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Experiences of Health Related Lifestyles in High Body Fat but Non-obese Female College Students in Korea

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Abstract

Objectives: The purpose of this study was to describe and understand the lifestyles of non-obese female college students with high body fat (HBF).

Methods: The interview data were collected from 18 female students [body mass index (BMI) $<$23 kg/m^2 and body fat ratio $\geq$30%] and analyzed by using descriptive phenomenology of Colaizzi. The procedural steps described the phenomenon of interest, collected participants' descriptions of the phenomenon, extracted the meaning of significant statements, organized the meanings into clusters, wrote exhaustive descriptions and then incorporated data into an exhaustive description.

Results: The results in 153 restatements, 36 constructed meanings, 22 themes, seven theme clusters, and three categories were deduced. The three categories were: diminished daily concerns of health, changes in living habits by stressors, and perceived unbalance in health.

Conclusion: This study describes non-obese female university students' experiences with HBF and their lifestyles. The findings have important implications for health promotion for non-obese female university students with HBF and must be considered when developing education courses for preparing adults.

1. Introduction

The issues of 'health and well-being' have been common concerns for all generations and times. Especially, in modern society, these concerns are related to controlling lifestyle and life satisfaction as a concept of well-being [1]. Therefore, well-being is subjective with regards to satisfaction with life and advanced level of health needs in modern society.

Moreover, well-being considers integrative health promotion that includes physical and psychological aspects of nursing care [2]. Generally, people realize the importance of health and its values in middle age and have had experiences of health-related problems. For college students, the concerns are appearance rather than

health. Youths in their college years are sensitive to the latest fashion and try to pursue new ideas. However, the formation of healthy habits would be a good foundation for health and well-being in later years and could lead to a healthy lifespan. Therefore, for youths in their college years, health management must be appealing.

Generally, as we grew older, the ratio of muscle gradually decreases but fat increases. However, in modern society, all for ages it appears that the range of body weight is normal, but the fat ratio is related with activities [3]. Especially when studying and preparing for jobs, college students are more likely to have decreased activities and an increased ratio of body fats. Female college students concerned about looks tend to decrease their weight by food, not by exercise [4]. These tendencies of inactivity in female students can add to body fat.

Romaguera et al [5] reported that physical activity was positively related to eating fruits and vegetables and negatively related to smoking tobacco. Also, Brandao et al [6] reported that female college students tend to be more inactive in the upper grade. Morrell et al [7] identified that the levels of diet and activity were related to the risk of metabolic syndrome. These results revealed that physical activity and diet are related and that activity was a more important variable for health. Therefore, female college students, like adults, are considered to have the same risk factors for health by an inactive lifestyle.

Korean literature includes studies on activities for health promotion [8,9], body weight and satisfaction [10], subjective perception of body image and body mass index [11], and body mass index and activity for health promotion [12]. These studies measured variables by quantitative methods.

However, the Korean domestic national index of health shows that women in their twenties who smoked tobacco had increasing and decreasing practices of healthy activity [13]. Considering the sequence of health care, the impact on lifespan is greatest for women in their twenties. So, female college students with a high body fat (HBF) ratio must be studied. Also, an in-depth meaning of their experiences on lifestyle should be studied for the development of interventions for health promotion.

This paper focuses on non-obese female college students with HBF. The aim of the paper is to describe experiences in lifestyle from their perspective.

2. Methods

2.1. Design

A qualitative exploratory design, Colaizzi's descriptive phenomenology approach was used for this study [14]. Colaizzi's method has been used for identifying common characteristics in participants. Therefore, this method is appropriate for extracting the meaning of common experiences in non-obese female college students with HBF.

2.2. Participants

To measure fatness, the body mass index (BMI) proposed by the World Health Organization was determined [15]. The participants were female college students, aged 21−24 years, with a BMI in the range of 18.5 to 22.9 (mean 21.00 ± 1.70), but a fat ratio >30% (mean 31.07 ± 1.04). They consisted of college juniors or seniors.

2.3. Procedure

For data collection, the purpose and contents of this paper were explained, informed consents were received, and selective samplings were done. The sample group in this paper had normal body weight but had an excessive fat ratio.

The interview was conducted in person by a researcher. The focus of the interview was to determine the participant's experiences. The researchers put aside any biased views and used the method of 'suspension of judgment' and 'square bracket.' They tried to maintain an objective position with regards to the meaning of the participants' experiences.

Due to the rigor of assessment standards [16], the results of this paper ensure confidence and validity. The criteria of rigor were truth, appliance, consistency, and neutrality. There is no additional new data on this study. To obtain neutrality in this study, first analysis data were reanalyzed and reflected on. In addition, the paper was reviewed by a professor with experiences in qualitative research and participants. Through these processes, the results were consistent with regards to experiences.

Interviews started with open questions relating to lifestyle and health. Then, according to the participants' responses, questions were asked such as, a following question, close question, direct question, indirect question, structural question, and silence and interpretative question [17].

The interviews took place from January 2011 to March 2011. The mean duration of interviews was about 40−70 minutes. The interviews were performed about twice with each participant. The contents of the interview were recorded with the participants' consent. Then, the recorded data were transcribed through personal repeated listening. The meanings were then identified.

2.4. Ethical issue

This study received institution ethics approval from the university committee (No: PKNU-201104). Information on the study was placed on a student notice board to recruit participants. Students who were interested were given a brief verbal explanation of the research. They were then given a copy of the consent form, informed that their interviews would be recorded, and asked to return the consent form if they wanted to participate. They were also told of the voluntary nature of their participation and their right

not to be involved or to withdraw from participation at a later stage. Finally, students were offered a computer applied memory device as recompense for their participation.

2.5. Data analysis

Audio recordings and observations were transcribed verbatim. Based on Colaizzi's methods, data analysis was performed by the following:

Step 1: After recurrent listening to recordings, the data was transcribed verbatim. All participants' descriptions of the phenomenon were consisted of a general outline.
Step 2: Among the statement of data, the interested phenomenon of the study spelled out the meaning of each significant statement and reflected the context with deliberation.
Step 3: Significant statements were summarized; 153 restatements by participant's language.
Step 4: From the153 restatements, 35 meanings were extracted. These extracted meanings were compared to original statements by identifying participants' experiences, for validity.
Step 5: A total of 22 themes were identified from previous extracted meanings. Then, seven theme clusters and three categories were organized.
Step 6: An exhaustive description relating themes to the interested phenomenon was written.

Step 7: For the essential structure of the study, there was a return to the participants for validation of the description. Eighteen participants identified each description and agreed with extracted themes by the study.

3. Results

Seven theme clusters were integrated to three categories as follows (Table 1).

3.1. Diminished daily concerns of health

Usually, health concerns are affected by environments. Cases of infectious diseases, or individuals with experiences of diseases in the family, are more sensitive to health. However the participants in this study had no special events related to health. They were female students concerned about their appearance. They were all susceptible to fashions and freely exercised their own will. They considered themselves to be adults and changed their lifestyle flexibly.

The participants stated that they had concerns about their figures and desired to be slim. Although they had no concerns about health, they were perceived to have a high ratio of body fat through body composition testing. On discovering this, they reflected on their lifestyle relating to health. Finally they realized that they had no regular habits or exercise regimes; they were inactive

Table 1. Categorizing by Colaizzi's methods

	Categories	Theme clusters		Themes
1	Diminished daily concerns of health	Recurring inactive living patterns	▶	Adhering on living in sedentary way
			▶	Computer-based life style
			▶	Having irregular sleeping patterns
		Forming of irregular diet patterns	▶	Dieting on carbohydrate foods
			▶	Going without breakfast
			▶	Hydrated with caffeinated water
2	Changed living habits by stressors	Ineffective sleeping patterns	▶	Sleeping long time to forget
			▶	Staying on their own space
			▶	Thinking for oneself to solve the problems
		Changing diet patterns by popular foods	▶	Settling with Smoking or Drinking
			▶	Stimulating with sweated foods
			▶	Leading to binge-eating
3	Perceiving on unbalanced health	Having difficulties on thinking with positive	▶	Having dazed frequently
			▶	Feeing with chronic tiredness
			▶	Perceiving on insufficient sleep
		Perceiving on unbalanced body types	▶	Stopping exercises with long periods
			▶	Decreasing on muscle ratio
			▶	Dieting with shocking methods
		Perceiving on life style related disease by physical symptoms	▶	Having irregularities on menstrual patterns
			▶	Having stomach symptoms
			▶	Having skin troubles
			▶	Diminished the amounts of urine

with irregular dieting habits. They agreed that their health concerns were decreasing daily.

3.2. Recurring inactive living patterns

"Over 20 years, I have rarely been concerned about health. I have a high ratio of body fat at present because I have neglected my health over the years. I usually have no time for exercise. I only walked to university, taking about 15 minutes daily (P1)".

"I realized my body fat increased because I stopped exercising, as I studied in my lab, worked all day at experiments in the standing position, and worked on a thesis and read papers in the seating position. The more time I spent using the computer, the more fat I developed (P17)".

3.3. Forming irregular diet patterns

"Even though I skipped meals, I had some food at times (P4)".

"I usually have vacuum food and like Korean noodles, gimbab (dried seaweed rolls), and fried foods. My meal time is the time to be hungry. My diet follows an irregular pattern; I usually eat out and skip breakfast daily, while eating at night when working (P7)".

3.4. Changed living habits by stressors

The participants had problems such as studies, friendships, and other relationships. These stressors can be settled over time. However, these positions affect lifestyle.

Students perceived they have more stressors with social relationships than of their own. These stressors impact on activities and diet patterns in daily lifestyle. Especially, introverted students tended to block external relationships and take nutritional unbalanced foods as they please.

Settling stress included: sleeping, staying in their own place, smoking, drinking, sweet foods or binge eating. The more stressful the life, the more irregular the diet patterns.

3.5. Ineffective sleeping patterns

"I always keep late hours. Because I slept only 4 hours at night, I feel tired at ordinary time…in fact, I felt some tiredness as a deficit of sleeping rather than as a deficit of exercising. During exam periods, I stayed up until six in the morning and fall asleep for 3 hours. (P11)".

3.6. Changing diet patterns by popular foods

"When I am stressed, I take snacks and cookies instead of three meals. I usually take cold foods and fast foods. When I drink at night, I skip breakfast. Also, for the sake of concentration, I always take two cups of coffee a day. I seldom drink water, but drink soda (P18)".

3.7. Perceptions on unbalanced health

Participants perceived that their unbalanced body image led to unbalanced health. Although they did not gain weight, they realized their potbelly looks. These unbalanced body types reflected body compositions, including high fat and low muscle amounts. They had symptoms such as a dazed mind and chronic tiredness, which led to difficulties in thinking. They experienced sleep deficiency and dozing in class resulted in a loss of physical rhythms. This leads to limited positive thinking and gloomy moods.

Such psycho-emotional factors and changed body images caused physical symptoms perceived as an unbalanced health. More than half of the participants experienced irregular menstrual cycles. Other physical symptoms reported were gastric ulcers and stomach symptoms due to periodically overeating and fasting diets, skin troubles due to a deficit in sleeping and smoking, etc. Participants realized their physical symptoms resulted from their lifestyle and were willing to regain their healthy habits.

3.8. Having difficulties on positive thinking

"I always felt of tired due to deficits in sleeping. A night working and day sleeping pattern caused to broken biorhythms, so I was tired during the daytime and had a heavy head (P3)".

3.9. Perception on unbalanced body types

"I had been not exercising well… but I was shocked to see my body composition which was composed mainly of fat not muscle, and I had more abdominal fats (P4)".

3.10. Perception on lifestyle related disease by physical symptoms

"I took little water, but had coffee, tea and alcohol. So, I lacked an intake of water and had a low frequency of urine. Moreover, I ate little fruit and vegetables, but drank soda and smoked cigarettes, causing visits to the dental clinic. I was shocked that my lifestyle was not good for health (P1)".

4. Discussion

The participants' experiences of health-related lifestyle revealed: diminished daily concerns of health, changed living habits by stressors, and perceptions of unbalanced health. These theme clusters correlated with each other and consisted of experiences in health related lifestyle.

Firstly, high-fat but non-obese female students experienced 'diminished daily concerns of health', revealing inactivity and unbalanced diet patterns. Their only activity was walking to school and they recognized the deficits in activity. However, they stated they have no time to spare for exercise. Moreover, they eat foods at irregular times when they feel hungry. Also, the contents of their diet were centered on carbohydrates, such as sweets, bread, noodles, and so on. These tendencies of diet and activity were experiences of diminished daily concerns of health. They stated that 'I was not careful of health due to the increase of body fat. I did not think about calories of foods and I did not arrange a time to exercise'. The higher grade, the less the activity and the students stayed longer in a laboratory or in the library preparing for jobs. When they are available, they are searching on computers. Other studies have reported on the relationship of the inactivity of female college students with binge-eating habits [18] and drinking alcohol [5]. These previous studies identified relations between factors in an unhealthy lifestyle and obesity. In comparison, the results of this study described the meaning of properties in lifestyle experiences. Thus, the result of diminished daily concerns of health reveals recurring inactivity in lifestyle and formation of unbalanced nutrition diet patterns. Also rather than the relation of individual variables, an integrated single theme cluster on diminished daily concerns of health reflects on female college students positions.

The second theme category, 'changed living habits by stressors' reveals an experience that consisted with ineffective sleeping patterns and dieting with junk foods. The students tried to overcome stresses in their own ways. Stressors in the study directly changed sleeping patterns. The participants stated they had better concentration at night. They tried to settle stress with popular foods such as sweets and alcoholic drinks. It is identified that stress effects on lifestyle lead to unbalanced biorhythms in female students. Domestic research reported that sleeping time is positively related with physical activity and negatively related with calorie intake [19]. This fact provides reasonable grounds, in this paper, that an ineffective sleeping pattern is related to high calorie intake and inactivity and to an increased ratio of body fat. However, the difference in this study is that the sleeping pattern in relation to lifestyle is a direct factor, resulting in changed dietary habits.

The final theme category, 'perception on unbalanced health' was experiences of having difficulties in positive thinking, perceptions on unbalanced body types and perceiving a lifestyle-related disease by physical symptoms. Theses changed lifestyles were related with frequently using the computer, deficits in sleeping time, and fatigue, which resulted in changed thinking patterns including a sense of being dazed. Participants noticed a changed body type with a potbelly but no weight increase. Symptoms revealed to be related with lifestyle were menstrual syndrome, gastric ulcer, dental problems, and skin troubles. These symptoms usually accompany emotional problems. Previous studies reported risks of cardiovascular disease [20] and metabolic syndrome [7]. In a domestic study, 30% of body fat was estimated as a risk point of cardiovascular disease for women [21]. Such an objective index provided grounds that subjective data in this study would be valuable.

In the context of unbalanced body types, individuals in their twenties have great concerns about body image. Participants wanted to be skinny beauties, but with a healthy body through a controlled lifestyle. However, changed lifestyle leads to gaining body fats. With relation to a previous study it was reported that female students with a normal range of body weight have a negative body image [22]. It is the same connection as with the pursuit of external value in the body, but has differences in that participants used various methods to influence body image and perceived an unbalanced body type for themselves.

Older students have more unbalanced health because of academic work, related stress, and inactivity in daily life. It finally becomes fatness. To overcome desiring body image, they skipped meals and substituted with favorite foods. These factors brought about overeating and fasting habits, which can result in gastroesophageal reflex and gastric ulcer. These are physical symptoms of a so-called lifestyle disease. Korean domestic medical research has reported the positive relations with gastric disease [23], and risks of metabolic disease [24] in high-fat and non-obese female individuals. Moreover, in psychological aspects, females in their twenties tend to have a self-concept which depends on others [25].

As considered above, the lifestyle of females in their twenties and related psychosocial and physical characteristics have resulted in unbalanced health. In this paper, previous variables were integrated to describe common experiences specifically, which helped to gain an understanding. As a result, three themes extracted were inter-related and gave an understanding of unbalanced health in HBF but non-obese female college students.

This paper has provided a grasp on the lifestyle choices of female college students who are high fat but non-obese through a phenomenological approach. In conclusion, they experienced diminished daily concerns of health and changed living habits by stressors, and so had symptoms with psychosocial and physical problems,

which they tried to overcome by perceptions on unbalanced health.

This study considers high-fat women as individuals with a potential risk of cardiovascular diseases. Therefore, based on these results, the contents of an intervention program will be included that induce daily health concerns and have perceptions on the relation of stressors and lifestyle. This intervention research needs to help re-set their lifestyle-related disease and develop a health promotion competency program.

Conflicts of interest

The author declares no conflicts of interest.

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