

RESEARCH REPORT

THAI ADOLESCENT'S PERCEIVED BENEFITS
OF PHYSICAL ACTIVITY AT FITNESS

BY

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ABSTRACT

The aims of this study were to explore and confirm the factors of perceived benefit of Thai adolescents towards physical activities participation in fitness through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The data were collected by convenience sampling method using a structured questionnaire on a 5-point Likert scale. The samples were 630 Thai adolescents aged between 18 to 23 years old. Split-half method was used to split sample for EFA and CFA analyses. The EFA result identified five-factor structure of perceived benefit of physical activities in fitness. The CFA result indicated that the structure obtained from the EFA fitted with the empirical data.

Keywords: Perceived Benefit, Physical Activities, Thai Adolescents, Fitness

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CHAPTER 1

INTRODUCTION

Background

Sports nutrition seems to be popular among Thai consumers. The value of this category increases at compound annual growth rate (CAGR) of 8 % at constant 2016 prices to reach sales of THB 983 millions by 2012 (Eromonitor, 2016a). There are vast numbers Thai consumers, especially those who resides in urban areas. These health-concerned consumers have their interest in going to fitness centers to do exercises. To meet this need, there are an increased number of fitness centers and exercise studios located in shopping centers, office building and residential area in Thailand. For instance, Fitness first has 28 branches across the country. Most of branches are located in shopping centers such as Siam Paragon and central group. The demand for sport and exercise is rising among difference in demographic such as age, gender, and occupation and so on. These consumers join the gym with the purpose of building and maintain a presentable appearance. The muscle building trends such as having six packs of abdominal muscles, massive forearms a, firm bumps is famous among Thai consumers, particularly millennial which the percentage of this segment (Fitnessfirst, 2017).

Nielsen, Les Mills surveyed across 13 countries with 4,600 people aged over 18 who currently exercise, or have an interest in exercising for the Nielsen: Les Mills Global Consumer Fitness Survey 2013. The results showed that 27 percent of the total adult population attend a gym, fitness center or health club and 61 percent of regular exercisers were gym-type activities. Moreover, it found that millennials who aged between 18 to 34 years old held the highest percentage (48 percent) in all fitness class activities following with generation

X who aged between 35 and 54 years old (32 percent) and baby boomers who aged 55 years old and above (20 percent) respectively (Les Mills, 2014). Therefore, consumers aged between 18 – 34 years old seems to be target segment of exercise trend, which hold the highest percentage in all fitness class activities. The number of millennial is likely to increase gradually because adolescents see health benefits from regular participation in physical activities.

In regards to Les Mills (2019) did the survey about global consumer fitness which showed that 80 % of club member were millennial and Gen Z. These two generations enjoyed social aspects of physical activities. They prefer to obtain nutrition tips, eating plans, new workouts to support healthy lifestyle. Gen Z is motivated to engage in physically activities due to their physical appearance while Millennial participated in physical activities because of balance, routine and prevention. According to Mintel (2018) states that Thai consumers are seeking for ways to reach their desire to be self-betterment. 79% of Thai consumers wish to have a healthy life and 73 % of adolescents would like to do exercise more, especially, adolescents. The number of millennial is likely to increase gradually because adolescents see many benefits from participating in physical activities. According to Thompson (2018) showed that there were over 30 % of adolescents who participate in physical activities, particularly in fitness. World Health Organization (WHO) presented the percentages of youth who participated in physical activities by countries as followings. There are 15.9 % of American youth ages 14-17 years. 7% are Canadian children aged between 6 -19 years old. The percentage of youth who tend to engage in physical activities is around 13- 30 % in Asian countries such as Hong Kong, Taiwan and South Korean. Surprisingly, Thai youth are likely to be interested in joining physical activities than other Asian countries (as cited in Amornsriwatanakul et al., 2017).

There were studies also suggested physical activities could develop physical capacity such as seriousness of a health condition preventing and the

physical health benefit (Janssen & LeBlanc, 2010; Ar-Yuwat et al., 2013). Besides the physical health benefit, physical activities could develop physical capacity such as stress reducing (MaAuley, 1994 as cited in Molanorouzi et al., 2015; Zervou et al., 2017), self-esteem raising (MaAuley, 1994 as cited in Molanorouzi et al., 2015), and feelings of being active, proud, and enthusiastic (Webb & Forrester, 2015).

Apart from physical and psychology health beliefs that lead adolescent to be active in exercise, intellectual benefit is one of crucial determinant. As studies revealed that participating in physical activities improved academic performance (Arday et al., 2014; Forrester, 2015) leadership and communication skills (Haines & Fortman, 2008), and cognitive performance (Arday et al., 2014; Koutsandréou et al., 2016)

Participating in physical activities also provide the social benefit. The studies showed that participating in physical activities gave social benefits as improving students' abilities to work with a diverse group (Artinger et al., 2006), improving trust and prosocial behavior (Bartolomeo & Papa, 2019), integrating society, building friendship with the others, social acceptance (Mc Mahon, 1998 as cited in Ozdemir et al., 2018), including improving self-managing and the socialization (Güvendi & İlhan, 2017).

Besides the perceived benefits stated above, participating in physical activities also related to cultural traits such as masculinity culture and femininity culture that found in several studies (Klomsten et al., 2005; Molanorouzi et al., 2015).

Most of related studies focused on only exploring opinion of Adolescents towards physical activities. But there are only a few studies that highlighted on measurement of perceived benefit of participating physical activities and investigation of factors that lead to Thai adolescents to become obsessed with physical activities, especially gym and fitness. These issues still remain unrevealed in Thailand (Amornsriwatanakul et al., 2017). The gap in

knowledge and evidence hindered the ability of Thailand to encourage Thai adolescents to participate in physical activities more. Moreover, perception of adolescent issues was explored. These findings can be used in both business and government sectors.

Research question

What are the factors of perceived benefit of Thai adolescents towards physical activities participation in fitness?

Objectives of Research

The study of Thai adolescent's perceived benefits of physical activity at fitness had the objectives as follows:

1. to explore and to confirm factors of perceived benefit of Thai adolescents towards physical activities participation at fitness
2. to understand perceived benefits, which encourage Thai adolescents to participate in physical activities.

Significance of Study

The major findings from this study were expected to contribute the knowledge on the subject of physical activities participation in fitness, as follows:

1. For a theoretical perspective, the findings could provide understanding the factors of the physical activities participation at fitness among Thai adolescents.
2. For the practical implication, the findings from factor analysis, which explained factors of physical activities participation in fitness among Thai adolescents, could be of advantage to business sectors because at present there is an increasing trend of exercise among Thai people, which has resulted in an increasing demand for consumers especially adolescents aged 18-23 years old. The findings could help marketers to understand the exercise behavior of this

group of customers such that what are the factors that drive this group of consumers to use the fitness center more. In marketing, it could be used to plan or create strategies to increase the sales volume of products and services.

The findings also could be of advantage to government because the government has a policy to promote exercise for Thai people especially adolescents aged 18-23 years old, in which the government concerns the benefits of exercise in both physical and mental health. Therefore, the findings could help the government to create campaign encouraging more Thai adolescents to participate in physical activities at fitness.

Scope of Research

Population and Samples

Population were Thai adolescents aged between 18 – 23 years old who have participated for both private and public fitness centers in Thailand. Information from Worldometer (2020) show that the recent number of Thai adolescents is around 9,186,410.

Sample were 649 Thai adolescents aged between 18 – 23 years old who participated for both private and public fitness centers in Thailand and volunteered to complete questionnaire. The data were collected by using online questionnaire. The sample size-to-parameter ratio method was used for determining sample size. According to Hair and others (2014), for factor analysis, an ideal sample size-to-parameter should be at least 5 units to 1 observed variable for being the good representative of the population and being enough to make the research results reliable. There were 41 observed variables in this study, then the sample size should be at least 205 students. Missing values, outliers and normal distribution of all measured variables were examined to purify the data. After data screening, 630 respondents were used as sample in the analyses as total sample then the total sample were divided by randomizing with equal number of 315 respondents. First group was used for

exploratory factor analysis and second group was used for confirmatory factor analysis. Therefore, the sample size was sufficient for this study. Sample were recruited during July 2020 at both public and private fitness centers in Thailand.

Variables in the Study

The variables in this study were factors of physical activities participation at fitness among Thai adolescents as follows:

- Health belief
- Intellectual
- Socialization
- Cultural traits

Operational Definitions

1. Perceived benefits

Perceived benefit is defined, as one's believes about benefits from physical activity including which are health belief, intellectual benefit, social benefit, and cultural traits. These benefits are believed to effect on adolescent's physical participation behaviors.

2. Physical activity

Physical activity refers to any bodily movement produced by skeletal muscles that requires energy expenditure (World Health Organization, 2020) at both public and private fitness centers in Thailand.

3. Thai adolescents

Thai adolescents are Thai people aged between 18 – 23 years old who have participated in physical activity at both private and public fitness centers in Thailand.

4. Health belief

Health belief refers to the belief in physical activities would improve their physical health and psychological health.

The adolescents were asked to evaluate their own health belief on 5-point scale from 1 indicates 'very disagree' with the item and 5 indicates 'very agree'. Individual who scored higher means that he/she has a higher level of health belief more than the one who scored lower.

5. Intellectual benefit

Intellectual benefit refers to the belief in physical activities would benefit their cognitive and academic performances.

The adolescents were asked to evaluate their own intellectual benefit on 5-point scale from 1 indicates 'very disagree' with the item and 5 indicates 'very agree'. Individual who scored higher means that he/she has a higher level of intellectual benefit more than the one who scored lower.

6. Social benefit

Social belief refers to the belief in physical activities would benefit their social behavior and socialization.

The adolescents were asked to evaluate their own social benefit on 5-point scale from 1 indicates 'very disagree' with the item and 5 indicates 'very agree'. Individual who scored higher means that he/she has a higher level of social benefit more than the one who scored lower.

7. Cultural traits

Cultural traits refer to masculinity culture and femininity culture.

The adolescents were asked to evaluate their own cultural trait on 5-point scale from 1 indicates 'very disagree' with the item and 5 indicates 'very agree'.

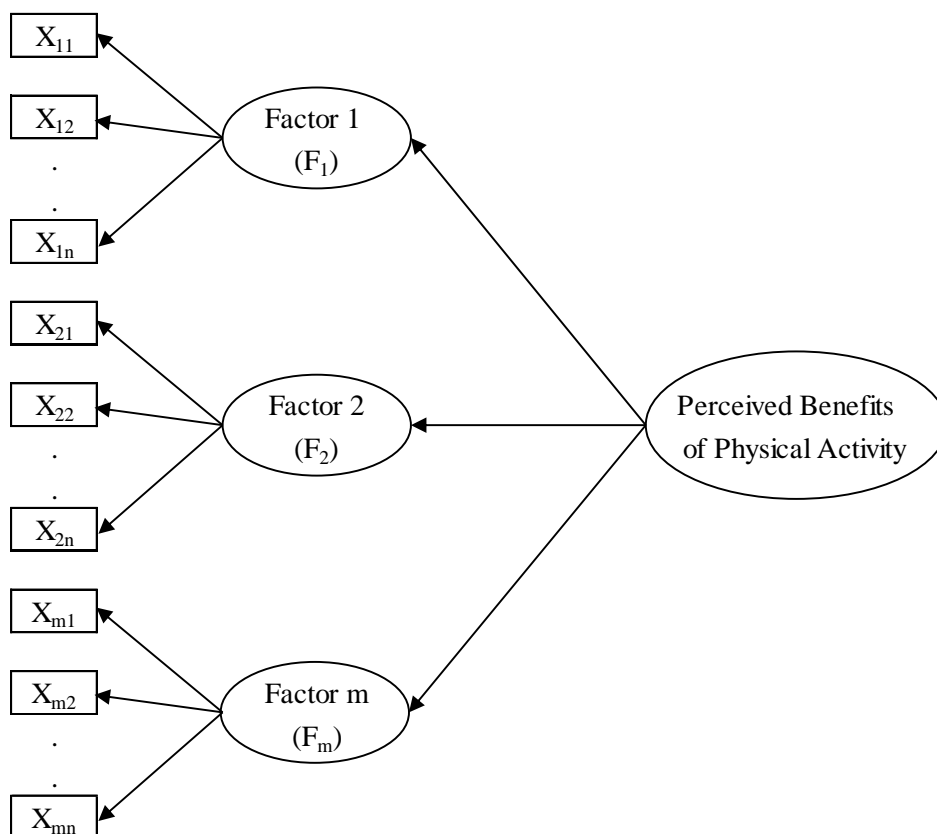
Individual who scored higher means that he/she has a higher level of masculinity more than the one who scored lower.

Conceptual Framework

The focus of this research were to explore the possible factors which lead to Thai adolescents to become obsessed with physical activities especially at fitness, and to confirm those factors with empirical data. Additionally, this study also concentrated on understanding perceived benefits, which encourage Thai adolescents to participate in physical activities.

The conceptual model was developed as shown in figure 1.

Figure 1: Conceptual model



Hypothesis

There are more than 1 factor of physical activities participation at fitness among Thai adolescents.

CHAPTER 2

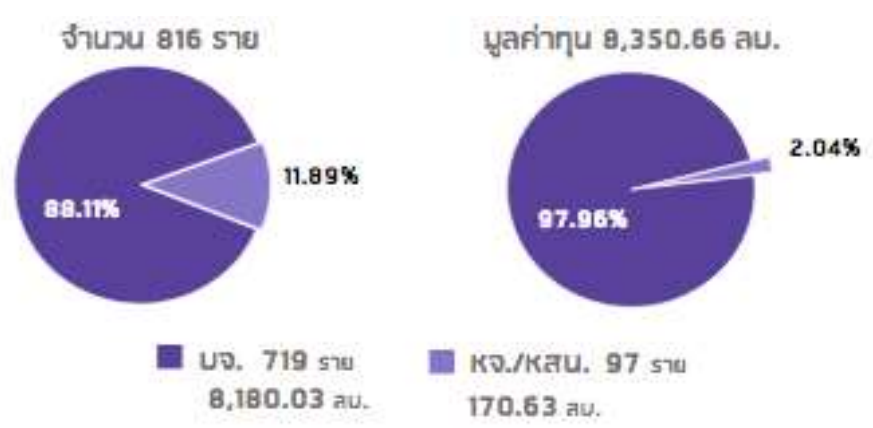
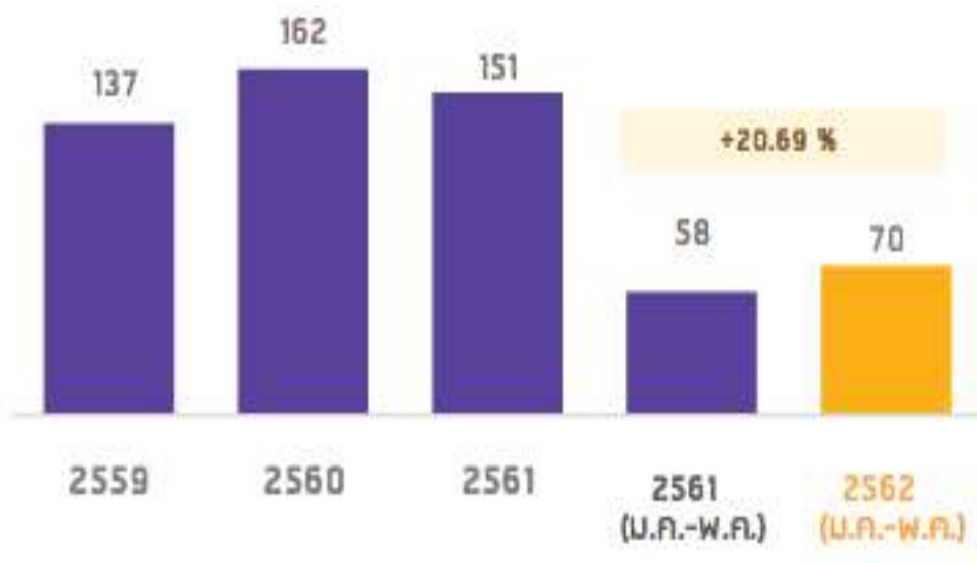
LITERATURE REVIEW

The physical activity trend in adolescents and perceived benefits towards physical activities are the major scope of concepts that was discussed in this chapter. These concepts were seen as the important variables that were studied. Engagement of Thai adolescents towards physical activities might be influenced by perceived benefits or determinants such as intellectual benefits, socialization, competition, health and fitness, and cultural traits (Hofstede, 2017 as cited in Bissessar, 2018). These concepts have been unclear in its nature.

Engagement of Adolescents towards physical activities

Physical activity refers to any bodily movement produced by skeletal muscles that requires energy expenditure (World Health Organization, 2020). National Heart, Lung, and Blood Institute (2016) refers to it as movement that enhances health. Lifting weight, yoga is an example of physical exercise. In regards to Euromonitor (2016b), it showed that the value growth of health and wellness decreased a little bit due to economic downturn. For this reason, there are a small number of consumers who did not continue to be a gym member. However, the consumer's health concern still increased in line with their rising sophistication levels due to government's education campaigns, which aimed at increasing the demand towards health and wellness products and services. According to Department of Business Development Ministry of Commerce (2019) it did the report about the growth of fitness industry in Thailand. The study found that the number of fitness centers increased from 58 to 70 or around 20.68 percent.

Figure 2: The growth of fitness industry in Thailand.



Note. Reprinted from "The growth of fitness industry in Thailand." by Thailand Department of Business Development Ministry of Commerce, 2019, [https://www.dbd.go.th/download/document file/Statistic/2562/T26/T26_201905.pdf](https://www.dbd.go.th/download/document%20file/Statistic/2562/T26/T26_201905.pdf). Copyright 2019 by Thailand Department of Business Development Ministry of Commerce.

From the pie chart in figure 1 represents numbers of fitness businesses that are operating in Thailand and the value of fitness industry is 8,350.66 million baht. The report stated that Thai consumers are more concern about

their health. Obviously, Thai consumers are likely to have high involvement towards physical activities.

The adolescent segment seems to have potential growth for health club and fitness industry. The systematic review of Liangruenrom and others (2019) found that majority of adolescents held positive attitudes towards sport and exercise. Similar to research of Youngblut and others (2012) that conducted the research on the views of female adolescents on physical activities at very young age. The study stated that there is a growing interest in physical activities at very young age due to health concern and psychological perspectives. Male adolescents are likely to be active towards physical activities. In the research of Amornsriwatanakul and others (2017) focused on investigating Thai children and youth's participation in PA and its correlates across sociodemographic characteristics and different PA domains. The findings presented that 23 percent of Thai adolescent engaged in physical activities at least 1 hour. The portion of male's adolescent was twice of girls (male adolescent: 30% and female adolescent: 17 percent). Majority of adolescent age are between 10-13 years old and 14-17 years old. Addition to the research of Ar-Yuwat and others (2013) conducted the research to study the determinants which lead to physical activities of primary school students by using health belief model which is used to describe perception of young adolescents' engagement in physical activities. There are 34 percent of Thai children aged 10 -14 years old engaged in physical activities.

Perceived benefits

According to Oxford Dictionary (Oxford learner's dictionary, n.d.) perception means "an idea, a belief or an image you have as a result of how you see or understand something" (online). It is the process which one's primary form of cognitive contact with the world around oneself and give meaning to

the surrounding (Efron, 1969 as cited in Aktepebasi and others, 2018). Perceived benefits refers to beliefs about the positive outcomes that are caused by a specific behavior (Leung, 2013: 1450).

According to Youngblut and others (2012) stated that there is an increased number of early adolescences who have high interest in engaging in physical participation. For instance, early adolescents are willing to become a member of fitness centers (Amornsriwatanakul et.al, 2017). Ar-yuwat and others (2013) conducted the research about possible factors that led to physical activities participation in primary school students. Perceived benefits of physical activity are described a positive reasons the children had for exercising or for considering exercising.

In this study, perceived benefit is defined, as one's believes about benefits from physical activity including which are health belief, intellectual benefit, social benefit, and cultural traits. These benefits are believed to effect on adolescent's physical participation behaviors.

Health Belief

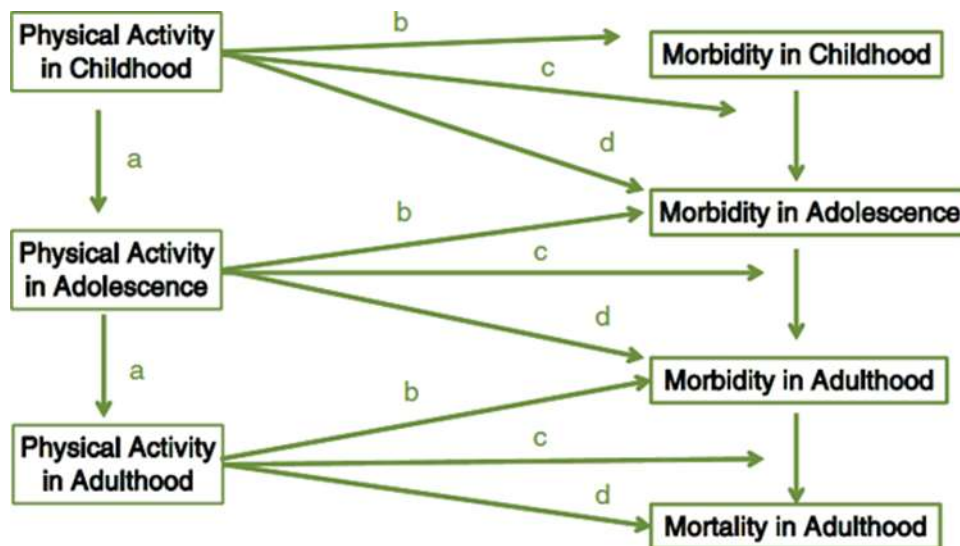
The health belief is considered as one of perceived benefit that leads the adolescent to engage in physical activities. In regards to Archer (2014) did the research on health benefits of physical exercise and adolescents. The finding showed that adolescents are willing to involve in physical activity if they perceive physical and psychological health benefits. This perceived benefit was also explained in the research of Ar-yuwat and others (2013) which health belief model to describe perception of adolescents towards physical activity engagement. This model is believed that adolescents who engage in the gym might be affected by a number of factors which are the perceived seriousness of a health condition, one's own perceived susceptibility to the condition, and

perceptions of the benefits of and barriers to action to prevent the condition. Similar to research of Amornsriwatankul and others (2017) found that adolescents joined physical activities due to a various reason such as physical, social and psychological health. The children aged between 5- 17 years old engaged in 60 minutes' exercise because it can maintain their cardiorespiratory system. In addition to the research of Zervou and others (2017) stated that women are likely to engage in exercise because they are motivated by need of relieving stress of their daily life. Moreover, participating in exercise can improve their physical appearance. The investigation also mentioned about the improvement of physical characteristic as benefit. Weight loss can lead to exercise participation. Men tend to participate in gym and fitness to increase muscle size and volume while, women join the gym because they wish to lose weight and increase muscle firmness. Physical activities participation affected the psychological health such as stress reducing and self-esteem raising (MaAuley, 1994 as cited in Molanorouzi et al., 2015). While the study of Webb and Forrester (2015) found that both male and female students had conscious experience of emotions such as feelings of being active, proud, and enthusiastic after participating intramural sport.

In regards to research of Higgins and others (2020) explained that engaging in physical activity, especially gym would increase strength and buffer mental health. Furthermore, fitness participation has been found to be associated with reducing anxiety, depression and stress. In regards to institute of medicine (2013) explained a model, which represents how physical activity in childhood and teenagers provide health benefit. Physical activities are believed to have a quick and long term health benefits. Early physical activity is related to physical activity in subsequent life stages. Physical activity can reduce risk of having some disease in childhood and adolescents. Furthermore, early physical activity

can reduce a chance of getting some diseases in the future (Institute of Medicine, 2013).

Figure 5: Model of physical activity offering health benefit



Note. Reprinted from "Educating the Student Body: Taking Physical Activity and Physical Education to School." by Institute of Medicine, 2013, *Washington, DC: The National Academies Press*. Copyright 2013 by Institute of Medicine.

Similar to review systematic review of the health benefits of physical activity and fitness in school-aged children and youth of Janssen and LeBlanc (2010) found that physical activity was associated with numerous physical health benefits as the more physical activity, the greater the physical health benefit.

In summary, health belief refers to the belief in physical activities would improve the physical health and psychological health.

Intellectual Benefit

Apart from health benefit, few studies also stated that there is a positive relationship of physical activity and academic performance. For instance,

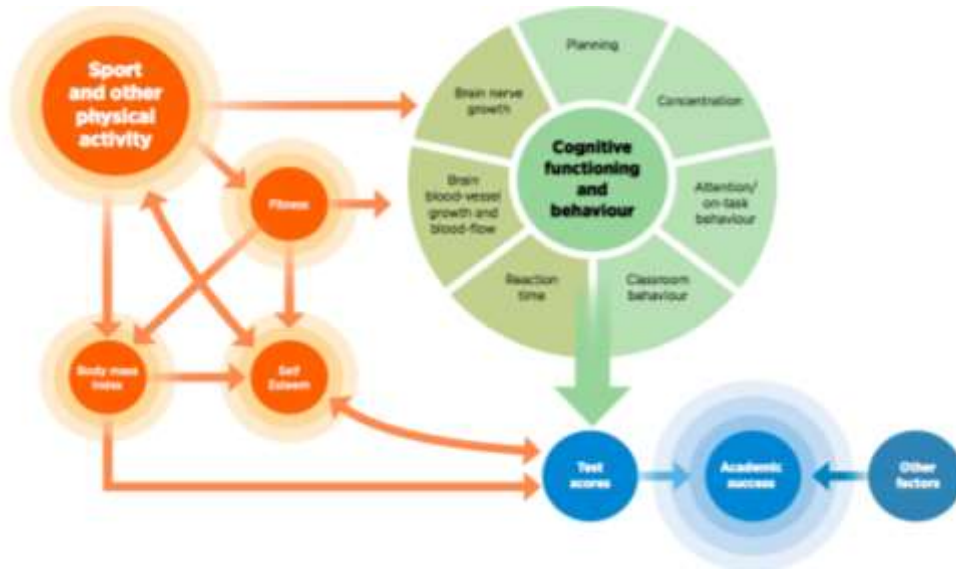
adolescents who regularly engage in physical activity will be more accurate to a variety of cognitive tasks. Similar to one research which focused on examining the relationship between physical activity, sport engagement and academic performance. The findings showed that there were a relationship between aerobic fitness and achievement in mathematics, IQ and reading performance respectively (institute of medicine, 2013). Form the study of Forrester (2015) revealed that students felt that they improved their academic performance after participating campus recreational sports facilities. While study of Haines and Fortman (2008) found that participating the sport club associated with leadership skill and communication skill of students. In addition, the physical activities improved the cognitive performance (Arday et al., 2014; Koutsandréou et al., 2016) and academic achievement (Arday and others, 2014: 52).

In the study of Lower and others (2013) did a comparative study about perceived benefits and recreational sport programs. In the literature review of this study discussed that intellectual benefits can be seen as academic improvement, communication skills, time management, problem solving and study habits. Engaging in physical activities such as recreational sport can enhance study-learning ability. For instance, students will be able to show their full potential. As a consequence, this leads to more intellectual gains. The same as the fining of research of Archer (2014) discovered that students who are active in physical activity had a significant higher score in WESTEST, which is an academic performance assessment. For those who have less physical activity engagement received the lowered score in the test.

Moreover, Smith (2015) explained that young's cognitive, concentration, attention and reasoning ability can be increased by physical activity because a regular exercise can stimulate nerve growth which in turn can increase level of brain growth. Apart from that exercise can increase blood flow to cortex of

brain, which will maximize learning process of children. The process of intellectual improvement is shown in figure 3 (Martin, 2010).

Figure 3: Theoretical pathways linking physical activity, cognitive functioning and academic success.



Note. Reprinted from " Brain boost: Sport and physical activity enhance children’s learning." by K. Martin, 2010. Perth: Department of Sport and Recreation, Government of Western Australia. Copyright 2010 by K. Martin.

In summary, intellectual benefit refers to the belief in physical activities would improve the cognitive performance and academic performance.

Socialization Benefit

Participating in physical activities also provide the social benefit. According to study of Mc Mahon (1998 as cited in Ozdemir et al., 2018) showed that physical activities is crucial for integrating society, building friendship with the others, social acceptance. Moreover, self-managing and the socialization of a person can be increased because of physical activities (Güvendi & İlhan, 2017).

In according to Youngblut (2012) mentioned the various determinants, which affect on adolescent involvement in physical activities. The research

suggested that social (e.g. peer influence) is one of important factor that lead to female adolescent to participate in physical activities. Adolescents see physical attractive as incompatible. The attractive physical can help them get attention from other genders. However, in this research also showed the negative views from society from engaging in physical activity. In the focus on group which the boy adolescents were asked about opinion towards women adolescents who are active in physical activities. The boys suggested that female who goes to gym to have aggressive personality and boyish personality. Similarity to Lower's (2013) study showed that a university recreation sport center could create atmosphere, which helps new students to accumulate with campus life. One key study about social benefit, which was conducted by Artinger and others (2006) investigated the social benefits of participating in sport. The social benefit can be split into four different types namely, university integration, personal social benefit, cultural social benefit and social group bonding. In the findings of this study indicated that personal benefit (enable to increase individual happiness) and social group bonding such as ability to work with diverse group for both students living on and off campus were the most important benefits that led to physical activity engagement such those students who participated in physical activity showed their improvement in their trust and prosocial behavior (Bartolomeo & Papa, 2019).

In addition to research of Amornsriwatanakul and others (2017) mentioned that young Thai adolescents have an interest in physical activities because Thai celebrities and superstars usually love to show off their firm bodies through social media. The same as research of Gilchrist and Wheaton (2017) found that the young tended to play skateboarding because it can help them to have a good health and community development.

Moreover, some researchers found that 658 Peruvian adolescents who participated in sport group can have a positive effect on pro-social attitude, which can support friends in hard time. Joining team sports increases the sense

of belonging. Member of community is likely to support both inside and outside sport context. However, team sports will lead to strong bond compared with individual sports. In conclusion, there is a positive correlation between physical activities and pro-social behavior. Pro-social benefit is likely to impact on fitness and gym participation (Bartolomeo & Papa, 2019).

In summary, social benefit refers to the belief in physical activities would benefit their social behavior and socialization.

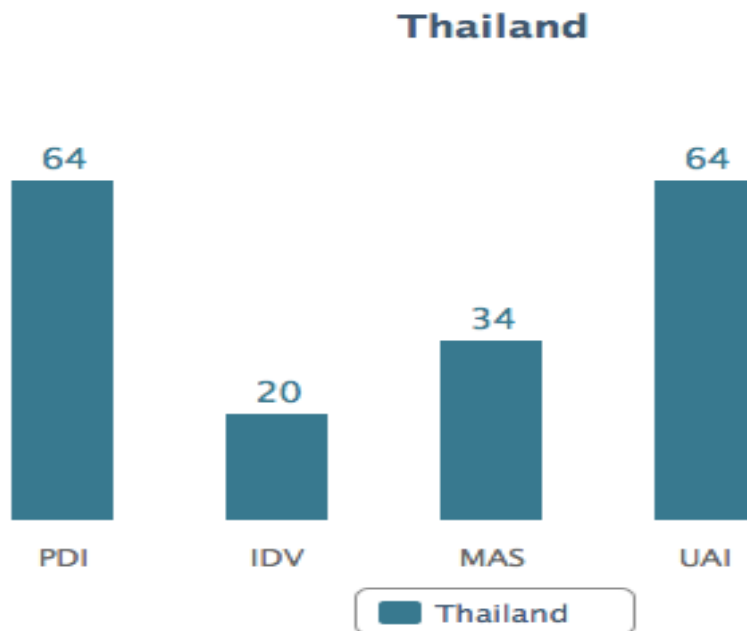
Cultural traits

Furthermore, culture seems to be a variable that lead adolescents to participate in physical activity, especially in fitness. In order to explain cultural trait, Cultural dimension of Hofstede will be used to review the literature. Hofstede (2017) explains culture as the system of thinking, feeling, and behaving and typical and everyday things in life. For instance, greeting, presenting or hiding the emotions. He also indicated that the individual's behavior is affected by culture through the display of values, characters, traditions and symbols. Thus, the individual's behavior is an outcome of that particular culture value structure for a specific context, which is altered and improved all the time. Hofstede's dimension separates culture into five dimensions such as power distance (PDI), individualism/collectivism (IDV), masculinity/femininity (MAS), uncertainty avoidance (UAI) and long-term orientation (LTO).

According five cultural dimensions, masculine and feminine are likely to be a focus in the review rather than other dimension because they are more consistent to the objectives and research topic. With reference to Figure 4 below, Thailand receives a score 34 on this dimension which means that Thais are categorized as feminine culture. In this culture, individual tends to care for

others and concern about quality of life because people in this culture believe that quality of life is sign of success. On the other hand, countries such as USA, UK are considered as masculinity. For instance, the Score of US on masculinity is high at 62. In masculinity, individual are driven by competition, self-achievement and success. This value system will starts in childhood and continue through individual life for both in work and leisure activities (Hofstede, 2017).

Figure 4: Cultural traits in Thailand.



Note. Reprinted from "Country comparison." by G. Hofstede, 2017, <https://www.hofstede-insights.com/country-comparison/thailand/>. Copyright 2017 by G. Hofstede.

As the research of Klomsten and others (2005) studied on the topic of Adolescents' perceptions of Masculine and Feminine value in sport and physical education which found that young males adolescents tends to indicate themselves as endurance strength, appearance strength, sport competence which are considered as masculine characteristics. While female adolescents tends to indicate themselves as good-looking face and appearance slender which are

known as characteristics of femininity culture. The study of Molanorouzi and others (2015) revealed that the motives in participating in physical activities of males and females were different as females were more motivated by appearance and physical condition than males, and males were more motivated by mastery and competition than females.

According to research of Ostgaard (2006) studied the cultural space of women's gym through feminist geography. The research stated that sports could reinforce gendered social order which masculine characteristics are believed to represent men and feminine is expected of female. Similarly, Herrmann (2012) explained that college students who are considered as masculinity stereotype tends to engage in personal fitness behavior to influence physique and athletic ability. Males and females will engage in different type of exercises at the gym. Males are likely to be found in the weight room while females are likely to engage in-group exercises. Male and female behavior at gym relates to gender and social norm. In masculine culture, a lean and muscular body represents powerful and dominant. Sometime, masculinity relates to the lack of engaging in healthy behaviors or risky behavior. The traits of people in this culture consists of lack of emotion, unwillingness to ask for help, strong competitive and aggression. In contrast, feminine people tend to be emotional, passive, and non-competitive. Physical activity is seen as one component of masculinity. For instance, post World War II sports were popular as male's activity because males tend to like to engage in competitive activity. In gym, masculine stereotypes are likely to spend time in the weight room, which is perceived as man's domain. Muscular man is seen as desirable by social norms then males tend to enjoy weight training to increase muscles to look like their role models. While, woman tends to prefer group exercise. For example, aerobic dance, which is known as non-competitive female activity. Feminine can also join weight training but for the purpose of tuning muscles to keep their feminine

feature. This feminine fitness behavior is believed to be shaped by social norm, which suggests that female should have toned, and lean muscles. As a result, females are likely to avoid weight lifting activities to prevent adding muscles.

For past behavior of Thai Adolescents was less active in physical participation. This behavior was likely to be shaped by feminine culture. (Amornsriwatankul et al., 2017) However, this behavior has changed recently. Thai adolescents are interested in physical activities more compared to the past. In regards to study of Jong and Drummond (2016) suggested that perception of sport are likely to be influenced by culture dimension which is known as sport remains highly associated with so-called masculine. For this reason, the shift of this culture dimension leads to an increase number of males and females adolescents who are willing to engage in physical activities. Similar to research of Klomsten and others (2005) Studied on the topic of Adolescents' perceptions of Masculine and Feminine value in sport and physical education: A study of gender differences. In the finding showed that young males adolescents tends to indicate themselves as endurance strength, appearance strength, sport competence which are considered as masculine characteristics. While female adolescents tends to indicate themselves as good-looking face and appearance slender which are known as characteristics of femininity culture. (Jong & Drummond, 2016).

CHAPTER 3

METHODOLOGY

This study had objectives to explore and to confirm factors of perceived benefit of Thai adolescents towards physical activities participation at fitness and to understand perceived benefits, which encourage Thai adolescents to participate in physical activities by using exploratory and confirmatory factor analyses. There are 4 steps as follows:

Step 1: Reviewing literatures related to perceived benefits in fitness. Researchers studied, analyzed, and synthesized literatures related to perceived benefits in exercise/workout including the perceived benefits in exercise/workout in fitness.

Step 2: Specifying the items of perceived benefits in fitness resulting from step 1. Researchers summarized information from literatures related to perceived benefits in exercise/workout including the perceived benefits in exercise/workout in fitness, then synthesized to specify the observed variables of perceived benefits. And there were 41 observed variables in total. Then researchers developed the questionnaire based on 41 observed variables to collect data from sample which were adolescents who experienced exercise/workout in fitness.

Step 3: Investigating the factors of perceived benefits in fitness with the empirical data using exploratory factor analysis.

Step 4: Verifying the factors of perceived benefits in fitness resulting from step 3 with the empirical data using confirmatory factor analysis.

The details of this chapter were as follows:

1. Population and sample
2. Research instruments
3. Data collection

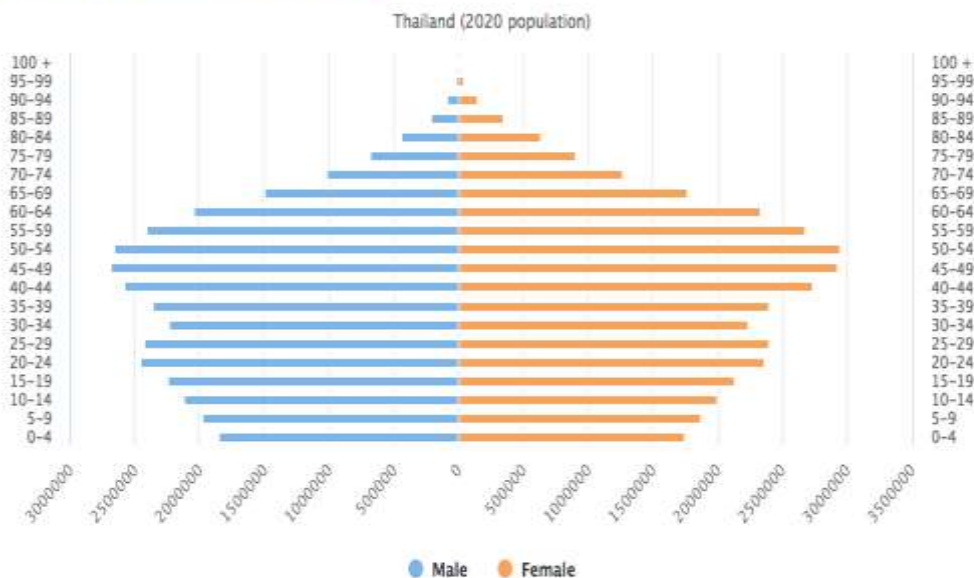
4. Data analyses

Population and Sample

Population were Thai adolescents aged between 18 – 23 years old who have participated for both private and public fitness centers in Thailand. According to Cambridge dictionary (2018) explains ‘fitness center’ as a place where people go to exercise for instance by weight lifting or using other equipment. For instance, consumer who joins fitness first or virgin fitness club can be considered as population of Interest. However, the research did not draw the information from all private gym members but data will be collected from adolescents who are aged between 18 – 23 years old. Adolescents who are in this age range will be target respondent. Information from worldometer (2020) show that the recent number of Thai adolescents is around 9,186,410. The graph below shows population pyramid for Thailand 2020.

Population Pyramid for Thailand (2020)

[Compare with years 1960, 1990, 2050, and 2080](#)



Sample were 649 Thai adolescents aged between 18 – 23 years old who participated for both private and public fitness centers in Thailand and volunteered to complete questionnaire. The data were collected by using online questionnaire. The sample size-to-parameter ratio method was used for determining sample size. According to Hair and others (2014), for factor analysis, an ideal sample size-to-parameter should be at least 5 units to 1 observed variable for being the good representative of the population and being enough to make the research results reliable. There were 41 observed variables in this study, then the sample size should be at least 205 students. Missing values, outliers and normal distribution of all measured variables were examined to purify the data. After data screening, 630 respondents were used as sample in the analyses as total sample then the total sample were divided by randomizing with equal number of 315 respondents. First group was used for exploratory factor analysis and second group was used for confirmatory factor analysis. Therefore, the sample size was sufficient for this study. Sample were recruited during July 2020 at both public and private fitness centers in Thailand.

Research Instrument

The questionnaire as the instrument of this study was designed based on literature review and previous researches that have been studied on similar topic. The questionnaire roughly consisted of three parts. First part contained the screening question about age of respondents. Second part contained the questions that could gather relevant demographic data of respondents such as age, gender, income level, education level and so on. Third part, the questions was designed in order to measure Thai adolescent's perceptions towards benefits which consisted of 47 items (observed variables) and after the validity and reliability examining there were 41 items (observed variables) remaining. First part and second part were checklist answers and forth part was 5-point

Likert scale where 1 indicates ‘very disagree’ with the item and 5 indicates ‘very agree’ with the item.

Some of items are as follows:

Questions	1	2	3	4	5
1. Increase muscle strength					
2. Increase physical performance					

Content Validity Examining

The questionnaire was sent to three experts in business and marketing fields to examine for the content validity. The Item-Objective Congruence (IOC) was used to evaluate the items of the instrument for congruence between the sentence/phase/question and the operational definition. The criteria for the experts’ opinion was as follows:

Score +1 means Sure that the sentence/phase/question indicate what the instrument measuring

Score 0 means Not sure that sentence/phase/question indicate what the instrument measuring

Score -1 means Sure that the sentence/phase/question NOT indicate what the instrument measuring

After receiving the IOC forms back from all experts, the scores were calculated for the Item-Objective Congruence (IOC) to find the congruence between sentence/phase/question and operational definition. Whereas, all sentences/phases/questions in each instrument must gain IOC score of greater than or equal to .5 (Choochom, 2002). The instruments were revised by choosing sentence/phase/question that gains the IOC scores greater than or equal .5 as the completed instrument. The questionnaire was revised as the

experts' comment and sentence/phase/question that gains the IOC scores of 0.65 - 1 were chosen.

After questionnaire's content validity examining, pilot study was conducted to develop and test reliability research instrument. Cronbach Alpha value was used to indicate the reliability of research instrument. Normally, Cronbach Alpha value should exceed 0.7 (Teijlingen and Hundley, 2001).

After validity test with IOC method, six items that got score less than .50 were cut. Therefore, 41 items that got the score between .67 to 1.00 were used for reliability test. Besides, the items were revised as the comment of three experts before the pilot test.

Pilot study

A pilot study of this research was formulated and tested by using a convenient method to collect that data. A pilot sample consists of 30 respondents who are fitness member and age between 18-23 years old. The pilot test was carried out to estimate the reliability of the instrument. Saunders and others (2009) noted that the minimum number of pilot tests is 10, which is usual for the large surveys of between 100 or 200 responses. Therefore, 30 samples are sufficient to do the pilot test in this research. All aspects of the questionnaire were tested, including question contents, wording sequence, form and layout, question difficulty and instructions. To indicate reliability of instrument, Cronbach's coefficient is the most common statistic that is used to measure internal consistency which is available in SPSS (Saunders et al, 2009). This statistic prepares an indicator of the standard correlation between all of the items that invent the scale. Cronbach's coefficient alpha can range from 0 to 1. A high value of Cronbach's alpha coefficient indicates good reliability (Pallant, 2005).

In this study, the perceived benefit relating to physical activities participation scale had a good consistency, with a Cronbach alpha coefficient

reported of .960 indicated high internal reliability and consistency. Hence, the item had its reliability in its result.

Data Collection

Sampling method

According to Taherdoost (2016) stated that after sample size is calculated. Researchers need to select technique of selecting people from population of interest. There are two major methods, which researchers can use to draw sample size. First technique is called probability. Probability sampling is method, which items in the population have an equal chance of being selected to participate in the research project. Probability consists of 4 main techniques namely, random, systematic, cluster and stratified sampling techniques. Researchers can also apply non-probability in selecting sample. Non-probability is the technique which the subjective judgment of researcher is likely to use to select sample. In non-probability, researchers use less statistic methods to select sample to participate in the research. There are four major techniques which consists of quota, convenience, purposive and snowball sampling. In this investigation, non-probability sampling seems to be suitable to select sample. Convenience sampling was applied to choose samples. The reason of using this technique because samples were quite difficult to access as this research focused on collecting information from specific group. Hence, these methods would increase accessibility to the data.

Data collection

This study took place at both public and private fitness centers where target respondents were located. For public fitness centers, researchers collected data from respondents who participate in physical activities at Burapha university sport center, Phranakhon Rajabhat University sport center, and Chulalongkorn university sport center. Apart from public sport centers,

researchers also collected the data from respondents who use the services from private fitness center. Researchers collected data from private fitness centers in Chon Buri and in Bangkok.

The respondents were approached after they finished their exercises. Based on observation, fitness members will take a rest at the relaxed area, which is provided by fitness center. Hence, this would consider as suitable time to approach respondents. Respondents were asked for permission whether they wished to participate in the research project or they did not wish to engage in the research. Then respondents were approached by the invitation message and the participant information message before completing the online questionnaire by scanning the QR code. Google form was applied as tool to collect information via online method. Data was collected during July 2020.

Participant Selection Process

In order to select respondents by using convenience sampling, researcher used both inclusion and exclusion criterions.

Inclusion criteria and Exclusion Criteria:

According to study, it focuses on investigating perceived benefit of consumers towards physical activities participation at fitness. Hence, respondents must join the fitness center. In order to select relevant respondents, the pre-screen question was asked to select the respondents who met the research criteria. The following questions are the questions to obtain suitable sample.

1. How old are you? According to project, it aims at studying perceived benefit of Adolescent who aged between 18-23 years old. Hence, if the respondent age is below 18 or above 23 year old then they will be excluded from participating in the research project. The reason is that the demand of Thai adolescent

towards physical activities participation has increased gradually as mentioned in introduction of this report.

2. Are you a fitness member? This question aims at identifying respondents who are fitness member. If the respondents answer yes then they will be asked to answer the next question.

Before collecting information, researchers and research assistant will ask permission from the company owner or a manager of research site. Once, researchers and research assistant get permission then the data collection process will be started. Researcher will request participants who are willing to engage in the research to scan QR code to access the online questionnaire.

Withdrawal or termination criteria

Individuals have the right to choose to participate or not. Also, an individual who initially agrees to participate in a study has the right to withdraw from the study at any point and the right to refuse to answer any particular question(s) or participate in a particular set of procedures.

Data Analyses

This study aimed to establish the perceived benefits of physical activities at fitness. Descriptive statistics was used to explain fundamental features of data and provide simple summaries about sample in quantitative research. The frequencies, percentage, mean score, cross tabulations and standard deviation are numeric descriptive statistics. Moreover, different types of inferential statistics will be applied to test hypotheses of the research.

To explore and confirm the factors of perceived benefits towards physical activities participation Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used. The data were analyzed by using statistical program. The primary purpose of EFA is to define underlying structure among

the correlated observed variables by grouping highly correlated variables together known as factor, labelling the groups, and create a new composite measure representing each group of variables (Hair et al., 2010). From EFA, principle component analysis was used to extract the factors and remove some items that weaken measure of the main factors including cross loading items. Then confirmatory factor analysis was used to confirm factor model as the output from EFA. The primary purpose of CFA is to assess the convergent and discriminative validity of the hypothesized model with sample data (Schumacker & Lomax, 2004).

Ethical Considerations for Human Subjects

The ethical consideration for research in human subjects approval was obtained from Ethics on Research in Human Committee, Burapha University. An overview of the study was presented to respondents via a beginning message that explained the purpose of the study as well as risks and benefits of participation. Informed consent was implied if participants completed and returned the survey instruments. All information obtained was anonymous. Due to anonymity, participants were unable to withdraw their responses once the surveys were completed and submitted to the researcher.

CHAPTER 4

RESULTS

The study of Thai adolescent's perceived benefits of physical activity at fitness aimed to explore and to confirm factors of perceived benefit of Thai adolescents towards physical activities participation at fitness, and to understand perceived benefits, which encourage Thai adolescents to participate in physical activities. The results were presented into three parts as follows:

Part 1 Demographic data of respondents

Part 2 Exploratory factor analysis

Part 3 Confirmatory factor analysis

Symbol in Analysis

To present and to understand the result of data analysis, the symbol and acronym in data analysis were specified as follows:

Table 1: Symbols using in data analysis

Symbol	Meaning
n	Number of sample
\bar{x}	Mean
S.D.	Standard deviation
%CV	Percentage of coefficient of variation
Min	Minimum
Max	Maximum
Sk	Skewness
Ku	Kurtosis
r	Pearson product moment correlation coefficient
R ²	Squared multiple correlation
χ^2	Chi-square
df	Degree of freedom
p	p-value
λ	Standard factor loading
GFI	Goodness of fit index
AGFI	Adjusted goodness of fit index
MSE	Mean square error

RMSEA	Root mean square error of approximation
SRMR	Standardized root mean square
RMR	Root mean square
*	Significant level of .05
**	Significant level of .01

Part 1 Demographic of Respondents

Table 2 presents demographic information of respondents. The first row shows gender of respondents. There were 391 male respondents (62.1 percent), 237 female respondents (37.6 percent) and 2 alternative sexually respondents (0.3 percent). The second row exhibits education level of respondents, which consists of four-education levels namely, primary school, secondary school, vocational, and university. Majority of respondents were in university level (75.1 percent). The third row presents area of study. Majority of respondents studied in health science (45.5 percent). The last row explains household income of respondents. Majority of respondents had household income between 15,000 to 30,000 baht a month (26.5 percent).

Table 2: Demographic information of participants

Variables	Frequency	Percentage
Gender		
Male	391	62.1
Female	237	37.6
Others	2	0.3
Total	630	100
Education		
Primary School	1	0.2
Secondary School	138	21.9
Vocational Degree	18	2.9
University Degree	437	75.1
Total	630	100
Subject		
Science	36	5.7
Health Science	286	45.4
Business	92	14.6
Social Science	42	6.7
Education	173	27.5
Others	1	0.2
Total	630	100
Household Income		
Under 5,000 Baht	32	5.1
5,000 - 10,000 Baht	108	17.1
10,001 - 15,000 Baht	113	17.9
15,001 - 30,000 Baht	167	26.5
30,001 - 50,000 Baht	130	20.6
50,001 Baht & above	80	12.7
Total	630	100

Table 3 presents demographic information of respondents in exploratory factor analysis (EFA). The first row shows gender of respondents. There were 189 male respondents (60.0 percent), 124 female respondents (39.4 percent) and 2 alternative sexually respondents (0.6 percent). The second row exhibits education level of respondents, which consists of four-education levels namely, primary school, secondary school, vocational, and university. Majority of respondents were in university level (78.7 percent). The third row presents area of study. Majority of respondents studied in health science (45.4 percent). The

last row explains household income of respondents. Majority of respondents had household income between 30,001 to 50,000 baht a month (25.1 percent).

Table 3: Demographic information of participants in exploratory factor analysis (EFA)

Variables	Frequency	Percentage
Gender		
Male	189	60.0
Female	124	39.4
Others	2	0.6
Total	315	100
Education		
Primary School	1	0.3
Secondary School	57	18.1
Vocational Degree	9	2.9
University Degree	248	78.7
Total	315	100
Subject		
Science	10	3.2
Health Science	143	45.4
Business	47	14.9
Social Science	20	6.3
Education	95	30.2
Others	0	0.0
Total	315	100
Household Income		
Under 5,000 Baht	16	5.1
5,000 - 10,000 Baht	58	18.4
10,001 - 15,000 Baht	46	14.6
15,001 - 30,000 Baht	77	24.4
30,001 - 50,000 Baht	79	25.1
50,001 Baht & above	39	12.4
Total	315	100

Table 4 presents demographic information of respondents in confirmatory factor analysis (CFA). The first row shows gender of respondents. There were 202 male respondents (64.1 percent), 113 female respondents (35.9 percent) and 0 alternative sexually respondents (0.0 percent). The second row exhibits

education level of respondents, which consists of four-education levels namely, primary school, secondary school, vocational, and university. Majority of respondents were in university level (71.4 percent). The third row presents area of study. Majority of respondents studied in health science (45.4 percent). The last row explains household income of respondents. Majority of respondents had household income between 15,001 to 30,000 baht a month (28.6 percent).

Table 4: Demographic information of participants in confirmatory factor analysis (CFA)

Variables	Frequency	Percentage
Gender		
Male	202	64.1
Female	113	35.9
Others	0	0.0
Total	315	100
Education		
Primary School	0	0.0
Secondary School	81	25.7
Vocational Degree	9	2.9
University Degree	225	71.4
Total	315	100
Subject		
Science	26	8.3
Health Science	143	45.4
Business	45	14.3
Social Science	22	7.0
Education	78	24.8
Others	1	0.3
Total	315	100
Household Income		
Under 5,000 Baht	16	5.1
5,000 - 10,000 Baht	50	15.9
10,001 - 15,000 Baht	67	21.3
15,001 - 30,000 Baht	90	28.6
30,001 - 50,000 Baht	51	16.2
50,001 Baht & above	41	13.0
Total	315	100

Part 2 Exploratory Factor Analysis (EFA)

To conduct factor extraction on 41 items and identify factors to explain the correlation among a set of observed variables. EFA was used with principal component analysis and varimax orthogonal rotation using statistical program. After conducting EFA, the results showed that the Kaiser-Meyer-Olkin measure is .927, which meet the acceptable limit of .80 and above demonstrated the sample size of 315 meet the requirement for conduct factor analysis (Hair et al., 2010). Barlett’s sphere test was significant (approximately $\chi^2 = 4641.599$, $df = 325$, $p = .000 < .001$) which indicated that sufficient correlations exist among the variable to proceed (Hair et al., 2010).

Table 6: Exploratory factor analysis, KMO, and Bartlett's tests for perceived benefits of physical activity.

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett’s Test of Sphericity		
		Approx. Chi-Square (χ^2)	<i>df</i>	Sig.
Perceived benefits of physical activity	.927	4641.599	325	.000

Fifteen items were deleted from the scale due to the cross loading, while two items conceptualized as barrier loaded predominantly on perceived benefits of physical activity in fitness were removed from the scale. Thus, the perceived benefits of physical activities in fitness were formed from 26 items. As a result, five factors had eigenvalues more than one with an explained the total variance of 65.002 percent. The detail was identified as in Table 8. The factors were named according to the underlying construct that related to the items.

First factor accounted for 16.605 percent of variance with an eigenvalues of 4.317. Factor loading for items in this factor was ranged from 0.763-0.577. The first factor reflected the social benefits perceived aspect and therefore, being classified as “social benefits”.

Second factor accounted for 16.012 percent of variance with an eigenvalue of 4.163. Factor loading for items in these criteria ranged from 0.751-0.646. The second factor reflected the physical benefits perceived aspect, and therefore being classified as “physical benefits”.

Third factor accounted for 11.564 percent of variance with an eigenvalue of 3.007. Factor loading for items in this criterion ranged from 0.831-0.600. The second factor reflected the study skills benefits perceived aspect, and therefore being classified as “study skill benefits”.

Fourth factor accounted for 11.141 percent of variance with an eigenvalue of 2.897. Factor loading for items in this criterion ranged from 0.786-0.692. The second factor reflected the Masculinity value perceived aspect, and therefore being classified as “Masculinity value”.

Lastly, fifth factor accounted for 9.680 percent of variance with an eigenvalue of 2.517. Factor loading for items in this criterion ranged from 0.731-0.587. The second factor reflected the psychological benefits perceived aspect, and therefore being classified as “psychological benefits”.

Table 7: Eigen values, variance percentage, and cumulative variance of factors identified after a varimax rotation.

Component	Initial Eigenvalues			Loadings			Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.056	36.723	36.723	15.056	36.723	36.723	5.791	14.125	14.125
2	4.728	11.531	48.254	4.728	11.531	48.254	5.157	12.579	26.705
3	1.904	4.643	52.897	1.904	4.643	52.897	5.074	12.377	39.081
4	1.532	3.736	56.633	1.532	3.736	56.633	3.455	8.427	47.508
5	1.150	2.804	59.437	1.150	2.804	59.437	3.095	7.549	55.057
6	1.072	2.614	62.050	1.072	2.614	62.050	2.867	6.993	62.050
7	.995	2.426	64.476						
8	.891	2.174	66.650						
9	.831	2.027	68.677						
10	.757	1.846	70.524						
11	.723	1.764	72.287						
12	.706	1.721	74.009						
13	.666	1.624	75.633						
14	.626	1.527	77.160						
15	.608	1.482	78.642						
16	.591	1.441	80.083						
17	.557	1.359	81.442						
18	.536	1.307	82.749						
19	.508	1.239	83.989						
20	.465	1.135	85.124						
21	.452	1.103	86.227						
22	.435	1.061	87.288						
23	.431	1.052	88.340						
24	.411	1.003	89.343						
25	.383	.935	90.279						
26	.361	.879	91.158						
27	.350	.853	92.011						
28	.333	.813	92.824						
29	.318	.776	93.600						
30	.311	.759	94.359						
31	.297	.725	95.084						
32	.265	.647	95.731						
33	.250	.610	96.341						
34	.240	.586	96.927						
35	.224	.546	97.472						
36	.205	.500	97.972						
37	.198	.482	98.454						
38	.177	.431	98.886						
39	.167	.407	99.293						
40	.148	.362	99.655						
41	.142	.345	100.000						

Figure 5: Scree plot of the 26 items for perceived benefits of physical activity at fitness.

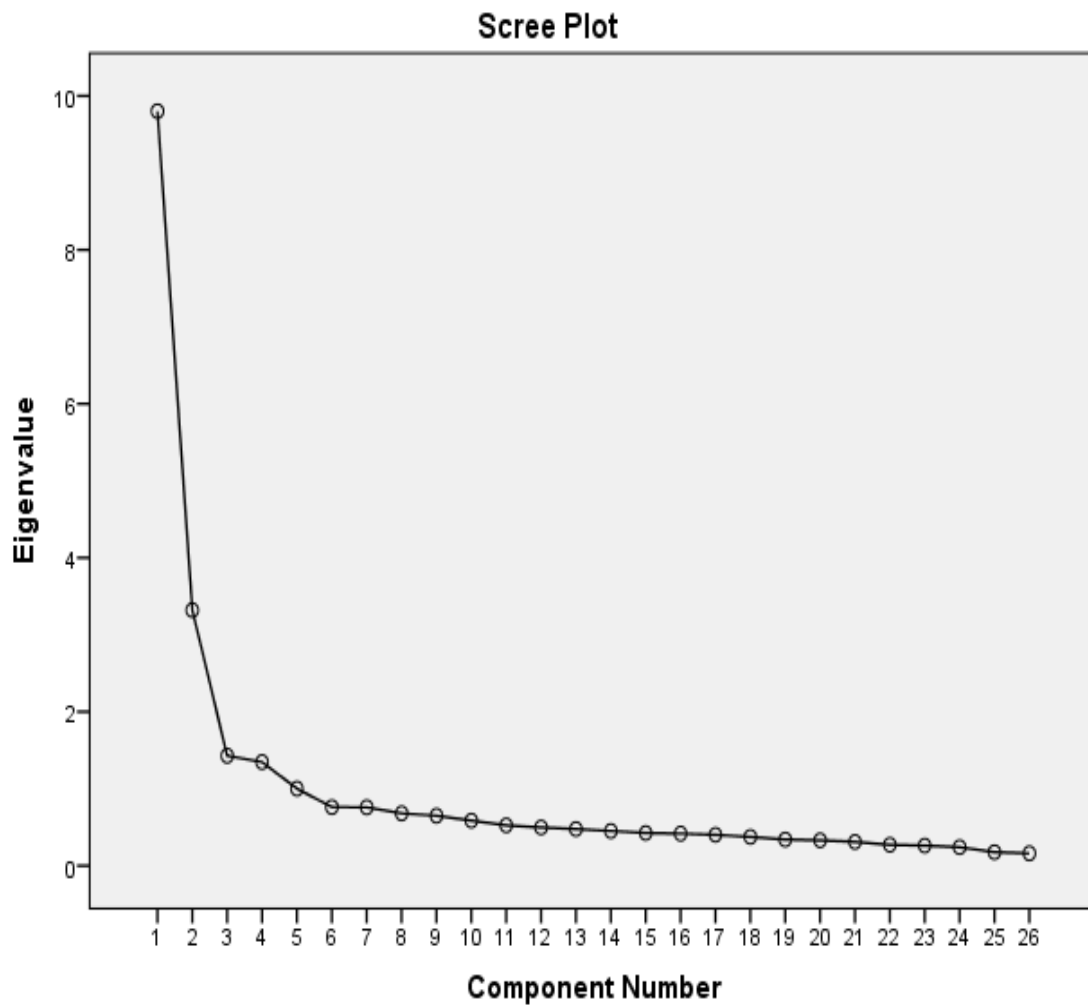


Table 8: Results of exploratory factor analysis of perceived benefits of physical activities at fitness.

Factor	Items	Communalities	Eigenvalue	% of Variance	Components				
					1	2	3	4	5
Physical benefits (Phys)	Q1	0.583	4.163	16.012		0.751			
	Q6	0.591				0.750			
	Q2	0.550				0.731			
	Q4	0.576				0.719			
	Q3	0.558				0.714			
	Q7	0.519				0.707			
	Q5	0.506				0.646			
Psychological benefits (Psyc)	Q9	0.709	2.517	9.680					0.731
	Q8	0.640							0.713
	Q10	0.637							0.667
	Q11	0.606							0.587
Study skills benefits (Stud)	Q17	0.841	3.007	11.564			0.831		
	Q18	0.780					0.781		
	Q16	0.790					0.779		
	Q15	0.631					0.600		
Social benefits (Soc)	Q29	0.719	4.317	16.605	0.763				
	Q19	0.628			0.750				
	Q30	0.675			0.738				
	Q28	0.724			0.735				
	Q22	0.708			0.700				
	Q20	0.571			0.677				
	Q21	0.558			0.577				
Masculinity value (Masc)	Q36	0.695	2.897	11.141				0.786	
	Q34	0.743						0.772	
	Q31	0.692						0.730	
	Q32	0.670						0.692	

Part 3 Confirmatory Factor Analysis (CFA)

To evaluate the convergent and discriminative validity and fit of the model as a whole was evaluated by using goodness-of-fit indices and the degree of fit between the model and the sample. As suggestion of Schumacker and Lomax (2004), Norm Chi-square (χ^2 /df) between 1.0 - 5.0 indicates an acceptable fit to the data, Norm Fit Index (NFI) > .95 indicates a good fit to the data, and Non-Norm Fit Index (NNFI) > .95 indicates a good fit to the data. As suggestion of Hair and others (2010: 649 650), Comparative Fit Index (CFI) >

.90 indicates a good fit to the data, and Root Mean Square Error of Approximation (RMSEA) = .03–.08 indicate a good fit to the data. Lastly, as suggestion of Steiger (1990 as cited in Kelloway, 1998), Goodness of Fit Index (GFI) > .90 indicates a good fit to the data, Adjusted Goodness of Fit Index (AGFI) > .90 indicating a good fit to the data, and Root Mean Square Residual (RMR) < .05 indicates a good fit to the data.

CFA was conducted cross-validation of the identified five factors of perceived benefits of physical activity in fitness, and multicollinearity was identified among the latent variables as the independent variables. There was a positive correlation between the latent variables, with estimates ranging from $r = .367$ to $r = .905$ and there was a significant relationship among the factors ($p < .05$, and $p < .01$), which indicated independent variables.

Table 9: Covariance matrix among latent variables in the CFA model

	1	2	3	4	5	6
1. Phys	1.000					
2. Psys	0.472**	1.000				
3. Stud	0.429**	0.744**	1.000			
4. Soc	0.457**	0.793**	0.719**	1.000		
5. Masc	0.367**	0.637**	0.578**	0.616**	1.000	
6. Bnf	0.522**	0.905**	0.821**	0.875**	0.704**	1.000

Note: ** $p < .01$

In this study, the EFA suggested a five-factor structure for perceived benefits of physical activities at fitness, which were physical benefits, psychological benefits, study skill benefits, social benefits, and masculinity value.

Figure 6 presents first order factor structure of perceived benefits of physical activities at fitness with standardized estimates. According to the data analysis, Norm Chi-square (χ^2 / df) was 1.469, indicating an acceptable fit to the data. Norm Fit Index (NFI) was .976 and Non-Norm Fit Index (NNFI) = .990, all exceeding the cut off criterion of .95 which indicated the good fit to the data.

Comparative Fit Index (CFI) was .991 and Goodness of Fit Index (GFI) was .912, all exceeding the cut off criterion of .90 which indicated the good fit to the data. Root Mean Square Error of Approximation (RMSEA) was .039 and Root Mean Square Residual (RMR) = .045, all exceeding the cut off criterion of .50 which indicated a good fit to the data. However, Adjusted Goodness of Fit Index (AGFI) was .885 almost meeting the criteria of .90. Most of these goodness-of-fit indices were within acceptable ranges, which indicated the five factors of perceived benefits of physical activities in fitness obtained from the EFA fitted with the empirical data.

Figure 6: First order factor structure of perceived benefits of physical activities at Fitness

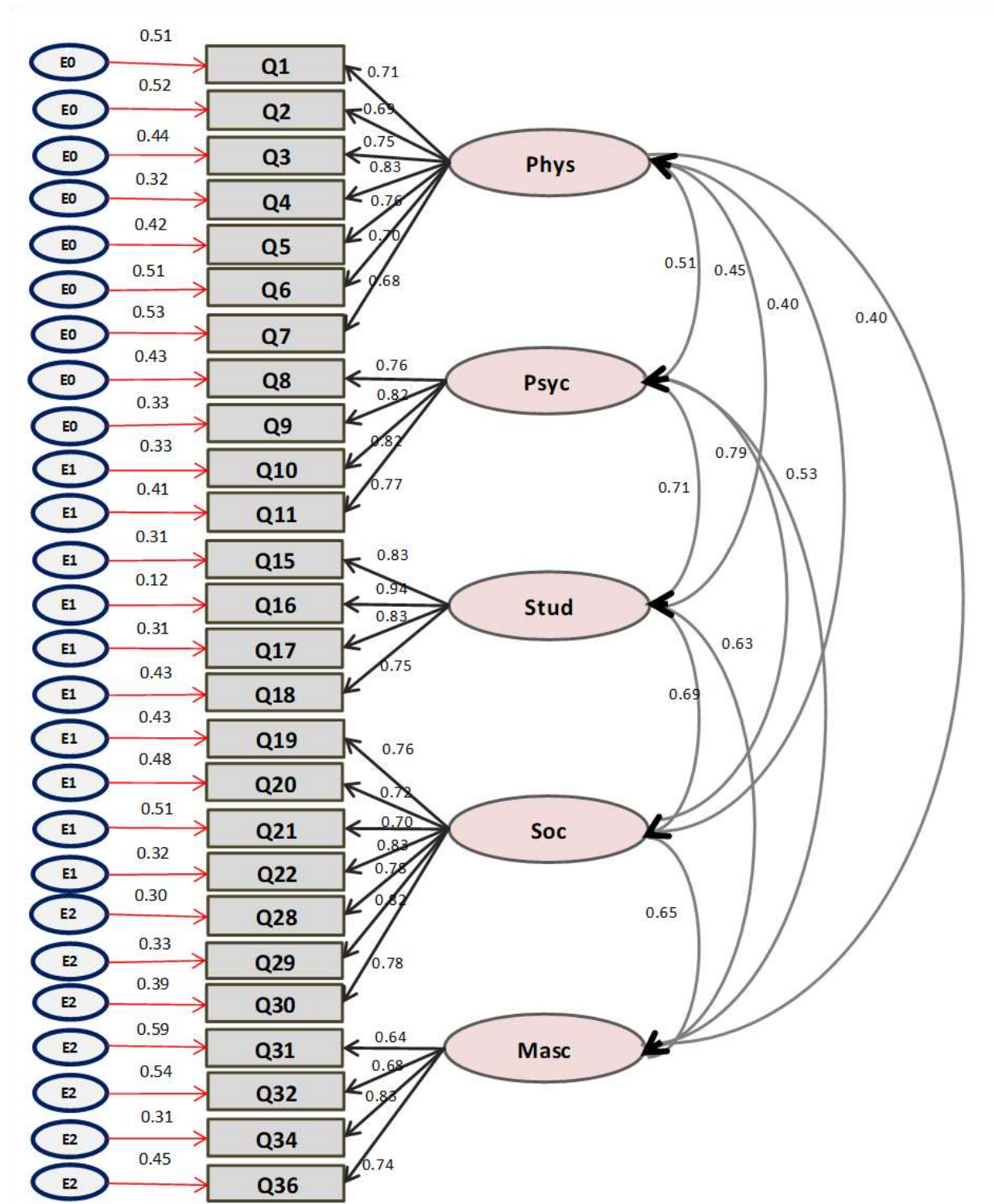


Figure 7 presents second order factor structure of perceived benefits of physical activities at fitness with standardized estimates. According to the data analysis, Norm Chi-square (χ^2 / df) was 1.540, indicating an acceptable fit to the data. Norm Fit Index (NFI) was .975 and Non-Norm Fit Index (NNFI) = .989, all exceeding the cut off criterion of .95 which indicated the good fit to the data. Comparative Fit Index (CFI) was .991 and Goodness of Fit Index (GFI) was .907, all exceeding the cut off criterion of .90 which indicated the good fit to the data. Root Mean Square Error of Approximation (RMSEA) was .042 and Root Mean Square Residual (RMR) = .048, all exceeding the cut off criterion of .050 which indicated a good fit to the data. However, Adjusted Goodness of Fit Index (AGFI) was .880 almost meeting the criteria of .90. Most of these goodness-of-fit indices were within acceptable ranges, which indicated the five factors of perceived benefits of physical activities in fitness obtained from the EFA fitted with the empirical data.

As shown in table 4, the result from CFA indicated that the factors were good validity as the sub-construct of perceived benefits of physical activities in fitness. The factor loadings of all factors were at a significant level of .01. The factor with highest factor loading to the factor with lowest factor loading were psychological benefits factor ($\gamma = .905$, CR = .820), social benefits factor ($\gamma = .875$, CR = .766), study skills benefits factor ($\gamma = .821$, CR = .675), masculinity value factor ($\gamma = .704$, CR = .495), and physical benefits factor ($\gamma = .522$, CR = .272) respectively.

Figure 7: Second order factor structure of perceived benefits of physical activities at fitness

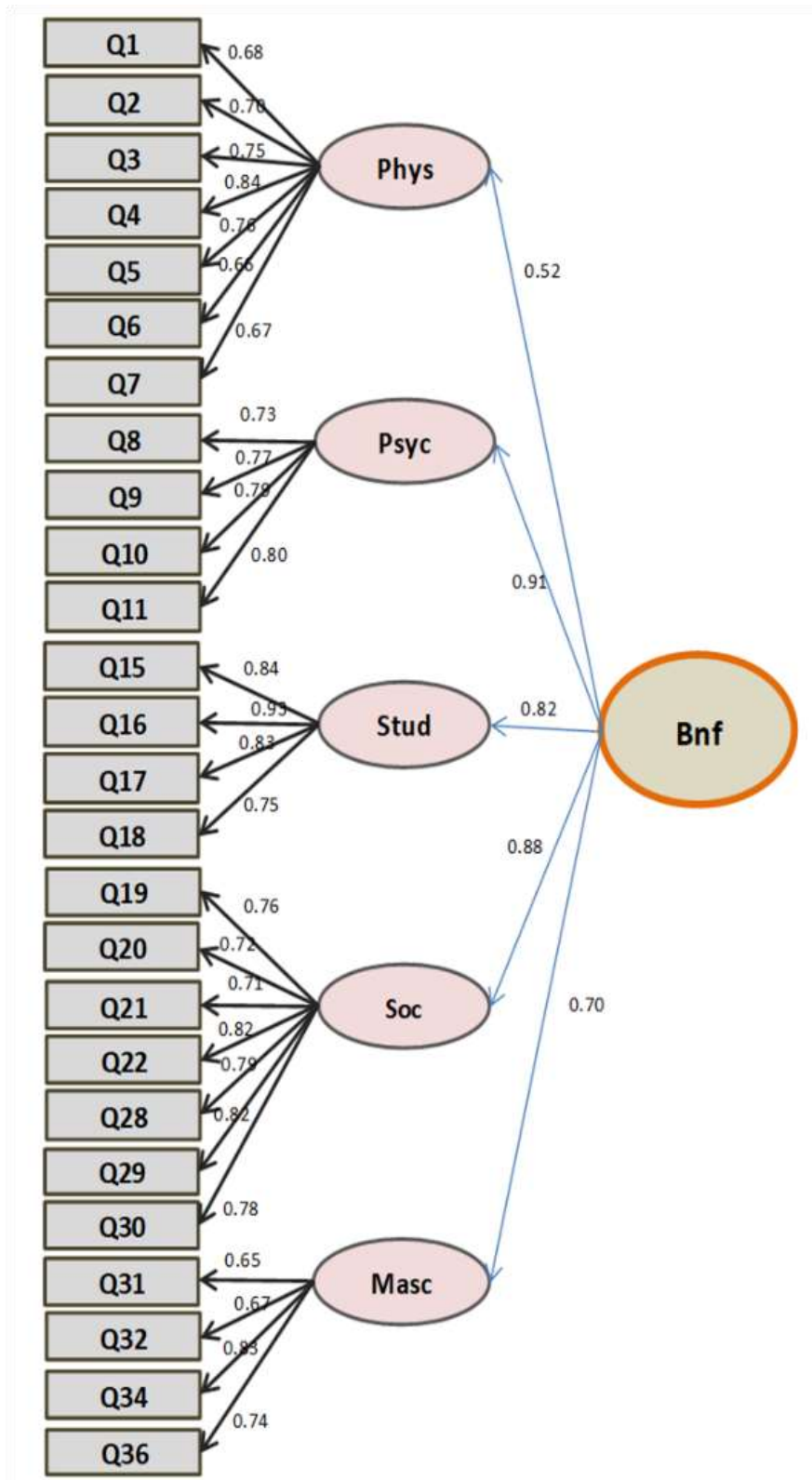


Table 10: Reliability and factor loadings of the latent variables of second order factor analysis

Latent variable	Item	Construct Reliability (CR)	Factor loading (γ)
Physical benefits (Phys)	7	0.272	.522**
Psychological benefits (Psyc)	4	0.82	.905**
Study skill benefits (Stud)	4	0.675	.821**
Social benefits (Soc)	7	0.766	.875**
Masculinity value (Masc)	4	0.495	.704**

$\chi^2 /df = 1.540$, CFI = .991, NNFI = .989, RMSEA = .042, RMR = .048, GFI = .907

Table 11: Model fit statistics for each hypothesised factor model

Model	χ^2 /df	CFI	NNFI	RMSEA	RMR	GFI
First order	1.469	0.991	0.990	0.039	0.045	0.912
Second order	1.540	0.991	0.989	0.042	0.048	0.907

Table 4 lists the model fit statistics comparing the first- and second-order measurement. Although both models resulted in little different values, Figure 7 shows that a second-order measurement model for perceived benefits of physical activities at fitness met the criteria for good fitting models. The path coefficients for perceived benefits of physical activities at fitness varied among factors physical benefits (.52), psychological benefits (.91), study skill benefits (.82), social benefits (.88), and masculinity value (.70). A second-order measurement model for achievement goals also indicated acceptable model fit, $\chi^2 /df = 1.540$, CFI = .991, NNFI = .989, RMSEA = .042, RMR = .048, and GFI = .907.

CHAPTER 5

SUMMARY AND DISCUSSION

The study of Thai adolescent's perceived benefits of physical activity at fitness aimed to explore and to confirm factors of perceived benefit of Thai adolescents towards physical activities participation at fitness, and to understand perceived benefits, which encourage Thai adolescents to participate in physical activities. The hypothesis was that there are more than 1 factor of physical activities participation at fitness among Thai adolescents.

Population were Thai adolescents aged between 18 – 23 years old who have participated for both private and public fitness centers in Thailand. After data screening, sample were 630 Thai adolescents aged between 18 – 23 years old who participated for both private and public fitness centers in Thailand and volunteered to complete questionnaire. The total sample were divided by randomizing with equal number of 315 respondents. First group was used for exploratory factor analysis and second group was used for confirmatory factor analysis. The convenient sampling technique was applied. The data were collected by using online questionnaire.

After obtaining the ethical considerations for human subjects approval from Ethics on Research in Human Committee, Burapha University, researchers and research assistant collected data. The questionnaire roughly consisted of three parts. First part contained the screening question about age of respondents. Second part contained the questions that could gather relevant demographic data of respondents such as age, gender, income level, education level and so on. Third part, the questions was designed in order to measure Thai adolescent's perceptions towards benefits which consisted of 47 items (observed variables) and after the validity and reliability examining there were 41 items (observed

variables) remaining. The perceived benefit relating to physical activities participation scale had a good consistency, with a Cronbach alpha coefficient reported of .960 indicated high internal reliability and consistency. Hence, the item had its reliability in its result.

The results were presented into three parts which were part 1 demographic of respondents, part 2 exploratory factor analysis, and part 3 confirmatory factor analyses.

Therefore, the summary of results were presented as follows:

1. Summary of research results
2. Discussion
3. Limitation and recommendation

Summary of Research Results

Demographic of respondents

As the demographic information of total respondents, 62.1 percent of respondents was male, 37.6 percent of respondents was female respondents and 0.3 percent of respondents was alternative gender. Majority of respondents were in university level (75.1 percent). Majority of respondents studied in health science (45.5 percent). Majority of respondents had household income between 15,000 to 30,000 baht a month (26.5 percent).

As the demographic information of respondents in exploratory factor analysis (EFA), 60.0 percent of respondents was male, 39.4 percent of respondents was female respondents and 0.6 percent of respondents was alternative gender. Majority of respondents were in university level (78.7 percent). Majority of respondents studied in health science (45.4 percent). Majority of respondents had household income between 30,001 to 50,000 baht a month (25.1 percent).

As the demographic information of respondents, 64.1 percent of respondents was male, 35.9 percent of respondents was female respondents and 0.0 percent of respondents was alternative gender. Majority of respondents were in university level (71.4 percent). Majority of respondents studied in health science (45.4 percent). Majority of respondents had household income between 15,000 to 30,000 baht a month (28.6 percent).

Exploratory factor analysis (EFA)

Fifteen items were deleted from the scale of 41 items due to the cross loading, while two items conceptualized as barrier loaded predominantly on perceived benefits of physical activity in fitness were removed from the scale. Thus, the perceived benefits of physical activities in fitness were formed from 26 items with 5 factors from highest loading to lowest loading were social benefits, physical benefits, study skill benefits, Masculinity value, and psychological benefits. As a result, five factors could explain the perceived benefit of physical activity at fitness with 65.002 percent.

Confirmatory factor analysis (CFA)

In this study, the EFA suggested a five-factor structure for perceived benefits of physical activities at fitness, which were physical benefits, psychological benefits, study skill benefits, social benefits, and masculinity value.

The first order factor structure of perceived benefits of physical activities at fitness with standardized estimates revealed that Norm Chi-square (χ^2 /df) was 1.469; Norm Fit Index (NFI) was .976; Non-Norm Fit Index (NNFI) was .990; Comparative Fit Index (CFI) was .991; Goodness of Fit Index (GFI) was .912; Root Mean Square Error of Approximation (RMSEA) was .039; Root Mean Square Residual (RMR) = .045; Adjusted Goodness of Fit Index (AGFI) was .885. Most of these goodness-of-fit indices were within acceptable ranges, which indicated the five factors of perceived benefits of physical activities in fitness obtained from the EFA fitted with the empirical data.

The second order factor structure of perceived benefits of physical activities at fitness with standardized estimates revealed that Norm Chi-square (χ^2 /df) was 1.540; Norm Fit Index (NFI) was .975; Non-Norm Fit Index (NNFI) was .989; Comparative Fit Index (CFI) was .991; Goodness of Fit Index (GFI) was .907; Root Mean Square Error of Approximation (RMSEA) was .042; Root Mean Square Residual (RMR) was .048; Adjusted Goodness of Fit Index (AGFI) was .880. Most of these goodness-of-fit indices were within acceptable ranges, which indicated the five factors of perceived benefits of physical activities in fitness obtained from the EFA fitted with the empirical data.

The result from CFA indicated that the factors were good validity as the sub-construct of perceived benefits of physical activities in fitness. The factor loadings of all factors were at a significant level of .01. The factor with highest factor loading to the factor with lowest factor loading were psychological benefits factor, social benefits factor, study skills benefits factor, masculinity value factor, and physical benefits factor respectively.

Although both models resulted in little different values, the path coefficients for perceived benefits of physical activities at fitness varied among factors physical benefits (.52), psychological benefits (.91), study skill benefits (.82), social benefits (.88), and masculinity value (.70).

Discussion

This study to explore and to confirm factors of perceived benefit of Thai adolescents towards physical activities participation with the empirical data. EFA indicated a five-factor structure of perceived benefit of physical activities in fitness, which were physical benefits, psychological benefits, study skill benefits, social benefits and masculinity value. CFA also confirmed this structure with the empirical data. The finding found that psychological benefits such as stress management, optimism, and happiness had the highest factor loading which related to the research of Ingledew and Sullivan (2002: 336) found that the older adolescents were likely to be motivated to participate in physical activities by stress management. Similar to research of Stults-Kolehmainen and Sinha (2014: 81) described that physical activity was positively impacted by stress, as individuals tend to deal with stress. Additionally, integrating stress management with physical activities interventions may reduce stress. Moreover, adolescents tend to face the stressful situation as a new social change, which require new skills, abilities, and competencies that is seen as a cause of insecurity (Gomez-Lopez and others, 2019: 3). The same as the study of Eime and others (2013: 1851-1853) stated that an adolescent who participated in sport was believed to gain mental health benefits, which can increase development of true self-awareness and personal growth. As evidence showed that individuals who engaged in physical activities were more likely to have higher self-esteem, optimism and happiness than inactive individuals (Cekin, 2015: 710-712).

The finding in this study also found that social benefits had second high factor loading which is similar to the research of Mendonca and others (2014: 822-823) found that social support was factor which positively related with physical activity of adolescents. The young is considered as time of growth in cognitive and social abilities. Likewise, the study of Chenga and others (2013: 6) described that friends was directly and significantly related with physical activities of adolescent. Furthermore, one study explained that physical activity engagement for adolescent was influenced by social support from peers such as parents and friends. The model of human behavior is seen as a construct of theory of social learning and predicts that human behavior is conformed based on socially important people, especially a group of friends (Pugliese and Tinsley, 2007: 341). Social changes of adolescent concern much on their friends because at this age, individual attempt to be independence from family (American Psychological Association, 2002). Moreover, physical activity was positively associated with the encouragement from friends and engagement with friends. Hence, friends tended to have a massive influence on physical activities (Maturro and Cunningham, 2013: 23).

The finding found that the physical benefit had the lowest factor loading This might be due to the fact that target respondents were aged between 18 to 23 years old. They were likely to have fewer problems towards their health. Hence, they seemed to concern about physical benefit less than other benefits. According to Zunft and others (1999: 155) studied perceived benefits and barrier to physical activity which the finding showed that health benefit seemed to have less influence on participating physical activities of younger respondents who were aged between 15 to 34 years old. The study of Alsubaie and Omer (2015: 404) also found that the last important reason leading adolescents to practice physical activity was for better health and avoid illness. Moreover, physical benefit was the second rank of components that explained the variance of perceived benefit in EFA, however this latent variable held very

low construct reliability (CR) in CFA. This might cause by the difference of randomized sample were applied in these two analyses. For the level of education, sample in CFA were 25 percent in high school level while sample in EFA were 18 percent in high school level. For the area of study, sample in EFA were 3.17 percent in science and technology and 30.16 percent in education while sample in CFA were 8.25 percent in science and technology and 24.76 percent in education.

Limitation and Recommendations

The findings of this study can be utilized in both public and private sectors. According to public sector, government can formulate strategies, which can encourage more adolescents to participate in physical activities, which can promote the better health, morale development, social interaction. For instance, engaging in physical activities can distract from drug and game addiction. In terms of private sectors, there is an increase in demand of adolescents participating in fitness. For this reason, private sectors can use these findings as the market data to form suitable marketing strategies to be appealed to target segments. For limitations, this study only concerned with the perceived benefits of adolescents in Thailand. So, further research should explore perceived benefits of adolescents in different to bring the better understanding in cultural difference. Second, this research sample limited only adolescents who engaged in physical activity. For this reason, the next research might study perception of adolescents who have less engagement in physical activities in order to indicate a gap of perception between these two groups.

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APPENDIX

แบบสอบถาม

การรับรู้ประโยชน์ของการออกกำลังกายในสถานการออกกำลังกายของวัยรุ่นไทย

(Thai Adolescents of Perceived Benefits of Participation in Fitness)

คำชี้แจง

แบบสอบถามนี้เป็นส่วนหนึ่งของ นายธิตยุดิทธิ์ เนื่องจางานงค์ อาจารย์ประจำหลักสูตรบริหารธุรกิจ ภาควิชาการตลาด วิทยาลัยนานาชาติ มหาวิทยาลัยบูรพา และ ดร.สรภักดิ์สรณ์ ฉัตรกมลทัศน์ อาจารย์ประจำหลักสูตรบริหารธุรกิจ ภาควิชาการเงิน วิทยาลัยนานาชาติ มหาวิทยาลัยบูรพา โดยมีวัตถุประสงค์เพื่อศึกษาการรับรู้ประโยชน์ของการออกกำลังกายของกลุ่มวัยรุ่นไทยที่ใช้บริการสถานออกกำลังกาย (Fitness) เพื่อนำข้อมูลมาศึกษาวิจัยในหัวข้อ “การรับรู้ประโยชน์ของการออกกำลังกายในสถานออกกำลังกายของวัยรุ่นไทย”

โดยจะใช้เวลาในการตอบแบบสอบถามน้อยกว่า 15 นาที ข้อมูลที่ได้จากแบบสอบถามจะถูกเก็บเป็นความลับและการนำเสนอข้อมูลจะอยู่ในรูปแบบของบทสรุป ภาพรวม ไม่มีการเปิดเผยข้อมูลส่วนบุคคลแต่อย่างใด รวมถึงผลการวิจัยจะถูกนำไปใช้เพื่อเป็นประโยชน์ทางด้านวิชาการเท่านั้น จึงใคร่ขอความร่วมมือในการตอบแบบสอบถามตามความเป็นจริงเพื่อเกิดประโยชน์สูงสุดต่องานวิจัย ถ้าผู้ตอบแบบสอบถามมีข้อสงสัยโปรดติดต่อนักวิจัยตามอีเมลล์นี้ titiyoot1984@yahoo.co.uk,

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โดยเนื้อหาในแบบสอบถามประกอบด้วย 3 ส่วน ดังนี้

ส่วนที่ 1 : คำถามคัดกรองผู้เข้าร่วมงานวิจัย เนื่องจากงานวิจัยนี้ต้องการเก็บข้อมูลจากกลุ่มวัยรุ่นในช่วงอายุระหว่าง 18-23 ปี ที่ออกกำลังกายในสถานออกกำลังกาย เช่น ฟิตเนส เฟิร์สท์, เวอร์จิ้น แอ็คทีฟ, ทู ฟิตเนส, วี ฟิตเนส, sport center ของมหาวิทยาลัย และอื่นๆ

ส่วนที่ 2 : ข้อมูลด้านประชากรศาสตร์ของผู้เข้าร่วมงานวิจัย ส่วนใหญ่จะเป็นคำถามเบื้องต้นที่เกี่ยวกับผู้ตอบแบบสอบถาม เช่น อายุ เพศ การศึกษา เป็นต้น

ส่วนที่ 3 - : การรับรู้ประโยชน์ของการออกกำลังกาย

ขอขอบพระคุณในความร่วมมือมา ณ โอกาสนี้

ส่วนที่ 1: คำถามคัดกรอง

คำชี้แนะ กรุณาตอบคำถามทุกข้อก่อนในแบบสอบถามชุดนี้

1. คุณเป็นสมาชิกฟิตเนสหรือเปล่า *(ถ้าไม่ใช่สมาชิกฟิตเนส ให้หยุดตอบแบบสอบถาม)*
 - เป็น
 - ไม่เป็น
2. คุณอายุเท่าไร *(ถ้าถ้าคุณอายุน้อยกว่า 18 ปี หรือ มากกว่า 23 ปี ให้หยุดตอบแบบสอบถาม)*
 - น้อยกว่า 18 ปี
 - ระหว่าง 18-19 ปี
 - ระหว่าง 20-21 ปี
 - ระหว่าง 22-23 ปี
 - มากกว่า 23 ปี

ส่วนที่ 2 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม

ข้อชี้แนะ กรุณาเลือกคำตอบที่เหมาะสมกับท่านมากที่สุด

3. เพศ
 - ชาย
 - หญิง
 - อื่นๆ โปรดระบุ _____
4. การศึกษาสูงสุด
 - ระดับประถมศึกษา
 - ระดับมัธยมศึกษา
 - ประกาศนียบัตรวิชาชีพชั้น
 - ระดับมหาวิทยาลัย
 - อื่นๆ โปรดระบุ _____
5. สาขาวิชา
 - สายวิทยาศาสตร์และเทคโนโลยี
 - สายวิทยาศาสตร์สุขภาพ
 - สายบริหาร
 - สายสังคม
 - สายการศึกษา
 - อื่นๆ โปรดระบุ _____

6. รายได้เฉลี่ยต่อเดือนของครอบครัว

- ต่ำกว่า 5,000 บาท
- 5,000 – 10,000 บาท
- 10,001 – 15,000 บาท
- 15,001 – 30,000 บาท
- 30,001 – 50,000 บาท
- สูงกว่า 50,001 บาท

ส่วนที่ 3 การรับรู้ประโยชน์ของการออกกำลังกาย

ข้อชี้แนะ กรณาดอบแบบสอบถาม โดยเลือกตัวเลือกที่ตรงกับคำตอบ และความคิดเห็นของท่านมากที่สุด ถ้าเห็นด้วยอย่างยิ่งให้ทำเครื่องหมายที่ 5, ถ้าเห็นด้วยให้ทำเครื่องหมายที่เลข 4, ถ้ารู้สึกเฉยๆให้ทำเครื่องหมายที่เลข 3, ถ้าไม่เห็นด้วยให้ทำเครื่องหมายที่เลข 2, และถ้าท่านไม่เห็นด้วยอย่างยิ่งให้ทำเครื่องหมายที่ช่องหมายเลข 1

รายการ	ความสำคัญ				
	เห็นด้วย อย่างยิ่ง (5)	เห็นด้วย (4)	ปาน กลาง (3)	ไม่เห็น ด้วย (2)	ไม่เห็น ด้วย อย่างยิ่ง (1)
1. เพิ่มความแข็งแรงของกล้ามเนื้อ					
2. เพิ่มสมรรถภาพทางกาย					
3. ช่วยลดแคลอรีและระดับไขมัน					
4. ช่วยพัฒนาระบบไหลเวียนของเลือด					
5. ช่วยเพิ่มความยืดหยุ่นของกล้ามเนื้อ					
6. ช่วยเพิ่มความอดทนของร่างกาย					
7. ทำให้รูปลักษณ์ภายนอกดูดีขึ้น					
8. ฉันรู้สึกมีความสุขเวลาไปยิม					
9. การเข้าฟิตเนสช่วยลดความตึงเครียด					
10. การเข้าฟิตเนสทำให้ฉันมีสุขภาพจิตดีขึ้น					
11. การเข้าฟิตเนสทำให้ฉันมองโลกในแง่บวกมากขึ้น					
12. การเข้าฟิตเนสทำให้ฉันรู้สึกผ่อนคลายซึ่งทำให้ฉันนอนหลับได้ง่ายขึ้น					
13. การเข้าฟิตเนสทำให้ฉันรู้สึกกว่าตัวเองมีสุขภาพดี					
14. การเข้าฟิตเนสช่วยเพิ่มทักษะการเรียนรู้					
15. การเข้าฟิตเนสทำให้ฉันมีสมาธิในการเรียน					
16. การเข้าฟิตเนสช่วยเพิ่มทักษะด้านความจำ					

17. การเข้าฟิตเนสช่วยเพิ่มทักษะทางด้านตัวเลขและศิลปะ					
18. การเข้าฟิตเนสทำให้ฉันได้เกรดเฉลี่ยมากขึ้น					
19. มีเพื่อนมากขึ้นจากการออกกำลังกาย					
20. การเข้าฟิตเนสช่วยให้ฉันได้มีเวลาอยู่กับเพื่อนมากขึ้น					
21. ฉันสามารถพบคนที่มีไลฟ์สไตล์คล้ายคลึงกันในฟิตเนส					
22. การออกกำลังกายทำให้ฉันกล้าที่จะพูดคุยกับคนอื่นๆ					
23. การออกกำลังกายช่วยเพิ่มความมั่นใจให้กับฉัน					
24. การออกกำลังกายทำให้ฉันเป็นที่ยอมรับของเพื่อน					
25. การออกกำลังกายเป็นเรื่องที่ปกติของสังคมที่ฉันอยู่					
26. การออกกำลังกายทำให้มีภาพลักษณ์ที่ดีทางการเงิน					
27. การออกกำลังกายทำให้มีภาพลักษณ์ที่ดีทางการศึกษา					
28. การออกกำลังกายช่วยให้ฉันปรับตัวเข้ากับผู้อื่นได้ดี					
29. การออกกำลังกายทำให้ฉันสามารถเข้ากันคนอื่นได้ง่าย					
30. การออกกำลังกายทำให้ฉันรู้จักคนใหม่ๆในสังคม					
31. ต้องการมีกล้ามเนื้อที่ใหญ่ขึ้น					
32. ฉันรู้สึกว่าคุณค่าที่ออกกำลังกายเป็นคู่แข่งของฉัน					
33. ฉันชอบโชว์ร่างกายของฉันในที่สาธารณะ					
34. ฉันรู้สึกปลอดภัยเมื่อฉันมีกล้ามเนื้อที่ใหญ่และแข็งแรง					
35. ฉันไม่รู้สึกโดดเดี่ยวเมื่อเวลาที่ฉันไปออกกำลังกายคนเดียว					
36. การที่ฉันมีกล้ามเนื้อหมายความว่าฉันเป็นคนแข็งแรง					
37. การออกกำลังกายทำให้ฉันมีผิวพรรณดีขึ้นและรูปร่างดี					
38. การออกกำลังกาย ทำให้ฉันใจเย็นและมีความอดทนมากขึ้น					
39. ฉันจะยกน้ำหนักที่เบาเพื่อป้องกันการบาดเจ็บ					
40. 10การที่ฉันมีกล้ามเนื้อใหญ่อาจจะทำให้ถูกมองในแง่ลบ					
41. คนส่วนใหญ่คิดว่า คนที่มีกล้ามมักชอบใช้ความรุนแรง					

เหตุผลอื่น (โปรดระบุ) _____
