

The effect of education on nutrition style and Body Mass Index (BMI) on employed women in Iran University of Medical Sciences

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Abstract

Background: Much effort regarding practices for promoting health is underway nowadays. Health professions, previously being therapy-oriented, are now focused on prevention and providing health via improving lifestyles and eliminating factors that have adverse effects on public health. The aim of study is determining the effect of education on nutrition style and body mass index in employed women in Iran University of Medical Sciences (IUMS).

Methods: As a semi-experimental and interventional study, 200 volunteers were with recruited. The data collecting tool was the life style questionnaire. To analyze the inputs using SPSS software, we were used difference means, Chi-Square test and the paired t-test for forward method.

Results: The results showed that more than 51.4% of women were obese and overweight before the educational intervention that decreased to 48.5% after education. Education improved nutrition style in 72% of women.

Conclusion: The results showed education had a beneficial effect on nutrition style. Regarding the fact that education entails a national intention and a detailed program that could only be implemented by the contribution and the support of the ministry's administrators, we draw the attention of the administrators and planners of IUMS towards planning and policy making in this direction.

Keywords: Body Mass Index, Nutrition style, Education

Introduction

Much effort regarding practices for promoting health is underway nowadays. Health professions, previously being therapy-oriented, are now focused on prevention and providing health via improving life styles and eliminating factors that have adverse effects on public health [1]. In 2001, the American Heart Association has regarded lifestyle as an important risk factor for mortality and morbidity in the United States, and argues that about 70% of all physical and mental diseases are due to lifestyle [2].

Lifestyle and especially nutrition style is regarded an effective factor in the incidence of chronic diseases such as diabetes, hypertension, some cancers and vascular diseases. Thus, the responsibility degree and the personal preferences of individuals during their lifetime considerably affect their lifestyles [3].

The World Health Organization claims that the worldwide increasing prevalence of obesity has endangered the health of many people, and a chronic obesity trend is seen in both developed and developing countries [4].

Increasing income and improving public health in different countries make the world epidemiological transition and changes lead in new challenges facing health systems [5].

Changing nutrition style has a beneficial effect on obesity in 20% of the population in Western societies. According to reports from the World Health Organization (WHO), global epidemic obesity threatens the general health of traditional populations [6].

In Iran, about 29% of urban and 17% of rural adults over 40 years old are suffering from overweight and obesity; which reveals the effect of lifestyle and on BMI. In addition, about 40% of Iranian population takes more food than they really need, and the consumption rate of carbohydrates and fats are 40% and 30% more than real need, respectively [7]. Moon showed that there were associations between higher BMIs, and the odds ratio of hypertension with diabetes mellitus [8]. Wilsgaard showed a significant correlation between different factors of lifestyle and BMI in women [9].

Sartorelli showed the risk of glucose impairments in the Japanese population residing Brazil tends to increase, and that implementing educational programs for determining their nutrition style was considered necessary and very important [10]. Azadbakht survey showed effects of consuming soy protein on diabetic nephropathy [11].

Educating women with the aim of promoting their health is of considerable importance. In fact, education is a process which both affects on and is affected by individuals' lifestyle and social environment [12]. The educational strategy is also considered economically cost effective. In other words, \$3-4 is saved in the national health costs for each dollar spent on educating individuals or patients [13].

Regarding the important role of women in families who have numerous responsibilities both at home and at their workplace, implementing a healthy lifestyle promotes their general health and families. The results of the present research and also of subsequent researches may effectively guide implementing preventive programs for modification of the nutrition style of Iranian women.

Method

As a semi-experimental study with one group with pre and post education the present research was performed in the central organization and the different faculties of IUMS. The test had a 95% confidence interval and 80% potency. We hypothesized that our intervention should decrease BMI by at least 1 degree for the effect of education to be considered statistically significant. Thus, the sample size was determined to be 200 subjects. It should be mentioned that on the basis of similar studies, the standard deviation for nutrition style was estimated to be 2.5 Self-reporting (via a self-performing questionnaire).

The data collecting tool was the Life Assessment Quality (LAQ) consists of 14 questions; LAQ was developed in 1979 by NWI (Nation Wellness Institute) and (Healthier People Network), and validity and

reliability was reported in 1979 and 1989, respectively. Consequently, in 1989 NWI declared that this questionnaire was valid. Therefore, this questionnaire in connection with the functions and methods related to health behaviors of people with different age groups, announced valid [14] and exists in the community health nursing reference book, also Iran University of Medical Sciences used it from six years ago, and every classification was selected randomly. At the first time the weight and height of women was measured and the BMI was calculated. Then they asked to complete LAQ educational booklet about their nutrition style. After 2 months, we asked them again complete LAQ by the self-performing method. It should be noted that essential guidelines were rendered to the subjects by face-to-face interview. During two-month period in which the educational booklet was presented to the women, the researcher made a telephone call to them biweekly and also gave them her phone number so they could call her and ask any questions regarding educational booklet. Inclusion criteria were women who had at least one year employment background and currently be an employee of Iran University of

Medical Sciences, exclusive criteria were: being pregnant and presence of any severe or chronic diseases. Informed written consent was taken from all participants. Descriptive statistical methods were used for analyzing the subjects' data on the basis of the scores of nutrition style. We were used the paired t-test for measuring the effect of education on nutrition style and comparing it to the pre-educational period; and the t-test was used for comparing the subjects' scores obtained before and after education in each group. The SPSS software (version 14) was used for data analyzed. P-value less than 0.05 were considered as significant.

Results

The results of the present study revealed that 70.5% of women were married, 44.5%, of them were 34-44 years old, 28.5% were faculty member, 43.5% had two children, that the maximum children's age was 5-9 years. Regarding the levels of education, 26% of them were BS, 21% MS and 13.5% Ph.D. Also 69% of them used contraceptive pills. Before and after education responses are summarized in Table 1.

Table1- Frequency distribution of nutrition style before and after educational intervention in women employees of IUMS

| Nutrition style | always | | Most of the time | | often | | Some times | | never | |
|---|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|
| | Before education | After education | Before education | After education | Before education | After education | Before education | After education | Before education | After education |
| | No (%) | No (%) | No (%) | No (%) | No (%) | No (%) | No (%) | No (%) | No (%) | No (%) |
| 1-I used low fat when selected animal protein like meet, poultry and fish | 79 38% | 84 42% | 74 37% | 77 15.2% | 40 20% | 30 3.5% | 10 5% | 7 3.5% | 0 0 | 0 0 |
| 2-I'm maintaining my weight according to height and size | 29 14.6% | 47 23% | 47 23.7% | 55 28% | 61 30.8% | 58 29.4% | 39 19.7% | 23 12% | 22 11.1% | 15 7.6% |
| 3-I reduce Amount of salt consumption | 56 28.1% | 17 36 | 50 25.1% | 58 29% | 49 24.6% | 39 19.86% | 29 14.6% | 23 11% | 15 7.5% | 8 4% |

| | | | | | | | | | | |
|--|--------------|-------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|
| 4-Daily I use fruit and raw vegetables | 56 29.9% | 37 39% | 56 29.6% | 65 33% | 56 28.6% | 43 21.8% | 25 12.8% | 13 6.6% | 1 0.5% | 0 0 |
| 5-evrey day I eat breakfast | 115 58.1% | 117 60% | 26 13% | 31 16% | 23 11.6% | 18 9.2% | 30 15.2% | 14 2.7% | 4 2% | 3 1.5% |
| 6-Daily I used foods with high fiber like vegetables, fruits and grains can withstand | 37 17.7% | 60 30% | 63 31.8% | 69 35% | 59 29.8% | 46 24.7% | 38 19.2% | 19 9.6% | 1 0.5% | 1 0.5% |
| 7-I Drink enough water, that my urine color be pale yellow | 56 28.1% | 7 3.5% | 49 24.6% | 18 9.1% | 57 28.6% | 37 18.7% | 24 12.1% | 72 36% | 13 6.5% | 64 32% |
| 8-I check my diet program adequate vitamins & minerals | 30 15% | 41 21% | 44 22% | 50 25% | 55 27.5% | 54 27.3% | 18 24% | 39 20% | 23 11.5% | 14 7.1% |
| 9-I use amount White flour and food products prepared from it like (pasta and bread) to a very low | 23 11.6% | 31 16% | 41 20.6% | 56 28% | 73 36.7% | 81 41.1% | 47 23% | 23 12% | 15 7.5% | 6 3% |
| 10-I use at daily diet four food group fruit vegetables, protein, and bread | 47 23.6% | 70 36% | 72 36.2% | 67 34% | 55 27.6% | 44 22.4% | 25 12.6% | 15 7.7% | 0 0 | 0 0 |
| 11-I consumed Vegetable fat in the least amount | 65 33.3% | 44 22% | 50 25.6% | 66 33% | 50 25.6% | 52 26.3% | 19 9.7% | 25 13% | 11 5.6% | 11 5.6% |
| 12-I consumed Animal fats in the minimum amount. | 56 28% | 70 36% | 43 21.5% | 59 30% | 73 36.5% | 43 21.4% | 22 11% | 25 7.1% | 6 3% | 11 5.6% |
| 13-I drink Water as Consumption | 17 35.9% | 81 41% | 54 27.3% | 69 35% | 43 21.7% | 27 13.8% | 22 11% | 12 6.1% | 8 4% | 7 3.6% |
| 14-I used at the present least sweet foods like syrup marmalade and candy fast foods | 41 20.6% | 44 22.4% | 58 29.1% | 73 37% | 64 14.6% | 47 24% | 29 14.6% | 27 14% | 7 3.5% | 5 2.6% |

Number of cases 200

Table 2- Frequency distribution of body mass index (BMI, kg/m²) before and after educational intervention in women employees of IUMS

| <div>After education</div> <div>Before education</div> | Classification of BMI after education | | | | | | | | Total Sum | |
|--|---------------------------------------|---|------------|------|------------|------|------|------|-----------|-----|
| | < 20 | | 20 – 24.99 | | 25 – 29.99 | | ≥ 30 | | | |
| Classification of BMI | n | % | n | % | n | % | n | % | n | % |
| < 20 | 10 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 12 | 6 |
| 20 – 24.99 | 2 | 1 | 80 | 40 | 2 | 1 | 0 | 0 | 84 | 42 |
| 25 – 29.99 | 0 | 0 | 7 | 3.5 | 63 | 31.5 | 2 | 1 | 72 | 36 |
| ≥ 30 | 0 | 0 | 0 | 0 | 7 | 3.5 | 25 | 12.5 | 32 | 16 |
| Total Sum | 12 | 6 | 89 | 44.5 | 72 | 36 | 27 | 13.5 | 200 | 100 |

15 person (8%) after education BMI had decreased

Before education 16.2% and after 13.1% women were obese (Table 2). The changes of nutrition status after education had more effective on the women aged 35-44 years with 3.1 ± 8.4 and the most changes were on BMI after education on nutrition style with 4.2 ± 9 that had 2 children.

Educational Measurement had improved nutrition style and reduced BMI in 72% of the employed women. The score of nutrition style were increased on comparative BMI (Mean and SD) before and after education (35.6 ± 8.9 vs. 39.2 ± 9.4 , $P < 0.05$).

Discussion

The results revealed that before and after education, 57% and 60% of participants always had breakfast, respectively. In this regard, English researchers have declared that having a complete breakfast may be the mainstay for maintaining appropriate body weight in mid-age [15].

The results of this study showed education were effective for improving salt consumption. Li had suggested that dieting with 6 grams decrease in daily salt consumption could reduce 250 calories after one week [16].

In addition, based on the researchers' findings, consuming yoghurt has a beneficial effect in patients on a weight-losing diet. In an interventional research on obesity and overweight in Sanandaj city (Iran) women had shown the effect of yoghurt consumption on losing weight and reducing BMI [17].

The results of this study showed the relationship between age and BMI of women before and after education as well as the relationship between BMI and number of their children.

The results of Azadbakht study showed higher prevalence of obesity among adults aged 20 to 70 years in Tehran [18]; which was in accordance with Jeffery research [19].

In addition, the prevalence of obesity in Iranian women is higher than Saudi Arabian women and lower than Kuwaiti women [20]. This difference may be due to the difference in economic status of different nations and regions, in factors related to lifestyle and culture, and also due to the different limits determined for obesity. To some extent, this difference had been reported in study of dietary patterns associated with economic status of Arab women living in Ahvaz [21].

Perhaps the difference of economic situation was one of the limitations of this research; nevertheless, lifestyle factors and women's sociocultural status were one of the strengths of this study. It is recommended further studies in the field of lifestyle and cultural factors related to nutrition focused on food and food-frequency in the women.

We resulted that education affected on nutrition style and BMI in employed women; accordingly, Cheng [22] And Wilsgaard reported the effectiveness of educational program on the BMI [9].

Esteghamati *et al.* reported the preventive importance of education on community health; which has attracted much attention in recent years and emphasizes that lifestyle is the basis of socioeconomic development, and the problem of nutrition style is a multifactorial one and is rooted in many developmental areas such as education and demography [23]. In this sense, nutrition style is considered as one of the important factors in prevention of obesity and should be attended in policy makings.

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