

CHAPTER III

METHODS

1. Research Design

Through the use of a questionnaire information was gathered to examine possible relationships between regular exercise and self-esteem. This study was cross-sectional and descriptive in nature. The questionnaire gathered information on two main variables, exercise and global and physical self-esteem, socio-demographics and other determinants.

2. Target Population

The target population was administrative staff under 60 years old from the Faculty of Engineering at Chulalongkorn University, Bangkok, Thailand. The under 60 years old limitation was set to remove those elderly respondents who may have more physical disabilities and physical limitations, therefore significantly affecting their physical self-esteem and skewing overall data.

3. Study Population

The study population was administrative staff under 60 years old from the Faculty of Engineering at Chulalongkorn University, Bangkok, Thailand.

4. Sample Size

Sample size was dependent on the exact number of administrative staff at the Faculty of Engineering at Chulalongkorn University. The number was 180 staff.

5. Sampling

Sampling of respondents was done as a census. Questionnaires were distributed to every administrative worker at the Faculty of Engineering.

6. Setting

The questionnaires were utilized at the Faculty of Engineering, Chulalongkorn University in Bangkok, Thailand. Chulalongkorn University is the oldest university in Thailand and is located in central Bangkok. The Faculty of Engineering has the largest number of administrative workers of any faculty and was therefore chosen based on its size and homogeneity of potential participants.

7. Questionnaire

7.1 Domains:

Socio-Demographics

Multiple-choice questions were used to collect information on the participant's gender, education, and family income. An open question was used to obtain the age of the participant.

Physical Disability

One question was used to address the actual or perceived physical limitations of the participant.

Exercise

In order to understand the exercise habits of the participant, questions were used to gather information on exercise frequency, duration, motivation, type, interaction, location and history (Fox and Corbin, 1989). Also, exercise intensity was rated on a self-perceived exertion scale. The most common self-perceived exertion scale is Gunnar Borg's RPE scale; however, this scale is too expansive, rating exertion from 6-20 on a poorly defined scale, ie. "very, very light" or "somewhat hard" (Borg, 1982, as cited in Miller, 2004). For this questionnaire, Reebok University's Effort Scale 1-4 rating was used as each level is clearly defined ie. "noticeable increase in depth and rate of breathing, difficulty talking in full sentences." (Miller, 2004)

Self-esteem

Global self-esteem and physical self-esteem questions used rating scales. These are the most commonly used in assessing self-esteem (Strein, 1995). Both global and physical self-esteem used a rating scale of 1-4. The scales measure the degree of agreement or disagreement with each statement. For both instruments each self-esteem question has only four choices, not allowing for a neutral or middle choice. This forces the respondent to critically think about the statement and to agree or disagree, to an extent, instead of sitting middle of the road.

Importance of self components

Physical self was broken down into four components, these are the same components as for physical self-esteem. The participant then rated the importance of each component on a rating scale of 1-4 (Fox and Corbin, 1989).

7.2 Questionnaire Development:

Reasoning for question selection

Based on an extensive literature review several important socio-demographic factors were identified as determinants. The determinants that were judged feasible for measurement were included in the questionnaire, ie. age, gender, education, and family income (questions 1-4), however, others such as child-rearing style of parents, actual physical ability, body type, social norms, etc were excluded.

Question 5 was included in an attempt to identify individuals with a physical disability or limitation. This is important in determining one's ability to engage in physical exercise (Donnellan, 2003). However, it is understood that every individual may have a different perception of a disability or physical limitation.

Questions 6-7 were used to determine frequency and duration of exercise. These two factors are important in establishing any dose-response relationship during data analysis. They also form the basis of what defines regular exercise. Respondents who indicate that they don't exercise were referred to question 17 at this point.

Questions 8,11,12 aimed to identify motivation for exercise, independent or group exercise, and exercise location. These questions were included because they may directly affect an individual's self-esteem. An individual's motivation can tell a lot about how much influence exercise can have on their physical self-esteem. If an individual is exercising to improve their body's appearance, regular exercise may significantly impact their physical self-esteem. However, if an individual is exercising solely at the request of their doctor, they may be less likely to see a change in their physical self-esteem. Independent vs. group exercise is also important. Those who exercise with others may receive added benefit to their global self-esteem, as this social interaction may influence their social self-esteem, consequently affecting their global self-esteem. Likewise, exercising with others may lead to increased ability and confidence due to peer tutoring and encouragement. Exercise location is also important, especially in terms of placebo affect. Individual's who

regularly exercise at a gym may be constantly surrounded by propaganda claiming that by just coming to the gym you will improve your physical and mental status. They may therefore feel an improvement in their physical self-esteem just by regularly going to the gym, regardless of actual exercise activities. Conversely, the gym's environment of in-shape exercisers, mirrored walls, etc. may create an environment by which an exerciser compares themselves with others or ideals, which would in-turn negatively impact their physical self-esteem.

Questions 9,10, and 13 identify the type of exercise, exercise intensity, and exercise history. The type of exercise is important in prescribing or recommending those activities that may be most beneficial for creating high levels of physical self-esteem. Perceived exercise intensity was used to replace actual exercise intensity, due to the fact that this is not an experimental study. Intensity is also important in examining the dose-response relationship between exercise characteristics and physical self-esteem levels, as well as its potential usefulness in developing exercise recommendations. Question 16 was included to examine the affect of short-term regular exercise and long-term regular exercise on self-esteem.

Questions 14-23 are from the Rosenberg Self-esteem scale. These ten questions were used to determine an individual's global self-esteem. This scale is the most commonly used test for global self-esteem worldwide and it has been translated and successfully used in Thai (Petchtone, 2004).

Questions 24-35 were included to determine an individual's physical self-esteem. They are divided into four categories based on Fox and

Corbin's 1989 model of physical self-esteem. Within each category there are three questions, one relating to process, one to product, and the third to confidence. The content of the questions is based on the questions used in the PSPP (Fox and Corbin 1989).

Questions 36-39 were included to measure the importance an individual places on each of the four categories of physical self-esteem. This information is critical in determining the weight of these sub-components on global self-esteem.

Questionnaire Translation

The questionnaire was translated from English to Thai by two separate translators. A third translator combined the two and made final wording and editing adjustments. Twenty copies of the Thai version were then distributed and comments and suggestions were gathered on the wording and clarity of the questions. Then after further review it was decided that some of the questions and concepts needed to be further developed using a focus group interview with some administrative staff at the College of Public Health, Chulalongkorn University. On January 27, 2005 an hour-long focus group discussion with seven administrative staff workers from the College of Public Health, Chulalongkorn University was used to clarify some translated terminology and some of the questions' wording. The focus group was composed of three males and four females ranging in age from 24-44 years and from a variety of administrative areas including: research, secretarial, computers, and academic administration. The main focus was on questions

20,22,24,27,28,33-42, as well as, on the terminology for strength and on the difference between value and importance for questions 39-42.

Information obtained from this focus group discussion was then used to create the final version of the questionnaire.

8. Reliability

The structure of the model has been empirically tested, resulting in the decisive support of its components, namely, academic, social, emotional, and physical (Fleming & Watts, 1980, as cited in Fox & Corbin, 1989; Marsh & Shavelson, 1985).

Additionally, the Rosenberg Self-Esteem Scale has been used extensively for almost 40 years. The scale is still determined today to be relevant and is seen as the base for any measurement of global self-esteem. The Rosenberg Self-Esteem scale received a Guttman scale reproductivity coefficient of 0.92 and a test-retest correlation of 0.85 (Silbert & Tippet, as cited in Rosenberg, 1965).

However, in testing the reliability of this particular questionnaire in this context, 25 questionnaires were completed by administrative staff from the College of Public Health, Chulalongkorn University on February 11, 2005. Results from these 25 questionnaires were then entered into SPSS and reliability was tested using Cronbach's Alpha. The results yielded an Alpha of .86. This puts the questionnaire at an acceptable rate higher than standard cut-off of .70 or .75.

9. Validity

The questionnaire's ability to measure exercise and self-esteem has been validated (face validity) by mental health professionals, social scientists, and exercise specialists. Additionally, the questionnaire was pre-tested among twenty individuals who gave feedback on the questionnaire's content and its ability to assess self-esteem. Then after the use of a focus group, the questionnaire was then again pre-tested among 25 administrative workers.

Additionally, the conceptual framework used for evaluating the chosen variables comes from previously validated tests found in previous research (content validity). The Fox and Corbin's hierarchical model of self-esteem has also been proven valid in Asian cultures (Sheldon et al, 2001; Hagger, Biddle, Chow, Stambulova, Kavussanu, 2003). Although, only the conceptual structure of the Physical Self-Perception Profile is being used, the original did prove cross-culture validity in a number of countries (Welk & Eklund, 2003).

10. Interviewers

Interviewers were not used. The questionnaire was instead self-administered. The Faculty of Engineering chose to distribute the questionnaires themselves and wait for them to be turned in one week later.

11. Data Collection

First permission from the Dean of the Faculty of Engineering, Chulalongkorn University was obtained for conducting this research. The researcher met with the secretary for the Faculty of Engineering and it was decided that the best way to collect the desired information was to let the administration officer distribute the questionnaires and then wait for them to be turned in one week later. The executive administrative officer was responsible for this process and was explained about informed consent and confidentiality. Questionnaires were sent out to all 180 administrative staff, however, after three weeks the questionnaire response was only 77 questionnaires.

12. Data analysis

The researcher used SPSS to organize and analyze data.

Descriptive Analysis

Frequency, percentage, mean, and standard deviation were used to organize data ie. exercise characteristics, socio-demographics, self-esteem, etc.

Inferential Analysis

One-way ANOVA tests were run to examine for significant relationships between exercise type, intensity, and history with global and physical self-esteem. The relationship between exercise duration and frequency and global

and physical self-esteem was analyzed using Pearson's Bivariate correlation. Chi squared, Independent T-test, and one-way ANOVA were used to analyze different relationships between socio-demographics, exercise characteristics, and physical and global self-esteem. Linear regression was used to examine the relationship between physical self-esteem score, importance of physical self, and global self-esteem score.