

RESEARCH ARTICLE

Effect of Web-supported Health Education on Knowledge of Health and Healthy-living Behaviour of Female Staff in a Turkish University

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Abstract

Background: Once limited with face-to face courses, health education has now moved into the web environment after new developments in information technology. This study was carried out in order to give training to the university academic and administrative female staff who have difficulty in attending health education planned for specific times and places. The web-supported training focuses on healthy diet, the importance of physical activity, damage of smoking and stress management. **Materials and Methods:** The study was carried out in Sakarya University between the years 2012-2013 as a descriptive and quasi experimental study. The sample consisted of 30 participants who agreed to take part in the survey, filled in the forms and completed the whole training. The data were collected via a "Personel Information Form", "Health Promotion Life-Style Profile (HPLSP)", and "Multiple Choice Questionnaire (MCQ)". **Results:** There was a statistically significant difference between the total points from "Health Promotion Life-Style Profile" and the total points from the sub-scale after and before the training ($t=3.63, p=0.001$). When the points from the multiple choice questionnaire after and before training were compared, it was seen that the average points were higher after the training ($t=8.57, p<0.001$). **Conclusions:** It was found that web-supported health training has a positive effect on the healthy living behaviour of female staff working at a Turkish university and on their knowledge of health promotion.

Keywords: Health promotion - health improvement - healthy life style behavior - university staff - Turkey

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Introduction

Health behaviour is what a person believes in and what she/he does in order to stay healthy and prevent diseases. Healthy life style behaviour aims to improve an individual's general health and well-being; it's not something that aims to avoid a certain disease or disturbance. It is clearly expressed that many health problems are now due to an inactive life style and lack of particular attitudes and behaviours towards health (Arslan and Ceviz, 2007).

The easiest way to implement changes in health behaviour of the individual is health training (Karadeniz et al., 2008). Health training which aims to supply people with health knowledge, behaviour, attitudes and habits has a key role in every effort of making up a healthy society. Therefore, health training enables to eliminate false beliefs about health, to bring people healthy behaviour and to make use of present sources efficiently and rationally for the well-being of individuals and society (Karadokavan and Aslan, 2010).

To have a healthy structure is the aim of all communities. Target strategies such as "Health for all by the year 2000, 21 targets in the 21st century" have been declared. The most distinctive aspect of these targets and strategies are that they focus on "health promotion". In Health 21, the 11th issue talks about the aim that communities adopt a healthy life till 2015 (Aktan ve Isik, 2013). According to the estimates of World Health Organization (WHO), 70-80 % of the deaths in developed countries and 40-50% of the deaths in developing countries are because of the diseases that occur due to the life styles. The individual's own attitude and behaviours have a great role in the formation of these diseases. In the epidemiological studies, it is detected that half of the death causing diseases are because of health damaging behaviours (Vural, 1998; Dickey and Janick, 2001). This situation highlights the importance of improving life styles on preventing diseases and health promotion (Zaybak and Fadiloglu, 2004; Ozveren et al., 2013).

When people adopt a healthy life style, they start a healthy diet, their intellectual capacity grows, they avoid

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cardiovascular diseases, their immunity increases, they keep their normal weights and they have the power to cope with stress appropriately (Guler et al., 2008). It is essential to know how a person perceives and controls his/her own health behaviours in order to bring in new behaviours. Once limited with face-to-face education, health education has now been moved to the web environment by the improvements in information technologies (Demir and Gozum, 2011). Web-supported health training means making use of web opportunities to inform the individual, the family and the society about health behaviour.

This study was conducted in order to give the academic and administrative women university staff, who have difficulty in attending health education with a schedule of time and place, an opportunity to access knowledge whenever and wherever they can. Through this way, they would be able to reach the information 7 days a week, 24 hours a day on the web environment, and they would learn easier with the help of audio-visual materials. With this study, which was on healthy diets, physical activity and its importance, damages of smoking and stress management, it was aimed to give information to the participants and contribute to a healthy community.

Materials and Methods

Descriptive and quasi experimental study was carried out at Sakarya University between 2012-2013. The study was started after the necessary consent was obtained from Sakarya University Rectorate. The universe of the study consists of academic and administrative women staff who worked at Sakarya University. In order to establish the sample group, the research was announced by the information and communication coordinatorship via e-mail to the university academic and administrative women staff. A total of 44 women staff checked in to participate in the study on a voluntary basis. The participants who had been working at the university at that time, who could use computer, who had a computer connected to the internet either at home or at work, who had accepted to participate in the research, and had filled the forms related with the research and completed the training. However sampling had been limited with 30 participant due to the number of women who has filled the form entirely and completed the training within three months.

The data were collected via a "Personal Information Form" which included 11 questions that were prepared by the researchers themselves, "Health Promotion Life-Style Profile" which measures the individual's health behaviours and a multiple choice questionnaire to evaluate the knowledge on health promotion. Personal Information Form includes items on age, occupation/faculty-department, years of experience, educational status, marital status, and if they have any children.

Health Promotion Lifestyle Profile (HPLSP) is originally developed by Walker et al. (1987) and it consists of six factors and 48 items. It is used to evaluate the individual's health promoting behaviours related with a healthy life-style (Walker et al., 1987). The scale was translated into Turkish by Esin (1997) and its validity and

reliability were confirmed. The original scale was renewed in order to have higher alpha efficiency levels, its subscales were revised and it was renamed as "Health Promotion Lifestyle Profile II" (Walker and Hill-Polerecky, 1996). It was translated into Turkish by Bahar et al., (2008) and its validity and reliability were confirmed. It consists of six factors and 52 items. By Health Promotion Lifestyle Profile, it is questioned how often a participant performs health promoting behaviours. The scale is a 4-point Lickert Type scale in which 1 stands for "never", 2 stands for "sometimes", 3 stands for "often" and 4 stands for "regularly". The lowest point is 52, and the highest is 208 (Bahar et al., 2008).

The scale has six sub-dimensions and the lowest and highest points for these dimensions are listed as; health responsibility (3,9,15,21,27,33,39,45,51), physical activity (4,10,16,22, 28,34, 40,46), nutrition (2,8,14,20,26,32,38,44,50), self-actualization (6,12,18,24,30,36,42, 48, 52), interpersonal support (1,7,13,19,25,31,37,43,49) and stress management (5,11,17,23,29, 35, 41,47).

-The lowest point is 9, the highest is 36 for health responsibility,

-The lowest point is 8, the highest is 32 for physical activity,

-The lowest point is 9, the highest is 36 for nutrition,

-The lowest point is 9, the highest is 36 for self-actualization,

-The lowest point is 9, the highest is 36 for interpersonal support,

-The lowest point is 8, the highest is 32 for stress management sub-scales.

In a study that was carried out by Bahar et al. (2008) the Alpha reliability coefficient of the scale was 0,92; the Alpha reliability coefficient of sub-dimensions was between 0.64-0.79. In this study, however, cronbach alpha coefficient of the scale before the web-based training was .95, and it was .96 after the training. Alpha reliability coefficient of sub-dimensions for the scale before the web-based training was between 0.60-0.89 and and it was between 0.63-0.92 after the training. Multiple Choice Question (MCQ) test consists of 20 questions prepared by the researchers in line with the literature, in order to evaluate the knowledge on health promotion and improvement (Healthy diet-10 questions, physical activity and its importance-5 questions, damages of smoking and stress management- 5 questions). Each question in MCQ is one point. The maximum points one could get is 20 points. (Table 1).

In the study that was carried out by "Sakarya University Women Enquiries Practice and Research Centre", a web site was prepared aiming to inform the participants and it was activated. The study was conducted through the web-site <http://www.saukam.sakarya.edu.tr/>.

The participants filled in a Personal Information Form, Health Promotion Life-Style Profile (HPLSP) and a 20-question-multiple choice questionnaire before the training which measures the knowledge on health promoting behaviours, on the website. The training on health promotion and improvement was accomplished in 3 modules. Three weeks were given for each module.

Table 1. Multiple Choice Question (MCQ) Test

For each given question select the single best answer from the choices provided (A&E)

1. Some minerals cause cancer while some of them have a protective effect against cancer. Which of them are not among the cancer causing minerals?
 - a) Lead
 - b) Cadmium
 - c) Arsenic
 - d) Asbestos
 - e) Calcium
 2. Which of them is an unchangeable risk factor for coronary diseases?
 - a) Obesity
 - b) Stress
 - c) Physical Activity
 - d) Family history
 - e) Excessive alcohol consumption
 3. Which of them is true for cholesterol?
 - a) Normal cholesterol rate should be below 200 mg/dl
 - b) Normal cholesterol rate should be below 300 mg/dl
 - c) Normal cholesterol rate should be below 290 mg/dl
 - d) Normal cholesterol rate should be below 50 mg/dl
 - e) None
 4. Which of them is not true for the proteins?

Aminoacids are organic molecules containing nitrogen.

 - a) Proteins consist of the combination of amino acids.
 - b) Like carbohydrate and lipids, proteins consist of carbon, hydrogen and oxygen. Their difference is that they contain nitrogen.
 - c) They are not among basic building materials of the cells that make up our bodies.
 - d) Enzymes are necessary for all the functions of cells like reproducing and functioning.
 - e) The enzymes are also made of proteins.
 5. Which of them is true for the definition of abdominal obesity for the women?
 - a) Having a waistline of > 80 cm
 - b) Having a waistline of > 94 cm
 - c) Having a waistline of >102 cm
 - d) Having a waistline of >88 cm
 - e) Having a waistline of >74 cm
 6. Which of them is not one of the factors that causes cancer?
 - a) Wrong eating habits
 - b) The use of cigarette and alcohol
 - c) Physical activity and active lifestyle
 - d) Stress
 - e) Exposure to intense sunlight
 7. Which of them is true for the body-mass index in the definition of obesity?
 - a) Having body-mass index over 30
 - b) Having body-mass index between 25 and 29.9
 - c) Having body-mass index over 40
 - d) Having body-mass index between 31 and 35
 - e) Having body-mass index under 25
 8. Which of them describes a high rate of cholesterol?
 - a) Being under 200
 - b) Being between 200 and 239
 - c) Being between 200 and 499
 - d) Being under 239
 - e) Being 240 and over 240
 9. Which of them expresses the normal rates of systolic blood pressure and diastolic blood pressure?
 - a) Being between 120mm Hg and 80mmHg
 - b) Being between 140mm Hg and 90mmHg
 - c) Being between 160mm Hg and 100mmHg
 - d) Being between 100mm Hg and 60mmHg
 - e) Being between 90mm Hg and 90mmHg
 10. Which of them is true for the calculation of body-mass index?
 - a) Obtained by dividing the weight by the square number of height
 - b) Obtained by dividing the weight by height
 - c) Obtained by dividing square number of weight by height
 - d) Obtained by dividing square number of weight by square metre of height
 - e) None
 11. Which of them is not among the advantages of physical activity?
 - a) It decreases the risk of catching chronic diseases
 - b) It improves self-confidence, coordination and attention skills
 - c) It enhances the strength, flexibility and endurance
 - d) It is not effective on regularizing the appetite
 - e) It improves the anatomic posture
 12. Which of them is not one of the problems caused by inactivity?
 - a) Fatness
 - b) Obstruction of the artery walls by fat
 - c) Hypertension (High blood pressure)
 - d) Muscle and skeleton problems
 - e) Problems related with sensory organs
 13. Which of them is among general health rules?
 - I. Normal blood pressure
 - II. Ideal Blood Lipid
 - III. Keeping the stress under control
 - IV. Healthy eating habits
 - V. Avoiding cigarette and alcohol
 - a) I-II-IV
 - b) I-III-IV-V
 - c) IV-V
 - d) II-IV-V
 - e) I-II-III-IV-V
 14. Which of them is false for the increasing and decreasing values in regular exercising?
 - a) An improvement is observed in general state of health
 - b) An increase is observed in bone density
 - c) An increase is observed in the quality of posture
 - d) A decrease is observed in maximal oxygen consumption
 - e) A decrease is observed in the risk of heart attack
 15. Which of them defines the regular and repetitive physical activity?
 - a) Exercise
 - b) Sports
 - c) Aerobics
 - d) Gymnastics
 - e) Step
 16. Which of them is not an effect of smoking?
 - a) Infarction (Obstruction of arteries)
 - b) Mental and physical fatigue
 - c) It does not effect the sense of smell
 - d) Reduction in fertility
 - e) Stomach cancer
 17. Which of them is not seen in smoking teenagers?
 - a) They have a low school success
 - b) They have difficulty in gathering attention
 - c) They have muscle weakness
 - d) Their chest circumference expands
 - e) They have short statures
 18. Which of them is not above the differences that occur after quitting smoking?
 - a) 20 minutes later, blood pressure and heart rate becomes normal, peripheral circulation improves.
 - b) 8 hours later blood oxygen level becomes normal, the risk of heart attack decreases.
 - c) 24 hours later, the body purifies from carbon monoxide
 - d) 48 hours later, blood nicotine level decreases, sense of taste and smell begins to decrease.
 - e) 72 hours later, respiratory tract and lungs begin normal and regular functioning.
 19. Which of them is not among causes of stress?
 - a) Loneliness
 - b) Noise
 - c) Low self-confidence
 - d) Anxiety
 - e) Happiness
 20. Which of them is not one of the ways of coping with stress?
 - a) Breathing exercises
 - b) Regular eating habits
 - c) Physical activity
 - d) Self-motivation
 - e) Avoiding from expressing problems
- Answers: 1-e, 2-d, 3-a, 4-c, 5-a, 6-c, 7-a, 8-e, 9-a, 10-a, 11-d, 12-e, 13-e, 14-d, 15-a, 16-c, 17-d, 18-d, 19-e, 20-e

The first module was about the relationship between nutrition and health, and it consisted of 54 slides. 40 slides were on nutrition elements, 22 slides were on

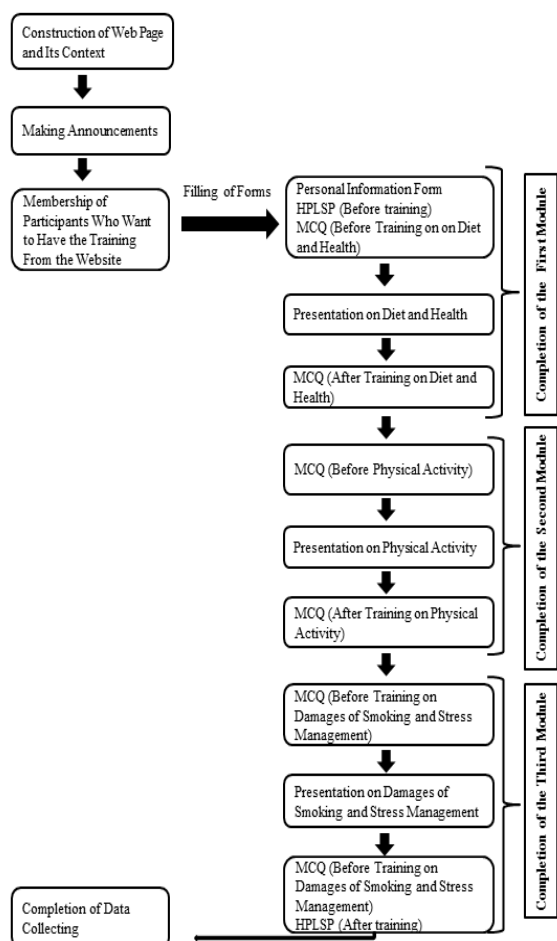


Figure 1. Data Collection Flow Chart

Table 2. Characteristic Features of Participants (n=30)

Characteristic Features	n	%	
Age	18-25 age	4	13.3
	26-32 age	17	56.7
	33-45 age	6	20.0
	46-55 age	3	10.0
Professional experience	1-5 year	15	50.0
	6-10 year	7	23.3
	11-15 year	4	13.3
	16-20 year	2	6.7
	20-25 year	2	6.7
Marital Status	Single	14	46.7
	Married	16	53.3
Having Any Children	Yes	13	43.3
	No	17	56.7

Table 3. The Results the Comparisons for HPLSP(total and sub-scales) and MCQ between Before and After the Training (n=30)

		Before Training Mean±SD	After Training Mean±SD	t	p-value
HPLSP	Health Responsibility	21.10±5.54	23.60±6.15	-3.00	0.005
	Physical activity	16.63±5.33	19.20±5.25	-3.14	0.004
	Nutrition	20.70±3.90	23.47±3.41	-3.79	0.001
	Self-Actualization	27.03±4.14	29.70±4.26	-3.33	0.002
	Interpersonal Support	25.27±4.66	27.67±4.66	-3.08	0.004
	Stress Management	18.87±3.64	21.20±4.56	-2.53	0.017
	Total Scale Score	129.60±22.56	144.83±24.62	Mar-63	0.001
MCQ		14.37±2.53	18.70±1.80	-8.57	<0.001

*Health Promotion Lifestyle Profile; Before training; n:30, Scala α: 0.95; After training; n:30, Scala α:0.96

cooking and preserving, which were all prepared by the researchers. The second module was on physical activity and it consisted of 67 slides, and the third module was on damages of smoking and stress management, which consisted of 71 slides. These three modules were presented to the participants in an audio-visual environment. It was possible to watch, print and download these presentations. The training materials were available 7 days a week and 24 hours a day. The whole training lasted for 3 months. When the training was over, the participants refilled the forms of “health-promotion life style profile” and “multiple choice questionnaires” in the website.

Results

All the participants were women staff and 13.3 % of them (n=4) were between 18-25 years of age, 56.7% (n=17) were 26-32 years old, 20 % (n=6) 33-45 years old and 10 % of them (n=3) were 46-55 years old. A total of 50 % (n=15) of the participants had been working for 1-5 years, 53.3 % (n=16) of them were married, and 43.3 % (n=13) of them had children.

There was a statistically significant difference between “Health Promotion Life-Style Profile” total points and the sub-scale total points before the training and after the training (Table 3).

The mean score from the MCQ before training was 14.37±2.53 (min.=10, max.=19), after training it was 18.70±1.80 (min=12 max=20). MCQ scores of the participants before and after training were compared and it was seen that mean score after training was higher and the difference between the two was statistically significant (t= 8.57, p<0.001) (Table 3).

Discussion

Web-supported health education aims to make use of web environment in informing the individual, the family and the society in order to bring positive attitude and raise awareness about healthy life style behaviours. In this study, the effect of web-supported health education on the healthy life style behaviours of university women staff and their knowledge on health promotion was studied. The high points from “Health Promotion Life Style Profile” indicate that the individual has quite a lot of positive health behaviours. It was detected that before training HPLSP mean score was 129.60±22.56. Studies

carried out in Türkiye, concerning women's healthy life style behaviours, were also scanned. In a study conducted by Altay (2006) on married women between the ages of 15-49, it was found out that HPLSP mean score was 124.6 ± 17.9 . In Arslan and Ceviz's (2007) study on housewives' and working women's obesity prevalences and their healthy life style behaviours, HPLSP total score average was detected as 122.05 ± 20.78 . In the study conducted by Özkan and Yılmaz (2008), it was detected that mean score of healthy life style scale of nurses working at a hospital was 125.96 ± 16.99 . In Sonmezer et al.'s (2012) study, HPLSP total score average was detected as 126.8 ± 19.2 . In the study conducted by Yalcinkaya et al. (2007), it was stated that mean score of healthy life style scale of health staff was 121.85 ± 18.05 . Kocoglu and Akin (2009), in their study to evaluate the socioeconomic inequalities and to put forward the relationship between socioeconomic inequalities and healthy life style behaviours and life styles, found out that mean score of healthy life style scale of women were 112.2 ± 19.1 . In all these studies, it is seen that the scores from healthy life style scales and scores before training are similar. In Bektas et al.'s (2010) study, Students' mean HPLP scores were 122.7 ± 21.7 before training while it was 128.1 ± 20.3 after the training. Ay et al. (2012) study female students' HPLP scores were 124.5 ± 18.6 .

With this study which aims to bring healthy living awareness, attitudes and habits to the participants, a training on healthy diet, physical activity and its importance, damages of smoking and stress management was given on web environment. After the training it was seen that healthy life style scale scores of the study group rose to 144.83 ± 24.62 . This score was higher than the mean score of pre-education activities. It was detected that the difference between pre-education and post-education scores was statistically significant. As a result it was concluded that our training on the sample group and our methods had a positive effect on healthy life style behaviours.

The MCQ scores of the study group before and after training were compared and it was seen that the mean scores after training were higher than the mean scores before training, and the difference between them were statistically significant. This result showed that the training and the method had a positive effect on the participants' knowledge and behaviours on improving their health. When different studies conducted on web-based health education on different groups were examined, it was seen that web-based health education had a positive effect on health behaviours (Scherrer-Bannerman et al., 2000; Swartz et al., 2006; Bennett et al., 2010; Avdal et al., 2011; Bozkurt et al., 2011; Capik and Gozum, 2012).

The web site prepared for this study was not an interactive site but an informative one. In the literature, it is stated that it can increase the success if the participants are able to communicate with the web page creator and the other users. It can be suggested that similar studies on this subject would be planned taking this issue into consideration. Our study was conducted among university staff, so the participants had a high level of education and similar levels of income. Thus, the result of the study can

not be generalized.

In conclusion, it was evaluated that web-based health education had a positive effect on healthy life style behaviours of women staff working at Sakarya University and on their knowledge of health protection. Health education has a key role on every effort for making up a healthy community. This method would be useful for the people who have difficulty in attending classes on health which have a scheduled time and place.

Acknowledgements

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