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# A Study on the Correlation Between Self-efficacy and Self-regulation Behavior in Obese College Women

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The purpose of this study was to examine the correlation between self-efficacy and self -regulation behavior in obese college women. Subjects included 52 college women with a Body Mass Index (BMI) score above 25 at Gwang Ju Women、s University.

Data was analyzed using SPSS/PC. The frequency, percentage, mean, standard deviation, t-test, ANOVA, and Pearson Correlation Coefficient tests were used to describe the data and for statistical comparisons.

Results of this study showed that the mean scores for general self-efficacy and specific self-efficacy of obese college women were 3.37(1 to 5 point scale) and 60.16 (10 to 100 point scale) respectively. Significant differences for general and specific self-efficacy based on economic status were seen. The mean score for self-regulation behavior of obese college women was 2.55(1 to 5 point scale) with significant differences seen for both economic status and obesity of the mother. General self-efficacy was positively correlated with specific self-efficacy (P=.009) and specific self-efficacy with self-regulation behavior (P=.000).

This study revealed the level of self-efficacy and self-regulation behavior, and the positive correlation between specific self-efficacy and self-regulation behavior in obese college women. Intervention is needed to promote self-efficacy for self-regulation behavior of obese college women. Further research needs to focus on the role of health promotion, diet and stress management in developing self-efficacy programs for obese college women.

**Key Words:** Self-efficacy; Self-regulation

## INTRODUCTION

### *1. The purpose of this study*

Recently, the number of obese people is the increasing trend around the world and Koreans follow the same trend due to changing eating habits along with lifestyle. No definitive research has been conducted on obesity among adult Koreans, but a study on the national nutrition intake in Korea showed that 20% of Koreans have a BMI greater than 25 (19.9% males, 16.3% females) (Song, 2000). Recently, the Korean Clinical Health Promotion Society (2000) set the standard for obesity at less than 25 which is needed for Koreans to reduce the incidence of Type II diabetes and cardiovascular related diseases and to reduce overall mortality rates from these diseases (Brownell, 1982)

Obesity among women is a contributing factor in the development of abnormal menstruation, infertility, high risk delivery, cancer of the gall bladder, cancer of the endometrium, ovarian cancer, and breast cancer. Additionally, it inhibits promotion of women's health in general. Young women put great emphasis on how they are seen by others and their achievements are strongly correlated with this perception.

Shame and guilt feelings among university women stem from the failure to control one's figure. University women need to feel in control of their health (Korean

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Academic Society of Primary Medicine, The Korean Academic Society of Obesity 1996; Heo, 1996).

The origin of one's failure to control one's figure originates from a lack of self-efficacy. The self-efficacy construct is in the forefront of the research agenda on obesity.

Self-regulation is defined as the endeavor to promote one's adaptability to changing environments along with promoting one's safety and functional behaviors (Bartels, 1990). The ultimate aim of obesity programs is weight control and the self-regulation behavior theory is one of the best foundations used to achieve that goal.

The relationship between self-efficacy and self-regulation behavior is the most pertinent factor in studying obesity in university women. If one wants to study the effectiveness of self-efficacy theory, which is used for developing self-efficacy programs, one has to know the general characteristics of obese people and their varying perceptions of self-efficacy and self-regulation behavior.

### *2. The purpose of this study*

1) To study the correlation between university female student's general characteristics and their self-efficacy.

2) To identify the perception of obese university female students and their self-efficacy.

3) To study the self-regulation behavior and obesity among university female students.

4) To analyze the correlation between self-efficacy and self-regulation behavior among obese university female students.

### *3. The definition of terms*

#### 1) Self-efficacy

Theoretical definition: One's belief in one's capability to achieve a desired result (Bandura, 1977b)

Operational definition: A tool developed by Hong (1995) that measures the quotient between specific self-efficacy and general self-efficacy.

#### 2) Self-regulation behavior

Theoretical definition: Actions taken by subjects to promote one's health and welfare (Webster )

Operational definition: A scale developed by Hong which measures one's endeavors to control one's weight, diet and exercise, scaled according to one's endeavor.

## LITERATURE REVIEW

### *1. Obese university female students and their self-efficacy.*

Obesity is defined as the over concentration of body fat, which leads to some health hazards. The over concentration of body fat increases the number of fat cells and enlarges fat cells already present enabling excess fat to be stored in the body (National Institutes of Health Consensus Development Conference Statement, 1995).

The early adulthood stage, which most university female students are facing, is the time for them to adjust to their changing environment, which includes complex human relationships. In this stage they are more conscious of their appearance (Choi & Lee, 1997).

To achieve or maintain a slim figure, many university female students skip meals or eat at irregular hours which may create malnutrition problems (Park, 1989).

Women are willing to endure the discomfort and possible damage to their health that harsh treatment of their body provides for the sake of a beautiful appearance.

This trend has been steadily rising in recent years and many girls are on diets trying to lose weight (Ko & Chung, 1992).

The obese university female students, who are willing to make friends, are depressed as a result of their weight, which leads to a lack of self-respect. They develop an inferiority complex and avoid their friends and peers. Severe cases may result in clinical depression (Stunkard & Penick, 1979). Obese women have fewer personal relationships at work, fewer employment opportunities and fewer opportunities for happy marriages. All these factors may lead to severe depression (Heo, 1996). The psychological aspects related to obesity include uneasy feelings and mental problems among girls in their teens. Additionally, the same trend is observed among women students in the university. They reported that their inability to control their weight is the main cause of losing self-respect along with feeling shame.(The Korean Academic Society of Primary Medicine, The Korean Academy of Clinical Obesity, 1996) (Ruth &Jane, 1995). The obese women showed a decline in their physiological processes, inferiority feelings, a loss of self-respect, emotional discomforts, uneasiness, and mental problems. These issues constitute the are the main problem present in society today (Schachter, 1982).

Self-efficacy theory is derived from social learning theory developed by Bandura. The main theme states that to perform a certain action one has to evaluate one's effectiveness along with one's ability. Thus the self-efficacy theory bridges the constructs of self-efficiency and self-competency (Jenkins, 1988). One who has a strong self-efficacy will find alternatives to achieve one's goal, whereas one with a low self-efficacy anticipates failure and does not seek out alternative solutions to a problem (Buckelew et al., 1966).

In studying obesity, research has shown that self-efficacy is strongly correlated with action, in that the self-efficacy shows a positive prediction on weight control (Campbell, 1990). Bernier and Avard (1986) reported a strong inverse correlation between self-efficacy and weight control. Slaster's research (1989) on 600 obese subjects showed that self-efficacy is significantly related to eating habits. Schifter and Ajzen (1985) reported that self-efficacy and self-determination are the key factors in determining the success or failure of weight loss. Gillis (1993) demonstrated that self-efficacy is the determining factor for promoting general health.

### *2. The obesity and self-regulation behavior*

Self-regulation behavior focuses on training to promote one's safety and functional activities by adapting external changes along with internal changes. The overall purpose is to ultimately control one's behavior (Bartels, 1990).

The main theme of self-regulation behavior is self-watch, self-evaluation and self-discipline in order to achieve one's goal (Kanfer & Schefft, 1987) with control encompassing both physiological and psychological behaviors (Rehm & Rokke, 1988).

The self-regulation theory also incorporates an individual's social environment (Nicholas & Gobble. 1991) such that changing behavior is also required among the people who are contracted in chronic diseases (Butter field, 1990). Demographic, psychological and environmental factors need to be considered and addressed for the maintenance of self-regulation behaviors (Colvin & Olson, 1983; Foster & Jeffery, 1986).

Measurement of the degree of self-regulation behavior is a problem due to the overlap between self-care and concurrent other problems. Self-regulation behavior can be measured best by observing behavior which is not realistic in terms of objectiveness (Wadden, 1995).

In the structural model on self-regulation behavior and weight control among obese people, Hong (1995) points out that self-efficacy is the most influential factor on self-regulation behavior and that self-efficacy can be strengthened through perceived usefulness, perceived sensitivity, seriousness, social support, sincerity and body image.

In a two-year study with 54 subjects who succeeded in losing weight, Colvin & Olson (1983) showed that their success was due to modified diet accompanied with a self-watch program. Disease and health are concurrent problems in modern nursing such that both obese people and normal weight people have the same right to enjoy life. Thus the best way to keep one's health is by using preventive health procedures through self-regulation behavior (Kaplan, 1985). It is the nurse's role to promote self-regulation behavior in obese people.

## METHODS

### *1. Subjects of study*

The subjects of this study consisted of female students of G University located at G city. The period of sampling was from March 27 to May 19 in 2000. The BMI index = weight(Kg)/ height(m)2. A BMI index over 25 was a criterion for participating in the study and students who understood the purpose willingly participated in this study.

### *2. Tools of study*

#### 1) Self-efficacy

(1) The efficacy of weight control.

We used Hong's (1995) questionnaire (10 questions based on a 5 point scale). The higher the point value (score) the higher the degree of self-efficacy. The reliability index is $\alpha$=.869 and the tool's reliability is $\alpha$=.857.

(2) General self-efficacy

Maddux (1982) developed a technique for measuring general self-efficacy using a questionnaire with 17 questions having a reliability index of $\alpha$=.710.

This study utilized a modified version of Maddux's instrument with 10 questions (Hong, 1995). The higher the point value (score) the higher the degree of self-efficacy. The reliability index of tool is $\alpha$=.854.

#### 2) self-regulation action

The tool we used is Hong's (1995) which has 20 ques-

tions concerning weight loss and weight. The higher the score, the more self-control one achieves.

The tool's reliability for this study is α=.871.

### *3. Data analysis and methodology.*

Data was analyzed using SPSS/PC with the general characteristics described with frequencies and percentiles.

The subjects' differentiation between self-efficacy and self-regulation behavior on these general characteristics were analyzed through t-test and ANOVA.

The degree of self-efficacy and self-regulation behavior was determined by calculating means and standard deviations. The correlation between self-efficacy and self-regulation behavior was analyzed using the Pearson Correlation Coefficient.

## RESULTS

### *1. General characteristics of the subjects and Subjects differentiation between self-efficacy and self-regulation action related to the general characteristics.*

The average weight of the subjects was 72.4 kg(SD=7.45). The majority (80.8%) of the subjects had a BMI index between 25 and 29.9. Approximately 19% of the subjects had a BMI index between 30 and 39.9. The average height of the subjects was 160.2 cm(SD=4.73).

Forty-two percent of the subject's height was less than 160 cm. The age range was 18 to 25. Most subjects (59.4%) were 19 to 20 years old.

Family monthly income for 59.9% of the subjects was less than 200 million won.

Forty percent of the subjects' mothers were obese, whereas only 22.2% of their fathers had the same problem; 44.2% of all subjects were healthy. General and specific characteristics of self-efficacy showed significant differences according to income, whereas the self-regulation behavior was significantly associated with the mother's obesity (see Table 1).

### *2. The perceived symptoms related to obesity and their frequency.*

The perceived symptoms related to obesity and their frequency is appear in Table 2.

Overeating or excessive intake of foods, fatigue, shortness of breath, chest discomfort, and arthritis pain were the top five symptoms reported.

**Table 2.** Frequency of Obesity Related Symptom (N=52)

| Classification | Frequency | Order |
|---|---|---|
| Over eating | 29 | 1 |
| Fatigue | 23 | 2 |
| Shortness of Breath | 16 | 3 |
| Chest Discomfort | 14 | 4 |
| Arthritis Pain | 13 | 5 |
| Depression | 12 | 6 |
| Lose one's will to work | 11 | 7 |
| Apathy | 10 | 8 |
| Loss of concentration | 8 | 9 |
| None | 7 | 10 |

**Table 1.** General Characteristics of Subjects and Subject's Differentiation Between Self-efficacy and Self-Regulation Behavior(N=52)

| General Characteristics | Class | Frequency | Percentile | G. Self-efficacy T or F(P) | S. Self-efficacy T or F(P) | Self-regulation T or F(P) |
|---|---|---|---|---|---|---|
| Height(cm) | >160 | 22 | 42.3 | .792 | .130 | .323 |
| | 160~165 | 21 | 40.4 | (.459) | (.879) | (.726) |
| | 165< | 9 | 17.3 | | | |
| Weight(kg) | >70 | 21 | 40.4 | | | |
| | 70~74 | 12 | 23.1 | 1.380 | .934 | 1.125 |
| | 75~79 | 11 | 21.2 | (.260) | (.431) | (.348) |
| | 80< | 8 | 15.3 | | | |
| Economic Status of family | >200Mil Wo | 31 | 59.6 | 4.471 | 6.401 | 4.260 |
| | 200Mil Won | 21 | 40.4 | (.040)* | (.015)* | (.044)* |
| Mother's obesity | Yes | 21 | 40.4 | .060 | .642 | 6.726 |
| | No | 31 | 59.6 | (.808) | (.427) | (.012)* |
| Father's obesity | Yes | 11 | 21.2 | .991 | .000 | .079 |
| | No | 41 | 78.8 | (.324) | (.989) | (.780) |
| Perceived Health Status | Good | 23 | 44.2 | .074 | 1.618 | 1.923 |
| | Average | 19 | 36.5 | (.929) | (.209) | (.159) |
| | Poor | 10 | 19.2 | | | |

* $p < .05$

### *3. Degree of self-efficacy and self-regulation behavior of the subjects.*

#### 1) General self-efficacy of the subjects.

The self-efficacy mean score for obese university female students was 3.37. The question item, "The problem that I am facing is not starting a thing that has to be done", had a mean score of 3.64 while question item, "I have self-confidence", averaged 3.16 (see Table 3).

#### 2) The concrete self-efficacy of the subjects

The concrete self-efficacy mean score of the subjects was 60.16 (100 point scale).

Abstaining from coffee, cigarettes and alcohol (84) and limiting sugar and fatty foods (64.4) had the highest average scores. Following how -to books or mass media messages (49.60) and dieting (50.00) questions were the lowest mean averages (see Table 4).

#### 3) The self-control action of the subjects.

The overall average for obese female subjects was 2.55 (5 point scale). The majority of the subjects practice good dietary habits, such as limiting cigarettes and wine (3.6), eating balanced meals (3.12), and not eating before bed (2.92). Additionally, they incorporate exercise into their daily lifestyles (2.84). In addition, some of the subjects take medication to lose weight (1.36), get regular check ups (1.52), take supplementary medication to control weight (1.96), utilize health related clubs, i.e., aerobics, fasting institute (2.08), and exercise regularly (jogging, gymnastics, cycling, tennis) (2.16). (see Table5).

General self-efficacy and specific self-efficacy was significantly correlated and also specific self-efficacy and self-regulation behavior was significantly correlated (Table 6).

**Table 3.** General Self-efficacy and Related Item's Average (N = 52)

| Items | Mean | S.D. |
|---|---|---|
| 1. When I set up a plan, I can do it without failure. | 3.30 | 0.96 |
| 2. The problem that I am facing is that I can not do it immediately | 3.64 | 0.95 |
| 3. Once I set up a goal, I can achieve my goal | 3.36 | 0.99 |
| 4. Even though the problem seems complicated to me, I give a try. | 3.32 | 1.11 |
| 5. Even though the problem does not look good to me at first, I do it if I have to do. | 3.36 | 1.22 |
| 6. Once I determine to do a thing, I do try. | 3.20 | 0.96 |
| 7. I can do a thing well even though I meet an unexpected thing | 3.32 | 0.85 |
| 8. I try hard to learn a thing even though the thing seems difficult at first hand. | 3.52 | 1.00 |
| 9. I have a self-confidence. | 3.16 | 1.14 |
| 10. I can handle the chores of everyday life very effectively. | 3.48 | 0.82 |
| Total Average | 3.37 | |

**Table 4.** Specific self-efficacy item's average (N = 52)

| Items | Mean | S.D. |
|---|---|---|
| 1. I can eat my meal regularly. | 64.00 | 23.98 |
| 2. I can plan my diet and do follow my diet. | 50.00 | 25.50 |
| 3. I can control my meal even though I have to dine out. | 55.60 | 21.03 |
| 4. I can control the intake of sugar and fat. | 64.40 | 19.38 |
| 5. I can control my intake of certain fancy foods i.e., coffee, cigarette and wine. | 84.00 | 25.66 |
| 6. Once I know some facts which is good for my health, I do follow this facts. | 62.80 | 19.90 |
| 7. Once I am on the route toward good health, I can keep it up. | 58.00 | 18.26 |
| 8. I do search facts in the mass media concerning for good health and then I do follow this facts. | 49.60 | 21.50 |
| 9. Whatever the circumstances may be, I can do an exercise regularly for my health. | 61.60 | 23.92 |
| 10. Always I do practice to have a peace of mind in order to reduce the stress. | 51.60 | 20.75 |
| Total Average | 60.16 | |

**Table 5.** Average of Items for Self-Regulation Behavior (N = 52)

| Items | Mean | S.D. |
|---|---|---|
| 1. Having a balanced meal | 3.12 | 0.93 |
| 2. Having right amount of meal | 2.72 | 0.89 |
| 3. Limit the intake of sweet and oily foods. | 2.68 | 0.90 |
| 4. Do not eat snacks | 2.80 | 0.87 |
| 5. Do not eat before going to bed | 2.92 | 1.04 |
| 6. Limit to dine out | 2.76 | 0.88 |
| 7. Try not to eat salty foods. | 2.92 | 1.22 |
| 8. Limit the intake of wine and cigarettes | 3.60 | 1.58 |
| 9. Do not eat instant food stuff and carbonated beverages. | 2.76 | 1.01 |
| 10. Do a physical exercises in a daily life.. | 2.84 | 0.85 |
| 11. Do a regular exercise, i.e., jogging, running, gymnastics, swimming and tennis. | 2.16 | 1.03 |
| 12. Do join a club which helps losing weight. | 2.08 | 1.04 |
| 13. Do not solve the stress problem with eating. | 2.64 | 1.22 |
| 14. Do not take a diet medication. | 1.36 | 0.86 |
| 15. Do take a supplementary Medication for diet | 1.96 | 1.17 |
| 16.Do check weight regularly and do observe the changes. | 2.52 | 1.00 |
| 17. Seek help from mass media concerning diet and do practice which obtained from the media | 2.60 | 1.19 |
| 18. Do have a regular checkup for health. | 1.52 | 0.71 |
| Total Average | | |

**Table6.** The Correlation between general self-efficacy, specific self-efficacy and self-regulation behavior

| | General Self-Efficacy | Specific Self-Efficacy | Self-Regulation Behavior |
|---|---|---|---|
| General Self-Efficacy | 1.000 | | |
| Specific Self-Efficacy | .359(.009*) | 1.000 | |
| Self-Regulation Behavior | .224(.111) | .555(.000*) | 1.000 |

* $p < .05$

## DISCUSSION

The average weight of the subjects in this study is 72.4 kg(SD=7.45). The average height of the subjects in this study is 160.2 cm(SD=4.73). The age range in this study is as following: The youngest subject was 18 and the oldest subject was 25, with 59.4 % of the subjects between the ages of 19 and 20. The obese period for the subjects was less than 5 years (46.1 %). The symptoms reported resulting from obesity included overeating, fatigue, shortness of breathe, chest discomfort and arthritis which are similar to those reported by Hong (1995).

The average point for general self-efficacy of the subjects was 2.55 (5 point scale) and specific self-efficacy was 60.16 (100 point scale). These points are similar to the previous study by Hong (1995).

The average point of self-regulation behavior of the subjects was 51(100 point scale) and this value is similar to the previous study by Hong (1995).

The self-regulation behavior of the subjects on drinking, cigarettes smoking, balanced diet, salt intake was rather high, whereas diet pill, regular physical check up, intake of supplementary pill and regular exercise was rather low. The peculiar aspect of the subjects was that no subjects tried some medication for self-regulation behavior and this is the same trend reported previously by Hong (1995). Also we found that a strong correlation existed between self-efficacy and self-regulation behavior. In other words the higher the degree of self-efficacy, the higher execution of the self-regulation behavior (.555). This observation indicates that self-efficacy is a key component in the execution of self-regulation behavior and this observation was reported by other studies (Bernior & Avard, 1986, Campbell. 1990). The same results were observed in cellulites (Han, 1998), in high blood pressure patients (Lee, 1994), in diabetes patients(Koo, 1996) and in arthritis patients(Kim, 1994). Bandura (1977b) emphasized that self-efficacy is the bridging link for self-regulation behavior.

The studies executed abroad showed the same conclusion, i.e., self-efficacy and weight loss(Bernier & Avard, 1986), self-efficacy and quit smoking, self-efficacy and the maintaining the healthy health(Strecher, 1986), diabetic patients and self-efficacy in terms of self-care(Lee. 1999).

The determination to do exercise or keeping up the exercise once started is solely done by self-efficacy as a bridging link (Sallis et al, 1986). In the case of exercise program, the self-efficacy will do the effect of nursing mediation (Martin, 1989). The one who has the higher self-efficacy will try hard to go over the difficult situation, whereas the lower will give up easily (Bandura, 1986).

Thus self-efficacy should be emphasized in weight control programs such that the program will get the desired results (Campbell. 1990).

The obese university female students' weight control program should accentuate the self-efficacy such that self-regulation behavior is enhanced.

## CONCLUSIONS AND RECOMMENDATIONS

The obtained findings are that self-efficacy is strongly correlated with family income. The self-regulation behavior is closely related to the mother's obesity along with family income. The perceived symptoms related to obesity are overeating, fatigue, shortness of breath, chest discomfort and arthritis in the descending frequency order. The obese university female students' average for general self-efficacy was 3.37 (5 point scale) and specific point average was 60.16 (100 point scale). The practice of limiting intake of coffee, cigarettes and wine was the most practiced among the obese students (84 out of a 100-point scale). Reducing the intake of sugar and oily food (64, in 100 point scale), diet (50.9), and stress management (51.6) were reported most often as health related behaviors practiced.

The average point of the subjects on self-regulation behavior is 2.55 (5 point scale), the restriction of intake of cigarettes and wine (3.6), balanced diet (3.12), limitation on food before going to bed(2.92), less salty food in-

take(2.92) and these points show a well performed behavior, whereas diet pill taking(1.36), regular check up(1.52), doing exercise(2.08) and diet supplementary pill taking(1.96) and show a poor performance. There exists the correlation between general self-efficacy and specific self-efficacy. Also the specific self-efficacy and self-regulation behavior show a meaningful correlation.

Our findings show that the obese women students' self-efficacy and self-regulation behavior are strongly correlated. Thus the obese people need the mediation of self-efficacy for the sake of self-regulation behavior. Further study on promotion of health, diet and stress control related self-efficacy program is needed.

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