Journal of Endocrinology, Tropical Medicine, and Infectious Disease (JETROMI)
Journal homepage: https://talenta.usu.ac.id/jetromi

The Effect of a Health Behavior Modification Model on Lipid Profile and Body Fat of Educational Personnel

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ARTICLE INFO
Article history:
Received December 20, 2023
Revised January 19, 2024
Accepted April 04, 2024
Available online May 13, 2024

E-ISSN: 2686-0856
P-ISSN: 2686-0872

How to cite:
Thienkaew N, Sriyabhaya A, Arsapakdee K. The Effect of a Health Behavior Modification Model on Lipid Profile and Body Fat of Educational Personnel. Journal of Endocrinology, Tropical Medicine, and Infectious Disease (JETROMI). 2024 May 13;6(2):75–81. DOI: 10.32734/jetromi.v6i2.15821.

ABSTRACT
Background: The health behavior modification model program addresses diet, exercise, and nutritional depletion on lipid profile and body fat can improve the causes of chronic disease. The purpose of this study was to determine the effects of a health behavior modification model on the blood lipid profile and body fat levels of educational personnel.
Method: This study's five-month data collection timeframe for this study (during the COVID-19 pandemic condition) was from October 2021 to March 2022. Participants are educational personnel of Kasetsart University, Kamphaeng Saen Campus with dyslipidemia (The National Cholesterol Education Program criteria)., aged 19 years and older, both males and females. The inclusion criteria are cholesterol over 200 mg/dl LDL-C over 100 mg/dl triglycerides more than 150 mg/dl or HDL-C less than 40 mg/dL. The satisfaction with the health behavior modification model KPS-FEE, which consisted of 6 activities: K (Knowledge), P (Produce), S (Support), F (Food), eat well, E (Exercise), exercise and E (Emotion), relax and feel good. The subjects were satisfied with the health behavior modification model at a good level (mean score 4.13 ± 0.47).
Result: The sample group consisted of 31 personnel by volunteer selection. The mean scores for cholesterol, fat mass, and abdominal fat levels decreased significantly ($p < 0.05$) after the experiment. Although there were no statistically significant differences, the participants' values tended to improve.
Conclusion: Health behavior modification will improve a person's health and happiness, and their ability to perform more effectively can be used in other departments with similar environments and job requirements.
Keywords: Body Fat, Blood Lipids, Healthy Behavior Changes

https://doi.org/10.32734/jetromi.v6i2.15821

1. Introduction

The condition known as hyperlipidemia raises the risk of atherosclerosis, which eventually results in cardiovascular disease. Blood lipid levels are low and blood vessels are clear when an individual is born. The artery wall is free of fat. On the other hand, aging and poor lifestyle choices also lead to the accumulation of fat on the arterial walls. It is a condition in which the arterial system has elevated blood fat levels. A low level of triglycerides (TG), a high level of low-density lipoprotein cholesterol (LDL-C), and a low level of high-density lipoprotein cholesterol (HDL-C) are observed in the blood arterioles, which may be indicative of one or more disorders. [1]. Total cholesterol levels in the United States should be around 200 mg/dL. Low-density lipoprotein cholesterol (LDL-C) should be less than 100 mg/dL. High-density lipoprotein

cholesterol (HDL-C) should be greater than 40 mg/dL and triglycerides should be less than 150 mg/dL. Based on the 2019–2020 6th Survey of Thai People's Health by Physical Examination [2-3]. The average total cholesterol level of Thai adults aged 15 and older was 210.1 mg/dL, with the highest in men and women between the ages of 30 to 44 and 45 to 59. The average blood sugar level was 150.9 mg/dL, with men having higher levels (169.0 mg/dL) than women (134.0 mg/dL), with men aged 30 to 44 having the highest levels (192.6 mg/dL) and women aged 60 to 69 having the highest levels (151.0 mg/dL). Health-related habits should be modified to lower the LDL-C to a healthy level, decreasing the chance of health problems [4]. For example, exercise has been suggested to enhance the ability of the skeletal muscles to use lipids, thus allowing for better control of plasma lipid levels [5]. Although it is the responsibility of each person to develop a strategy for changing bad health habits, it is clear today that the component of health status perception is significant and impacts behavioral practice due to the awareness of health issues. Hence, when adults are conscious of their health, they are more motivated to adopt a healthy lifestyle [6-7]. The personal development health service supports community activities and supervision by providing monitoring and evaluation by relevant parties; it is believed to be effective in providing ongoing, consistent development for a group of working-age individuals and assisting in promoting and changing health-related behaviors for educational employees. research on behavior modification from an emotional and behavioral standpoint. Observing them in action can teach someone new things. Individual variables are the fundamental component of SCT, acting as both a change agent and a reversible change agent. Therefore, changing the environment through lobbying and modeling can help promote healthy behaviors [8], the SCT theory has been used as an inspiration for a program to enhance physical activity for subjects starting in early adulthood based on the findings of numerous studies. Self-control (also known as self-regulation) and self-efficacy make up the personal aspect. The next factor that contributes to increased physical activity is the workplace environment [9-14]. By European standards aimed at increasing physical activity and reducing sedentary behavior, a minimum of 150 minutes of moderate to intense physical exercise has to be accomplished every week. Information received until the summer of 2012 from 37 countries was analyzed. Sixteen countries did not have national recommendations while 21 countries did. For 17 countries, the source document was accessible. Seventeen recommendations referred to adults, 14 to young people, and 6 to older adults. Most national recommendations for children and young people are quite similar: 12 countries recommend at least 60 minutes of moderate to vigorous-intensity PA each day, in line with the WHO global recommendation. Three countries recommend longer durations and one a lower one. In some countries, slight variations were found regarding the recommended intensity and minimum bouts. Only one country was fully in line with the WHO recommendations. Two countries have issued separate recommendations for preschool children. For adults, most countries still follow the 1995 United States recommendations of "at least 30 minutes on 5 days a week". The six identified national PA recommendations for older adults are mainly similar to those for adults but underline that particularly for this age group less activity has important health benefits; four countries also recommend balance training [15]. It is evident from the foregoing that altering health-related behaviors, such as exercise and diet, improves health and reduces the chance of developing serious illnesses. It lowers the cost of medical care significantly. The researcher has recognized the importance of developing a model to change health behavior modification to support education professionals and ensure the excellent health of educational workers. As a result, a model for modifying the health behaviors of educational staff was created, and the Social Cognitive Theory (SCT), which took into account individual aspects, served as the study's theoretical framework. The Departments at participating educational institutions' environmental and behavioral aspects. The study's findings can be as a guide to control and lower blood cholesterol levels in the future by changing the health behaviors of employees with dyslipidemia. The purpose of this study was to study the effects of a health behavior modification model on education personnel's blood lipid and body fat levels.

2. Method

2.1. Study design

A sample of 31 participants educational personnel with dyslipidemia, aged 39 years and over, both males and females from Kasetsart University, Kamphaeng Saen Campus, volunteered to participate in this study, with hyperlipidemia according to the criteria of the National Cholesterol Education Program [3]. The inclusion criteria are cholesterol over 200 mg/dl bad blood lipids (LDL-C) over 100 mg/dl triglycerides more than 150 mg/dl or good blood fat (HDL-C) less than 40 mg/dl. Written informed consent was obtained from all the participants after they had been informed about the study's details, purpose, and procedures The Human

Research Review Panel approved the study. Kasetsart University, Kamphaeng Saen Campus to conduct research according to the project code KUREC-HS64/007 on June 15, 2021, Certificate of Research Ethics No. COA No. COA64/038

2.2. Procedures

A health behavior modification model for educational staff was developed from social cognitive theory (SCT), and validated, using tools and quality validation of research instruments. Content validity by three professionals, including behavior specialists, Health in the community, and physical activity with the heads of 6 campus departments, the Index of Concordance (Item Objective Congruence: IOC) was 0.97, and it was evaluated for suitability for actual use. High levels of appropriateness were present.

2.3. Collecting Data Process

This study's five-month data collection timeframe for this study (during the COVID-19 pandemic condition) was from October 2021 to March 2022. The procedures were as follows: before the experiment, test blood lipids and body fat and join the line application group to participate in activities during the program experiment; health-related behavior workshop; the researcher will guide the physical activity practice between 10.30 and 3.00 p.m. for the first three months, and then in the final three months, the researcher will force the participants to complete their exercises; and exercise after work, at 5:30 p.m. For the course of the experiment, the researchers and research assistants engaged in two days a week of 30-45 minute online physical activity using the Zoom program; an appointment was scheduled for the sample after the five months so that blood work could be done, body fat could be measured, and an evaluation could be performed; the researcher set up a casual interview with online participants to evaluate the program and gauge satisfaction online; the researcher gathered the best modifications to reward talent; and compare the health behavior change model results before and after participation in addition to interview data for additional statistical analysis.

2.4. Statistical analysis

Statistical calculations were performed using SPSS 25 [16]. The data were expressed as mean ± standard deviation (SD). Data normality was evaluated by using the Shapiro-Wilk test. Wilcoxon Signed Rank Test analyzed the obtained data—before-and-after comparisons. A P value of <0.05 was considered to be statistically significant.

3. Results

The general characteristics and baseline measures of the 31 subjects in the educational personnel with dyslipidemia are presented in Table 1.

Table 1. Characteristics of the educational personnel with dyslipidemia.

Characteristics	Educational Personnel (n=31)
Age (yrs)	36.5 ± 6.7
Weight (Kg)	66.01 ± 17.79
Height (Cm)	165.43 ± 6.43
BMI (Kg/m^2)	23.36 ± 4.32

BMI = Body Mass Index

The comparison fat mass before use was 19.99 kg, and after use was 18.93 kg. The mean visceral fat before use was 8.19 units. After use, it was 7.42 units. The mean cholesterol level before use was 221.35 mg/dl, which was in the middle range. It was in the middle range after use, equal to 204.90 mg/dl. The triglycerides before use were 99.39 mg/dl; after use, 107.39 mg/dl was in the appropriate criteria found that after the experiment, the mean scores for cholesterol, fat mass, and visceral fat levels before and after using the format the values decreased significantly at the .05 level. There was no statistically significant difference. However, the average tends to improve (Table 2).

Table 2. Effects of using a health behavior modification model.

Characteristics	Before (n=31)	After (n=31)	Z	P-value
Weight (kg)	66.01 ± 17.79	64.34 ± 15.78	1.421	0.078
Fat Mass (kg)	19.99 ± 8.72	18.93 ± 7.88	1.894	0.029*
Body Fat Percentage (%fat)	29.64 ± 8.23	28.90 ± 7.99	1.421	0.076
Visceral Fat Rating	8.19 ± 4.21	7.42 ± 4.01	1.835	0.033*
Cholesterol (mg/dl)	221.35 ± 52.86	204.90 ± 52.86	2.440	0.007*
LDL-lipoprotein (mg/dl)	150.03 ± 47.13	129.77 ± 37.75	3.489	0.051
HDL- Lipoprotein (mg/dl)	51.45 ± 12.01	53.68 ± 12.46	1.212	0.113
Triglyceride (mg/dl)	99.39 ± 56.75	107.39 ± 56.00	1.635	0.000*

*P<0.05 before vs. after 5 Months

The satisfaction with the health behavior modification model "KPS-FEE" had an overall mean score of 4.13, at a good level. The sample group had the highest score satisfaction. The average value was 4.36, a training activity to educate and understand changing health behaviors (Table 3).

Table 3. Shows the mean and standard deviation of the satisfaction with the health behavior modification model of the sample group.

No	Information	Mean	S.D.	Level
1	Training activities to communicate and explain changing health-related behaviors	4.36	0.49	Good
2	Operational training efforts to inform and better understand health issues related to food consumption and activities	4.29	0.53	Good
3	Physical fitness assessment Analyze your exercise. Use the Thai Happiness Indicator to measure happiness and work effectiveness	4.21	0.69	Good
4	Using information on food consumption and physical activity to improve day-to-day living	4.11	0.63	Good
5	Researchers and activity leaders provide guidance and foster a supportive environment for changing health behaviors throughout working hours and breaks.	4.18	0.86	Good
6	Activity "Researchers and activity leaders give advice and build an atmosphere to modify health behaviors after work"	4.14	0.52	Good
7	Using social media platforms like Line Application to communicate, broadcast, follow, urge, and encourage (promote)to continue actions until they become a behavior is the activity of "providing reinforcement and support."	4.14	0.71	Good
8	Activity "Promote awareness and make news and information available that will help people improve their behavior, such as videos, posters, etc."	3.96	0.64	Good
9	Support organizations to create or modify a setting that encourages altering health practices.	3.64	1.03	Good
10	Improvements in physical activity under the guidance of a specified and controlled program.	4.04	0.92	Good
11	Activities for relaxation in groups (included in online class)	3.93	0.86	Good
12	Mostly satisfied with the research program	4.54	0.51	Good
13	Average Score for Satisfaction	4.13	0.47	Good

4. Discussion

In this study, the subjects were satisfied with the health behavior modification model at a good level (mean score 4.13 ± 0.47). This methodology for changing behavior where each step builds on the one before is good results, according to Bandura [8]. Using the ideas of the cognitive-social learning theory and human behavior in three connected areas: personal elements environmental factors, and persistent behavior. Utilizing ideas and techniques from the collection of knowledge the research into how emotions and behavior interact. Used in counseling to avoid sickness. The external temptation components being tactile can help to raise awareness. For people to alter their behavior, such as behavior modification by utilizing the

empowerment process as a technique to encourage involvement in the lookout for behavioral change patterns. In the community for good health. It was discovered that the activity's implementation took six months. The model of behavior modification that the researchers this time adopted. Applying successful outcomes to the educational staff at the Kasetsart University, Kamphaeng Saen Campus, which consists of individuals involved in the supervision, administration, and management of educational processes as well as other practitioners who assist with the study. Daily chores have low levels of physical activity, little movement, and a pattern of repetition, and technological advancements in today's society lead to increased use of resources for study personnel's work. If such a type of physical activity continues to do it continuously from month to year and continuously for many years, what will follow is a high risk of health problems. It is a chronic non-communicable disease (NCD) such as diabetes, cardiovascular disease, high blood pressure, abnormal blood fat levels, degenerative joint disease, etc [17]. Unhealthy eating habits and other activities are the primary cause, of stress, inactivity, and other variables that are significant detractors of life quality [18]. The effects on the body, mind, emotions, society, and economy. Loss of expenses for self-care. It Affects both the body and the mind, and it also lowers productivity at work, and health issues hence, behavior change is crucial for improvements in personal health. This corresponds to Kanyamee et al. [19], who have worked with local authorities to identify a pattern to alter their eating habits. It consists of activities for a campaign on food safety. The training in food testing for health effects of consuming food and avoiding hyperlipidemia demonstration of cooking Ji Gong and aerobic dancing exercise lowered cholesterol and LDL levels statistically considerably after project participation, according to the 6-month model. Similar to Boonyasopun et al [20], show how elderly people with hyperlipidemia can control their body weight, body mass index, and fat storage in the body by learning more about food, exercise, and physical activity.

For the educational personnel to be capable of quality adaptation and willing to do so to set a positive example for students in all areas and to get along with all types of students. Also, the role in carrying out obligations in all areas of teaching and learning education professionals who serve as community leaders must deal with a range of issues that inevitably impact their health [18]. The fundamental factor in harmful behavior is the main reason for food consumption, inactivity, stress, and other factors [21]. Healthy behaviors are important, and since childhood, adjustments must be made universities, in particular, should cultivate their students through their educational institutions. Food and beverage consumption patterns are essential behaviors that should be changed for optimum health. Exercise, stress reduction, quitting smoking, and alcohol consumption are all examples of behaviors for senior citizens [22]. Food, exercise, and emotions are the three key factors. Personal competency is developed through healthy practices for sustainably preserving their health. Stakeholders construct a health literacy model to encourage healthy behaviors by promoting health literacy with a V-shape [23]. The workers are in good health as well as the excellent National Cholesterol Education Program [24] and World Health Organization [17], recommended that managing blood sugar and fat levels is crucial for diet and exercise. When combined with aerobic activity, the traits mentioned above do provide information on cholesterol levels and decreased blood levels of low-density lipoprotein. Dietary habits can regulate blood lipid levels to be at the proper level. This will lessen the frequency and severity of problems that result in mortality [25].

The sample group in the experiment utilizing the health behavior modification model of educational staff "KPS-FEE" discovered that triglycerides, total cholesterol, LDL-C, and good HDL-C were all greater than normal in the blood, generally only one value to avoid long-term health issues, this set of educators has to alter their behavior. Diabetes and cardiovascular disease are examples of Non-Communicable Diseases (NCD). A decrease in abnormal blood fat levels and an improved physical performance use the body to do different activities effectively [26-27]. Low-sugar fruits and vegetables that are suitable, and eat between 55 and 60 percent of the energy received [28-29], should decide to eat the proper amount to satiate bodily needs. Eat no more than 7% of your energy in saturated fats. Energy consumed as linoleic acid 7–10% and oleic acid 10-15% of the energy supplied, ingest linoleic acid 0.5% to 1% of the energy received as well as trans fats since it will result in high blood levels of LDL-C and also lower HDL-C levels [30].

The subjects had a noticeable improvement in total cholesterol, and bad fat decreased and increased good fats fraction of triglycerides (TG) has not found a good change. Exercise lowers triglyceride and cholesterol levels, increases good fat levels, and increases fibrin breakdown [31-33]. The experimental group had the mean after training in the interval walking program, it was discovered in research of the impacts of the training. There was a statistically significant improvement in physical fitness that was able to lower blood pressure, low-density cholesterol, triglycerides, and high-density lipoprotein cholesterol are all increased [34]. However, to develop the rehabilitation and promotion of Healthy Aging Park, found that most of the subjects had congenital diseases (54.86%) such as high cholesterol, males increased their physical fitness in leg strength and females' back flexibility, leg strength, and arm strength [35]. The budget savings will also

result from developing knowledge media and promoting data encouraging behavioral change, such as posters or video clips given through the application, which satisfy the sample group and are practical for engaging in activities. Includes being inspired or motivated by accolades such as those given to exceptional workers regarding physical activity and health, etc. These are significant elements that will support and encourage the change in healthy behavior [36].

5. Conclusions

The study's findings support the "KPS-FEE" paradigm, the K (Knowledge), P (Produce); S (Support); F (Food); E (Exercise); and E (Emotion) element—covers all dimensions, calm and pleasant. The researcher created this period as a task with elements in every dimension. It makes it possible for the transformation of health behavior to occur. A person should practice it frequently until it becomes ingrained in their habits. It will improve a person's health and happiness, and their ability to perform more effectively can be used in other departments with similar environments and job requirements.

6. Acknowledgments

This research was carried out under the Human Research Review Panel. Kasetsart University, Kamphaeng Saen Campus to conduct research according to the project code KUREC-HS64/007 on June 15, 2021, Certificate of Research Ethics No. COA No. COA64/038. The authors declare that they have no conflicts of interest in this study. All applicable ethical guidelines involving humans as subjects were followed, and informed consent was obtained from all participants involved in the study.

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