 6 months/ ประมาณ 6 เดือน

- o More than 6 months/ มากกว่า 6 เดือน

24. How do you prepare your plan?/คุณเตรียมพร้อมสำหรับการเริ่มออกกำลังกายอย่างไร *

- o Talk-consult counselor/ปรึกษากับผู้ให้คำปรึกษาทั่วไป

- o Talking to physician or exercises professional/ปรึกษาแพทย์หรือผู้เชี่ยวชาญด้านการ

    ออกกำลังกาย

o Joining health education/เข้าร่วมกิจกรรมส่งเสริมสุขภาพ

o Buying a self-help book about exercise/ศึกษาคู่มือ-หนังสือเกี่ยวกับการออกกำลังกาย

o Searching from social networking site (e.g., Website, Blogger)/ค้นหาข้อมูล

ตามเว็ปไซต์ต่างๆ

o Searching from social media (e.g., Facebook, Instagram)/ค้นหาข้อมูลตามโซเชียล

มีเดีย

o Not prepare yet/ยังไม่ได้มีการเตรียมตัว

O อื่นๆ:_____

ข้ามไปที่คำถามข้อ *26*

25. What is the reason you are not intend to doexercise?/โปรดระบุสาเหตุที่คุณไม่อยาก-ไม่

สนใจที่จะออกกำลังกาย *

_____

Please rate the media that you expose about health. (5=always, 0=Never) / โปรด

ประเมินช่องทางของการสื่อสารที่คุณได้รับข่าวสารหรือข้อมูลเกี่ยวกับสุขภาพ

26. Facebook *

0	1	2	3	4	5

Never   Always

27. Instagram *

0	1	2	3	4	5

Never   Always

28. Television *

0	1	2	3	4	5

Never   Always

29. Magazine *

0	1	2	3	4	5

Never   Always

30. Radio *

0	1	2	3	4	5

Never   Always

31. Website *

☐	☐	☐	☐	☐	☐
0	1	2	3	4	5

Never   Always

Types of content that you are interested about health Please rate types of content that you are interested about health (5= very interesting, 0= Not interesting)/ โปรดประเมินรูปแบบของสื่อที่คุณสนใจเกี่ยวกับสุขภาพ

32. Passage/บทความ *

☐	☐	☐	☐	☐	☐
0	1	2	3	4	5

Not interesting   Very interesting

33. Video clip/ วิดีโอ *

☐	☐	☐	☐	☐	☐
0	1	2	3	4	5

Not interesting   Very interesting

34. Infographic/รูปภาพกราฟฟิกพร้อมคำอธิบาย *

☐	☐	☐	☐	☐	☐

0	1	2	3	4	5

Not interesting   Very interesting

35. News/ข่าว *

0	1	2	3	4	5

Not interesting   Very interesting

36. Audio-Voice record/คลิปเสียง *

0	1	2	3	4	5

Not interesting   Very interesting

37. Please choose the answer that represents your opinion and understanding/โปรด

เลือกข้อที่ตรงกับความรู้สึกและความเข้าใจของคุณมากที่สุด *

	Strongly disagree/ ไม่เห็นด้วย อย่างยิ่ง	disagree/ ไม่เห็น ด้วย	Neither agree nor disagree	agree/ เห็น ด้วย	Strongly agree/ เห็นด้วย อย่างยิ่ง
Exercise can prevent heart					

disease./การออกกำลังกายสามารถ ป้องกันโรคหัวใจ				
Heart disease can cause from inactivity (not exercises)./ โรคหัวใจสามารถเกิดจากการมี กิจกรรมทางกายน้อย				
Exercise can lowering blood pressure/ การออกกำลังกายสามารถ ช่วยลดความดัน				
I know how to exercise for preventing heart disease./ฉันรู้ วิธีการออกกำลังกายเพื่อป้องกัน โรคหัวใจ				
Keeping blood pressure under control will reduce the chance of the person to develop heart disease./การควบคุมความดัน				

สามารถลดโอกาสการเกิดโรคหัวใจ					

38. Did any of your family do exercise regularly? (if yes, please specify who)/คุณมี

บุคคลในครอบครัวที่ออกกำลังกายอย่างสม่ำเสมอหรือไม่ (ถ้ามี โปรดระบุ)

_____

39. Did any of your close friend do exercise regularly? (if yes, please specify who)/

คุณมีเพื่อนหรือคนสนิทที่ออกกำลังกายอย่างสม่ำเสมอหรือไม่ (ถ้ามี โปรดระบุ)

_____

40. Do you have any role model or personal inspiration for doing exercise? (if yes,

please specify who/คุณมีบุคคลต้นแบบ เช่นดารา หรือบุคคลที่สร้างแรง บันดาลใจในการออกกำลัง

กายหรือไม่ (ถ้ามี โปรดระบุ)

_____

Please choose the answer that represents your opinion.

	Strongly disagree/	disagree/ ไม่เห็น	Neither agree	agree/ เห็น	Strongly agree/

	ไม่เห็นด้วยอย่างยิ่ง	ด้วย	nor disagree	ด้วย	เห็นด้วยอย่างยิ่ง
41. I confidently think that exercises is not a hard thing to do and I can do it./ฉันคิดว่าการออกกำลังกายไม่ยากเกินความสามารถและฉันสามารถทำได้					
42. I confidently can imagine myself growing up and being healthy./ ฉันมั่นใจว่าฉันจะแข็งแรงขึ้นจากการออกกำลังกาย					
43. I confidently can manage my time to do exercises.ฉันมั่นใจว่าฉันสามารถจัดสรรเวลาเพื่อออกกำลังกายได้					

44. What is the time that we should exercise to have good health and preventing heart disease?/เวลาที่เหมาะสมสำหรับการออกกำลังกายเพื่อเพิ่มความทนทานของหัวใจ และ หัวใจ

แข็งแรงคือ

- o At least 30 mins of moderate intensity aerobic: 3-5 days a week/อย่างน้อย 30

  นาทีของการออกกำลังกายที่ความหนักปานกลาง: 3-5 วันต่อสัปดาห์

- o At least 30 mins of moderate to high intensity aerobic: everyday/อย่างน้อย 30

  นาทีของการออกกำลังกายที่ความหนักปานกลางถึงหนัก: ทุกวัน

- o At least 60 mins of moderate to high intensity aerobic: 3-5 days a week/อย่าง

  น้อย 60 นาทีของการออกกำลังกายที่ความหนักระดับปานกลางถึงหนัก: 3-5 วันต่อสัปดาห์

- o At least 60 mins of moderate to high intensity aerobic: everyday/อย่างน้อย 60

  นาทีของการออกกำลังกายที่ความหนักปานกลางถึงหนัก: ทุกวัน

- o อื่นๆ_____

45. What is the risk factors of heart disease?/โปรดระบุปัจจัยเสี่ยงของการเกิดโรคหัวใจ

_____

46. Which is the normal blood pressure?/ข้อไหนแสดงถึงค่าความดันที่อยู่ในเกณฑ์ปกติ

- o 86/60 mmHg
- o 110/70 mmHg
- o 136/84 mmHg
- o 140/90 mmHg
- o 160/90 mmHg

Info-graphics

Note: Google Form showed one type of info-graphics at a time but the same set of question were ask as follows (Gain-loss framed message are provide at the end of an appendix)

47. What do you think about this info-graphics?/คุณคิดอย่างไรกับภาพนี้

47.1

0	1	2	3	4	5

Boring/น่าเบื่อ   Interesting/น่าสนใจ

47.2

0	1	2	3	4	5

Dull/ทื่อๆ ไม่น่าสนใจ   Appealing/ดึงดูดความสนใจ

47.3

0	1	2	3	4	5

Unattractive/ไม่ดึงดูด-ชวนมอง   Attractive/ชวนให้มอง

48. Select the box that best represents your opinion on the following statements regarding your understanding about this info-graphics./โปรดเลือกข้อที่ตรงกับความรู้สึก

และความเข้าใจของคุณมากที่สุด

	Strongly disagree/ ไม่เห็นด้วย อย่างยิ่ง	disagree/ ไม่เห็น ด้วย	Neither agree nor disagree	agree/ เห็น ด้วย	Strongly agree/ เห็นด้วย อย่างยิ่ง
48.1 I understand that exercise can prevent heart disease./ฉัน เข้าใจว่าการออกกำลังกายสามารถลด โอกาสการเกิดโรคหัวใจ					
48.2 I understand that heart disease can cause from inactivity./ฉันเข้าใจว่าโรคหัวใจ สามารถเกิดจากการมีกิจกรรมทาง กายน้อย					
48.3 I understand how to exercise to prevent heart disease./ฉันเข้าใจวิธีการออกกำลัง กายเพื่อลดโอกาส-ป้องกันการเกิด					

โรคหัวใจ					

49. Select the box that best represents your opinion on the following statements

regarding your acceptance./โปรดเลือกข้อที่ตรงกับความรู้สึกและการยอมรับของคุณมากที่สุด

	Strongly disagree/ ไม่เห็นด้วย อย่างยิ่ง	disagree/ ไม่เห็น ด้วย	Neither agree nor disagree	agree/ เห็น ด้วย	Strongly agree/ เห็นด้วย อย่างยิ่ง
49.1 I think these info-graphic is useful. /ฉันยอมรับว่าinfo-graphic ภาพนี้มีประโยชน์					
49.2 I agree with the message on this info-graphic./ฉันเห็นด้วยกับ ข้อความบนinfo-graphic					
49.3 I think this info-graphic is believable./ฉันคิดว่าinfo-graphic ภาพนี้เชื่อถือได้					

50. Select the box that best represents your opinion on the following statements

regarding your retention of this info-graphics./โปรดเลือกข้อที่ตรงกับความรู้สึกและการจดจำ

ของคุณมากที่สุด

	Strongly disagree/ ไม่เห็นด้วย อย่างยิ่ง	disagree/ ไม่เห็น ด้วย	Neither agree nor disagree	agree/ เห็น ด้วย	Strongly agree/ เห็นด้วย อย่างยิ่ง
50.1 Exercise can decreased risk to heart disease./การออกกำลังกาย สามารถลดการเกิดโรคหัวใจได้					
50.2 We should do at least 60mins. of exercise everyday./ เราควรออกกำลังกายทุกวัน อย่างน้อย วันละ 60 นาที					
50.3 Running, cycling, swimming are the examples of mod-vigorous intensity exercise that we should do./ การวิ่ง ปั่น					

จักรยาน ว่ายน้ำ คือตัวอย่างการออก กำลังกายที่เราสามารถทำได้					

51. Please choose the box that best represents your opinion on the following

statements regarding your behaviors to prevent the heart disease./โปรดเลือกข้อที่ตรงกับ

ความรู้สึกและความตั้งใจในการเปลี่ยนแปลงพฤติกรรมของคุณมากที่สุด After exposing to the

infographic/หลังจากได้เห็นภาพinfographicข้างต้น

*more than one answer available

- o I'm planing to search for more information about exercise./ฉันวางแผนที่จะค้นหา

  ข้อมูลเพิ่มเติมเกี่ยวกับการออกกำลังกาย

- o I'm planing to buy a self-help book about exercise./ฉันวางแผนที่จะหาซื้อหนังสือ-

  คู่มือเกี่ยวกับการออกกำลังกาย

- o I'm planing to talk to physician or other expert about exercise./ฉันวางแผนที่จะ

  ปรึกษาแพทย์หรือผู้เชี่ยวชาญเกี่ยวกับการออกกำลังกาย

- o I intend to begin exercise after 6 months./ฉันตั้งใจที่จะเริ่มออกกำลังกายหลังจาก 6

  เดือน

o I intend to begin exercise within 6 months/ฉันตั้งใจที่จะเริ่มออกกำลังกายภายใน 6

เดือนนี้

o I intend to begin exercise within a month./ฉันตั้งใจที่จะเริ่มออกกำลังกายภายใน 1

เดือนนี้

o I'm not interesting in exercises but may be in the future./ฉันไม่สนใจที่จะออกกำลัง

กายแต่อาจสนใจในอนาคต

o I'm not interesting in exercises and I'll not exercises./ฉันไม่สนใจที่จะออกกำลังกาย

และจะไม่ออกกำลังกาย

O อื่นๆ_____

Gain framed message info-graphic

Loss framed message info-graphic

ออกกำลังกายสม่ำเสมอ
ลดโอกาสเกิดโรคหัวใจ

ออกกำลังกาย
ลดโอกาสเกิด
โรคหัวใจได้ 50%

ให้ทุกการขยับ
มีความหมาย
เพื่อหัวใจที่แข็งแรง

ไม่ขยับเท่ากับ
ก่อโรคหัวใจ

โรคหัวใจ
กอ: 1 killer

คนไทย
2 คน
เสียชีวิต
เพราะโรคหัวใจ

ทุกๆ
1
ชั่วโมง

พบในไทยเพิ่มขึ้น
อายุน้อย
หัวใจวูบ

ความดันโลหิต

120 80	140 90	180 110

ออกกำลังกายด้วยความหนัก
ระดับปานกลางถึงหนัก

อย่างน้อย 60 นาที ทุกวัน

ปั่นจักรยาน   วิ่ง   เตะบอล

เต้น   ว่ายน้ำ   วิ่งลู่วิ่ง

ฉ:ไม่มีเวลาทำยังไง??
คะ: ให้แบ่งทำ

30'รึ x2   15'รึ x4

ความดันโลหิต

120 80	140 90	180 110

ออกกำลังกายด้วยความหนัก
ระดับปานกลางถึงหนัก

อย่างน้อย 60 นาที ทุกวัน

ปั่นจักรยาน   วิ่ง   เตะบอล

เต้น   ว่ายน้ำ   วิ่งลู่วิ่ง

ฉ:ไม่มีเวลาทำยังไง??
คะ: ให้แบ่งทำ

30'รึ x2   15'รึ x4

BIODATA

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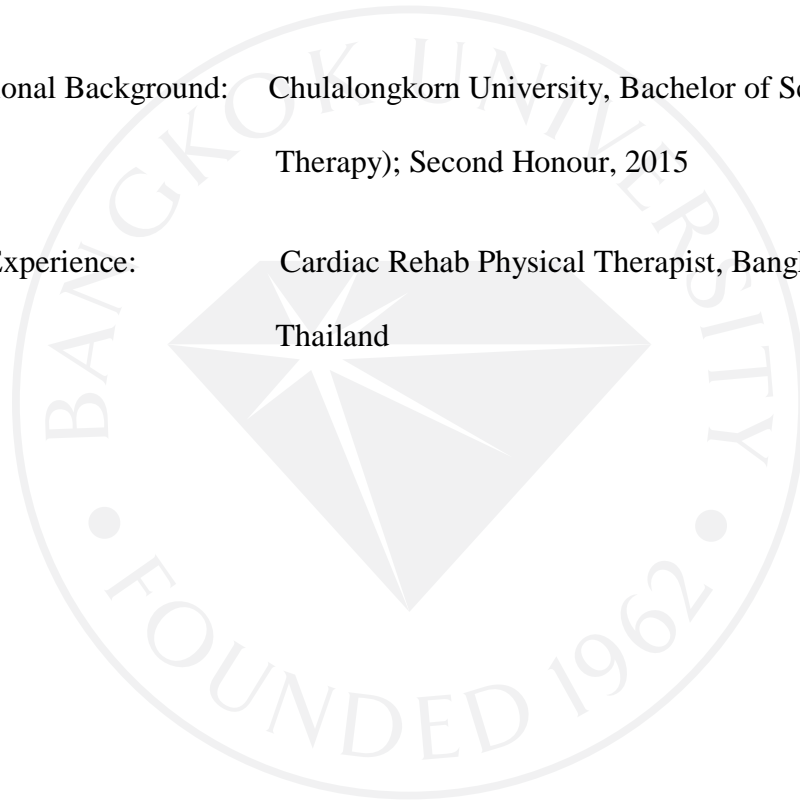
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Bangkok University

License Agreement of Dissertation/Thesis/ Report of Senior Project

Day _28_ Month _November_ Year _2018_

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