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A controlled intervention study of changing health-providers' attitudes toward personal lifestyle habits and health-promotion skills

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Abstract

Objective: Data regarding health providers' personal lifestyle and the differential effect of a short-term personal lifestyle experience intervention program on health providers are limited.

Methods: We conducted a controlled study aimed at changing personal attitudes toward lifestyle habits among 323 health professionals: 136 (42%) physicians, 140 (43%) dietitians, and 47 (15%) nurses and health promoters. In the intervention group ($n = 209$) individuals participated in a 2-d intensive self-experience workshop in an isolated location emphasizing healthy lifestyle and behavior-modifying techniques. Intervention and control groups were followed for 6 mo.

Results: At baseline, avoidance of salt, *trans*-fatty acids, saturated fats, and processed meat was more frequent among dietitians ($P < 0.05$ versus physicians). The physicians reported a lower intake of olive/canola oil, nuts/almonds, dietary fibers, vegetables, and fruits ($P < 0.05$). Furthermore, physicians reported lower confidence in lifestyle primary prevention and felt less useful engaging in health-promotion activities ($P < 0.05$ versus other health professionals). After 6 mo, waist circumference decreased in the intervention group (-1.3 versus $+1.8$ cm in control group, $P < 0.01$). The effect was more prominent among physicians. A modest differential effect of the intervention program was shown in health-promotion activities.

Conclusion: Approaches toward primary prevention can be improved by an intervention program focusing on personal changes of health care providers. Physicians who are less likely to personally adhere to and believe in lifestyle primary prevention are more likely to benefit from this platform.

Keywords: Lifestyle habits; Health promotion; Health providers; Personal change

Introduction

Health promotion is considered an important element of the health-professional role; however, it appears that health professionals (particularly physicians and nurses) frequently lack the skills, confidence, and time to provide advice regarding healthy lifestyle modifications to their patients [1–7]. Therefore, it is important to provide such professionals with the appropriate skills and knowledge to engage in health promotion more readily with their patients. Although several studies have evaluated the attitudes of medical students toward primary prevention [8,9], less knowledge is available regarding similar attitudes of senior health professionals.

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Previous studies have indicated that physicians may engage healthier lifestyles than the general public [10], even when compared with other individuals of high socioeconomic status [11]. Practicing a healthful behavior was shown to be the most consistent and powerful predictor of physicians counseling patients about related prevention issues. For example, an association was found between physicians' fat consumption and their likelihood to counsel patients about lowering cholesterol through lifestyle changes [12]. Therefore, one of the strategies used to promote confidence among health professionals is by focusing on the individual, being the health professional, as the source of change. Based on this strategy, we developed an original and unique program model designed to empower health professionals in delivering health-promotion counseling through personal experience by modifying their own lifestyle behavior [13,14].

The aims of the present study were to describe the differences in health behaviors and attitudes toward health promotion among different health professionals before and after a short behavioral intervention program.

Materials and methods

Study population

Cardiologists, primary care physicians, dietitians, nurses, and health promoters were recruited from all parts of Israel. Initially a list of potential candidates was provided by the two major health maintenance organizations in Israel (Clalit and Maccabi Health Services), which together provide services to more than 80% of the population. Individual letters were sent to each of the candidates offering participation in a 2-d intensive self-experience workshop in an isolated location emphasizing healthy lifestyle and behavior-modifying techniques (intervention group, $n = 209$). In parallel, we enrolled a control group of cardiologists, primary care physicians, dietitians, nurses, and health promoters ($n = 114$) who agreed to participate in a 6-mo follow-up study. Each participant signed an informed consent and completed a baseline questionnaire that was designed for the purpose of the present study.

Participants were not randomly assigned but both groups were recruited from the same sources. The study was approved by the local ethics advisory board.

Intervention program

Each of the participants in the intervention group participated in a 2-d workshop, including an overnight stay.

Description of intervention conducted in small-group sessions

The intervention was delivered by psychologists and social workers trained in group facilitation and experimental learning. The program was based on theories of experimental learning and Bridges' model of change [13,14].

1. *Acquaintance.* During this 15-min phase, participants divulged their attitudes toward physical activity. Special emphasis was put on the interdisciplinary differences in their attitudes toward physical activity. The purpose of this phase was to familiarize the professionals with the putative patient attitudes.
2. *Dealing with resistance/barriers to physical activity.* It was assumed that resistance would emerge. We added the assumption that resistance is likely to be similar among staff and patients.

   Role-playing. Participants were observed during role-playing. The sessions were analyzed and new strategies were offered to the participants. Part of the role-playing session was conducted using a professional actress. The encounters included patient–dietitian, patient–family physician, and patient–cardiologist.

   After the role-playing, participants were asked what they thought was the meaning of food for their patients. Participants then elicited their own reaction to the meanings observed. The key topics in this session were dealing with resistance and the initiation of change. The skills emphasized in this session were "in-depth listening," assertiveness, building trust, and communication.
3. *A small change in me.* This was the key component of the workshop. It was aimed to confront each participant with that participant's reaction to change. The process began with identifying a desired change and considered a wide range of changes, from professional behaviors to health-related behaviors.
4. *Intimate group discussion and conclusion.* Participants were divided into groups of four to discuss their insights and take-home messages from the intervention, followed by a plenary meeting that concluded these sessions.

The program also contained evidence-based lectures, demonstrations, and active participation in activities aimed at promoting healthy forms of physical activity (instructed walking, yoga, dancing) and making healthy dietary choices.

The program is presented in Table 1. Participants assigned to the control group did not receive any health-promoting activities as part of the study.

Evaluation of intervention program

The impact of the program on the participants' attitudes and behavior was assessed by a questionnaire that was administered at baseline and after 6 mo to the intervention and control groups.

The questionnaire included the following sections:

1. Demographic characteristics including age, gender, profession, and years of experience (7 questions).

Table 1
Personal-change experience intervention platform—a 2-d workshop

Plenary lectures
Physical activity and health—an effective prescription
Diet and obesity evidence-based knowledge and practical approach
Concept of prevention as change and the power of the group—psychological views
Workshop—session I
Physical activity as a formula for success and persistence
Mock encounters were conducted by professional actors
Healthy cooking with a physician chef and a dietitian; actual cooking was shown on stage with the collaboration of the participants
Recipes were developed by a dietitian and their characteristics were described to the participants
The good and the bad fat—implementing one personal small change
Mock encounters conducted by professional actors
Workshop—session II
Night activity
Latin dancing classes: participants were taught several popular types of dance including salsa, rumba, and tango
Early morning activities
High-performance walking with a special athletic trainer
Introduction to yoga
Plenary lecture
Toward a new science of health and wellness
Workshop—session III
Interdisciplinary expectation management in the context of healthy lifestyle change; emphasis on prevention
One small change in me
Attitudes and positions of the participants toward a change were discussed
Healthy cooking

2. Eating habits and physical activity of the participants (24 questions).
3. Attitudes toward disease prevention activities (10 questions).
4. Attitudes toward health-promotion activities (9 questions).
5. Personal anthropometric measurements including weight, height, and waist circumference as measured by the participants (3 questions).

The answers for most of the questions in the questionnaire were continuous to detect and quantify changes over time. For example, physical activity was assessed by measuring hours per week. Eating habits were assessed by various questions such as "Do you avoid consumption of *trans*-fatty acids . . ." answered on a scale of 0–100%. Attitudes toward primary prevention were evaluated by a list of "says" such as "95% of diets fail" using a scale of 0–10 (agree = 10, disagree = 0).

The questionnaire was pretested on 12 health professionals (4 physicians, 5 dietitians, and 3 nurses) for its internal consistency.

Data analyses

Data analysis was performed using SPSS 15.0 (SPSS, Inc., Chicago, IL, USA). Comparison between groups was conducted using analysis of variance with Bonferroni's post hoc analyses. The effect of the intervention was assessed by comparing the change over 6 mo between cases and controls. $P < 0.05$ was considered statistically significant.

Results

Baseline evaluation

A total of 323 health professionals were recruited for the present study from August 2006 to August 2007. All participants signed an informed consent and completed a baseline questionnaire. The study population included 136 (42%) physicians, 140 (43%) dietitians, and 47 (15%) nurses and health promoters. As presented in Table 2, the groups were significantly different in the distribution of gender; 96% of dietitians were women compared with 63% of physicians and 72% of nurses and health promoters ($P < 0.001$). The nurses and health promoters were older (49 y) than the dietitians (40 y) and the physicians (47 y, $P < 0.001$). Waist circumference among women was significantly smaller among the dietitians (78 cm) compared with 86 cm among the physicians and 84.1 cm among nurses and health professionals ($P < 0.001$).

Table 2
Baseline characteristics across health-provider groups ($n = 323$, entire study population)

Characteristics	Physicians ($n = 136$)	Dietitians ($n = 140$)	Nurses and health promoters ($n = 47$)	P
Women (%)	85 (63%)	135 (96%)	34 (72%)	<0.001
Age (y), mean ± SE	46.8 ± 0.8	40.3 ± 0.9	49.2 ± 1.4	<0.001
Professional experience (y), mean ± SE	17.6 ± 0.9	14.2 ± 0.8	23.0 ± 1.1	<0.001
BMI (kg/m^2), mean ± SE	28.0 ± 1.9	22.8 ± 0.3	26.1 ± 0.7	<0.013
Physical activity (h/wk), mean ± SE	5.1 ± 0.5	5.4 ± 0.5	5.0 ± 0.5	0.4
Smokers (%)	11 (8%)	6 (4%)	3 (6%)	0.37
Waist circumference (cm), mean ± SE				
Women	86.0 ± 1.2	78.0 ± 1.1	84.1 ± 2.0	<0.001
Men	95.3 ± 1.5	92.8 ± 3.6	98.8 ± 2.9	0.46

BMI, body mass index

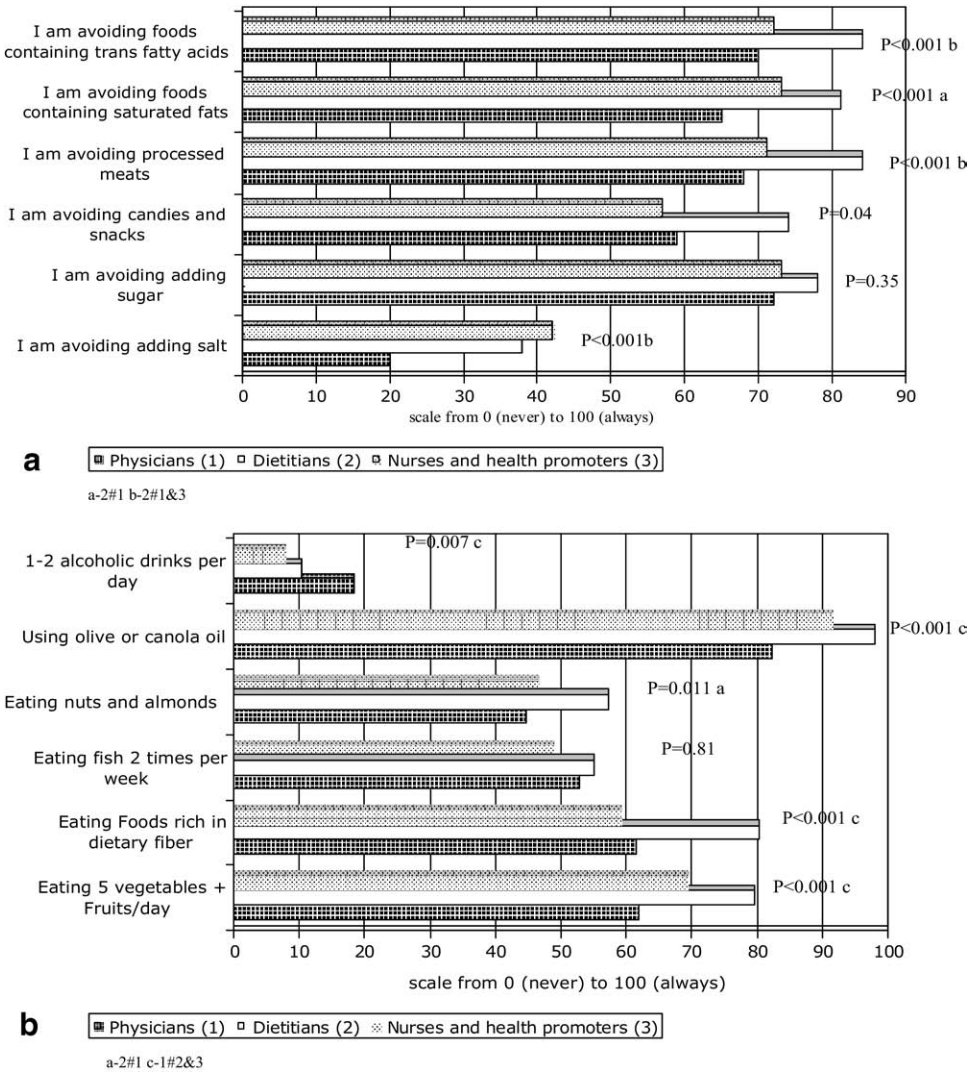

Fig. 1. Personal eating patterns at baseline across health-provider groups (n = 323, entire study population). Negative (a) and positive (b) eating patterns by health-professional groups.

Figure 1 depicts the differences in personal nutritional patterns between groups, classified as restrictive (Fig. 1a; e.g., "I do not consume *trans*-fatty acids") and proactive positive (Fig. 1b; e.g., "I consume fish twice a week") patterns. All three groups reported healthy nutritional patterns. The dietitians reported higher scores for avoiding salt ($P < 0.001$ versus others), *trans*-fatty acids ($P < 0.001$ versus others), saturated fats ($P < 0.001$ versus physicians), and processed meat ($P < 0.001$ versus others). The physicians reported lower consumption of olive/canola oil ($P < 0.001$ versus others), nuts/almonds ($P = 0.01$ versus dietitians), dietary fibers ($P < 0.001$ versus dietitians), and less vegetables and fruits ($P < 0.001$ versus dietitians). Physicians reported a higher consumption of moderate alcohol ($P < 0.007$ versus others).

Personal agreement toward claims related to primary prevention among health providers is presented in Table 3. Physicians tended to agree more with the following claims: "I am not able to convince a 50-y old man to start physical activity" ($P = 0.003$ versus dietitians); "It is not the time to relate to a patient's weight when he comes to the clinic for other reasons" ($P = 0.008$ versus other health professionals); "An obese women aged 50 y old should be treated medically or surgically" ($P < 0.001$ versus others). Physicians tended to agree less with the following claim: "I believe that I can influence my patients to change their lifestyle" ($P = 0.009$ versus dietitians). Dietitians tended to agree strongly with the claim: "It is not my role to convince people to quit smoking" ($P = 0.001$ versus other health professionals).

Health-promotion activities across health-provider groups are listed in Table 4. In general, physicians reported less success in approaching health-promotion activities such as personal instruction on risk factors ($P < 0.001$ versus others), physical activity ($P = 0.025$ versus others), and healthy lifestyle ($P = 0.01$ versus others).

Table 3
Personal agreement with claims related to primary prevention across health providers (n = 323, entire study population)*

Claims (disagree = 0, fully agree = 10)	Physicians (n = 136)	Dietitians (n = 140)	Nurses and health promoters (n = 47)	P
Negative claims				
"I am not able to convince a 50-y-old man to start physical activity"	3.6 ± 3.1	2.4 ± 2.7	3.2 ± 2.9	0.003
"95% of all diets fail"	5.8 ± 3.4	5.4 ± 3.7	4.9 ± 3.6	0.33
"It is not my role to convince people to stop smoking"	1.4 ± 2.7	2.3 ± 3.1	0.6 ± 1.8	0.001
"It is not the time to relate to a patient's weight when he comes to the clinic for other reasons"	2.4 ± 3.3	1.5 ± 2.6	0.98 ± 2.2	0.008
"A 50-y-old woman with a weight of 100 kg should be treated medically or surgically"	3.5 ± 3.8	2.0 ± 2.9	2.0 ± 3.3	<0.001
"Treatment with statins decrease the need for lifestyle changes"	2.0 ± 3.3	2.3 ± 8.1	1.6 ± 2.9	0.82
Positive claims				
"I must be a role model for healthy lifestyle for my patients"	8.61 ± 2.0	9.1 ± 1.7	9.0 ± 3.3	0.21
"I believe in health prevention"	9.5 ± 1.4	9.7 ± 1.3	9.8 ± 0.8	0.29
"I believe that I can influence my patients to change their lifestyle"	8.0 ± 2.0	8.7 ± 2.0	8.2 ± 2.4	0.009

* Values are means ± SDs.

Postintervention evaluation

Participants in the intervention group (n = 209) and the control group (n = 114) were followed for 6 mo. The intervention group included 36.8% (77) physicians, 43.5% (91) dietitians, and 19.6% (41) nurses and other health promoters. The control group included 51.8% (59) physicians, 43% (49) dietitians, and 5.3% (6) nurses and health promoters.

Table 5 summarizes the changes reported by the participants at 6 mo after the intervention versus the control group. After 6 mo, waist circumference decreased in the intervention group (−1.3 versus +1.8 cm in the control group, $P < 0.01$). The effect was more prominent among physicians. Physicians in the intervention group reported a 2.4-cm reduction of waist circumference, whereas physicians in the control group reported a 1.6-cm increase in waist circumference ($P < 0.01$ between changes in the groups). As for the dietitians, both groups reported an increase in waist circumference within 6 mo. However, the increase in the intervention group (0.4 cm) was lower than the increase observed in the controls (2.2 cm, $P < 0.05$ between changes in the groups). The median of changes among dietitians was zero in both groups.

Discussion

In this report we describe the impact of a short intervention program, based on a personal lifestyle experience, on the behavior and attitudes toward healthy lifestyle of a group of physicians, dietitians, nurses, and health promoters. At baseline, all health professionals reported a generally healthy lifestyle. However, dietitians were more likely to report adherence to healthy dietary patterns recommended by national nutritional guidelines. Both groups appeared to benefit from the program as judged by the reduction (physicians) or smaller gain (dietitians) in weight circumference

Table 4
Health-promotion activities across health-provider groups at baseline (n = 323, entire study population)*

"How successful are you in promoting the following activities among your patients?" (successful = 10, not successful = 0)	Physicians (n = 136)	Dietitians (n = 140)	Nurses and health promoters (n = 47)	P
Personal guidance on risk factors (overweight, hypertension)	6.9 ± 2.1	8.0 ± 2.0	6.6 ± 2.4	<0.001
Personal guidance on physical activity	6.7 ± 2.4	7.98 ± 2.1	8.5 ± 11.7	0.025
Promoting healthy lifestyle	6.6 ± 0.4	8.4 ± 1.7	8.5 ± 11.6	0.01
Treatment with nutritional supplements	4.38 ± 3.1	5.2 ± 3.2	4.6 ± 6.9	0.21
Medical treatment to reduce risk factors	7.16 ± 2.5	3.7 ± 3.1	9.1 ± 16.8	<0.001
Referral to another health provider to promote health	6.9 ± 2.5	5.6 ± 2.9	8.3 ± 12.0	0.006
Developing brochures to promote health behavior	5.9 ± 9.2	3.9 ± 3.4	7.4 ± 15.4	0.045
Developing projects to promote health	4.8 ± 3.4	4.5 ± 3.4	8.5 ± 15.4	0.003

* Values are means ± SDs.

Table 5
Differential effect of the personal-change experience workshop on health providers within 6 mo compared with the control group, selected variables

6-mo differences (baseline vs after 6 mo)	Physicians (n = 136)		Dietitians (n = 140)		Nurses and health promoters (n = 47)		Entire group (n = 323)	
	Control	Intervention	Control	Intervention	Control	Intervention	Control	Intervention
BMI (kg/m^2)	1.0 ± 0.3	0.2 ± 2.3	0.5 ± 0.6	−0.8 ± 0.5*	−2.0 ± 1.5	−1.9 ± 2.5	0.6 ± 0.3	−0.6 ± 0.8†
Waist circumference (cm)	1.6 ± 0.6	−2.4 ± 1.6†	2.2 ± 1.1	0.4 ± 1.0*	0	−5.3 ± 3.3	1.8 ± 0.6	−1.3 ± 0.9†
Physical activity (h/wk)	0.3 ± 1.8	0.3 ± 0.7	−0.6 ± 0.6	−1.6 ± 0.9	−0.3 ± 0.5	1.4 ± 1.0	−0.2 ± 0.9	−0.4 ± 0.6
"I personally reduced my saturated fat consumption" (not at all = 0, always = 10)	−1.6 ± 3.7	−5.7 ± 5.0	−5.4 ± 5.5	1.4 ± 2.8*	6.7 ± 12	5.6 ± 8.4	−3.0 ± 2.4	−0.6 ± 2.6
Attitudes and activities								
"95% of diets fail" (agree = 10, disagree = 0)	0.4 ± 0.4	0 ± 0.5	−0.4 ± 0.6	−1.4 ± 1.4	1.5 ± 2.3	0.4 ± 0.9	0.1 ± 0.4	−0.6 ± 0.7
"An obese women 50 y old should be treated medically or surgically" (agree = 10, disagree = 0)	−0.1 ± 0.8	−1.0 ± 0.6	0.7 ± 0.6	−0.2 ± 0.4	−0.3 ± 0.3	0.4 ± 0.6	0.25 ± 0.5	−0.4 ± 0.3
"I believe that I can influence my patients to change their lifestyle" (agree = 10, disagree = 0)	1.1 ± 0.2	0.9 ± 0.3	0.13 ± 0.2	0.4 ± 0.3	−0.25 ± 0.25	1.0 ± 0.6	0.53 ± 1.5	0.67 ± 0.18
"I guide for weight loss" (high = 10, low = 0)	0.09 ± 0.4	1.1 ± 0.3‡	0.7 ± 0.4	0.5 ± 0.2	0 ± 0.7	1.1 ± 0.5	0.4 ± 0.3	0.8 ± 0.2
"I promote a healthy lifestyle" (high = 10, low = 0)	−0.9 ± 1.0	−2.7 ± 2.5	−0.2 ± 0.6	0.9 ± 0.5*	0.3 ± 0.3	0.4 ± 0.9	−0.5 ± 0.5	−0.5 ± 1.0
"I treat with nutritional supplements" (high = 10, low = 0)	1.8 ± 0.6	−1.0 ± 0.4†	−1.1 ± 1.0	−0.1 ± 0.4	−1.5 ± 1.5	−0.4 ± 0.7	0.2 ± 0.6	−0.5 ± 0.3

BMI, body mass index
* $P < 0.05$.
† $P < 0.01$.
‡ $P < 0.1$.

versus the control groups at 6-mo follow-up. Somewhat surprisingly, no change was seen in the amount of weekly physical activity performed by both groups.

Although the changes in the participants' perceived ability to provide health-promoting counseling did not seem to improve appreciably 6 mo after the intervention, some changes were nevertheless noted. Thus, the dietitians reported an improvement in their general ability to provide health-promoting counseling, whereas physicians gained more knowledge and confidence in counseling on the use of nutritional supplements and in promoting weight loss.

In this respect, our study suggests that this type of intervention [13,14], which is based on personal experience of change, might be considered as an effective platform for empowering health professionals in primary prevention care.

Health promotion is the most effective and challenging role of health providers [2,3]. Prudent lifestyle changes have been shown to significantly benefit prediabetics and diabetics [15]. Although lifestyle modifications are notoriously difficult to maintain, there is evidence that intensive intervention results in continued preventive benefit after the termination of structured counseling. Leading organizations [16] have recognized that all cardiac rehabilitation/secondary prevention programs should contain specific core components that aim to optimize cardiovascular risk reduction by promoting an active lifestyle for patients with cardiovascular disease. Our study suggests a model that may force this approach among the health providers.

A personal experience of change in lifestyle of health providers would enable them to improve their effectiveness in primary prevention counseling by serving as role models. A study [17] among a sample of 122 cardiac nurses reported a prevalence of 11% smokers, 27% with a body mass index above 25 kg/m^2, and 27% who did not exercise regularly. The investigators concluded that nurses might observe their own advice on lifestyle modification to reduce cardiovascular risk to provide a good role model for the promotion of primary and secondary prevention initiatives. A comparable survey among physicians [18] showed that they were often less likely to follow their own advice, with 8% of men being smokers, 20% of male physicians and 13% of female doctors being obese, and more than 50% not participating in regular exercise. The investigators concluded that the role-model aspect of patient education may need to be improved among some physicians.

Another example of the importance of role-modeling was discussed in another report. Patients who saw a video of a physician giving advice about diet and exercise reported that the physician was more believable and motivating if she disclosed her own personal healthy practices [19]. Furthermore, physicians who have healthy personal habits are more likely to discuss related preventive behaviors with their patients; physicians who exercised more were more likely to report counseling their patients about exercise [20].

We found that physicians benefited the most from the personal lifestyle experience intervention program by decreasing their own waist circumference. One of the explanations for the slightly different directions in changes of body mass index and waist circumference among the dietitians is the nature of hormonal cycles among the group who were 96% women [21]. Waist circumference correlates with subcutaneous and intra-abdominal fat mass [22,23] and is associated with cardiometabolic disease risk [24]. Waist circumference measurement can sometimes provide additional information to help the clinician determine which patients should be evaluated for the presence of cardiometabolic risk factors, such as dyslipidemia and hyperglycemia. In addition, measuring one's personal lifestyle activities might be useful in monitoring a patient's response to diet and exercise treatment, because regular aerobic exercise can cause a reductions in waist circumference and cardiometabolic risk, without a change in body mass index [25]. Thus, reducing waist circumference within 6 mo suggests that a short-term personal lifestyle experience intervention program might be effective for improvement of lifestyle, mostly among physicians.

Our study limitations merit some considerations. The allocation of the participants to the intervention and control groups was done in an arbitrary manner by a "first come, first serve" approach rather than by a randomized design. This might have introduced some bias because those responding faster to our invitation letters might belong to a more compliant group. Our locally developed follow-up evaluation tools were not extensively validated, although the clarity of the questions was pretested internally. Furthermore, we lack assessment and follow-up of blood measurements. Strengths of the study include the unique feature of personal lifestyle experience intervention program, the 6-mo follow-up, the large-scale simultaneous comparisons of physicians, dietitians, nurses, and other health promoters, and the direct measurements of waist circumference and weight.

Conclusions

Experience of change, even for a short period, rendered health professionals more powerful in changing their own health behaviors. Future programs may include follow-up sessions to support the personal change and the transfer process to the patients. Physicians who are less likely to personally adhere to and believe in lifestyle primary prevention are more likely to benefit from this platform.

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