Arkansas Healthy Employee Lifestyle Program (AHELP) Evaluation Report

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Author:

Sharada Adolph MD DrPH
Chronic Disease Branch Evaluator
Arkansas Department of Health

Contributors:

Katrina Betancourt MS RCEP
Worksite Wellness Section Chief
Arkansas Department of Health

Leesa Freasier
Healthy Community Domain Team Lead
Arkansas Department of Health

Introduction

The Arkansas Healthy Employee Lifestyle Program (AHELP) is a voluntary worksite wellness program that provides opportunities for, and encourages state employees to be physically active, eat healthy, and reduce or quit smoking through worksite policies and environmental changes and activities. The program was conceived in 2004 by the Arkansas Department of Human Services and the Arkansas Department of Health (ADH) to design and promote wellness activities in divisions/work units as well as at the local county level. An incentive program was implemented to encourage employee participation. A Centers for Disease Control and Prevention (CDC) grant enabled creation of the AHELP website tracking, the promotion of evidence-based worksite wellness strategies, and annual Health Risk Assessments (HRAs). In 2005, Act 724 of the Arkansas General Assembly authorized the provision of (a) incentives for improvement of state employee health, (b) leave for state employees who participate in the healthy employee program, and (c) walking areas for state agency facilities.

The goals of AHELP are to (a) improve nutritional choices made in the workplace, (b) increase the number of colleagues who are at a healthy weight and participate in regular physical activity, (c) increase the number of colleagues who obtain annual age-appropriate/doctor-recommended screenings, and (d) increase the number of colleagues who reduce and/or quit their use of tobacco products. The food and physical activity environmental components of AHELP include healthy choices in vending, snack bars, and walking trails. AHELP policy components include food and beverage guidelines for catered meetings and events. Individual health behavior activities include educational opportunities, team competitions and an incentive-based program. Incentives for full-time employees are based in participant registration at the AHELP website and completion of the AHELP HRAs for individualized wellness reports. Participants who log daily or annual activities secure points in the AHELP web-based system. For daily activity the participant tracks the following:

a. Minutes of cardiovascular activity, stretching/resistance activity, number of fruit and vegetable servings consumed and no-tobacco use.
b. Annual points are tracked for HRAs, annual doctor-recommended screenings and influenza vaccination.

Participants are rewarded through (a) prizes determined from survey questions/focus groups, (b) time-off benefit, and (c) other incentives provided on an ad hoc basis by individual agencies.

This evaluation focused on assessment of healthy behaviors and health outcomes through AHELP HRAs self-reported by ADH employees from 2010-2013. The AHELP HRA database is managed by an external information technology company that determines the total HRA wellness scores.

Evaluation Methods

The following evaluation questions were formulated to assess the effectiveness and reach of AHELP through HRAs. Multiple measures and indicators were used to answer the questions below.

1) What groups of employees access and use the AHELP system for individualized wellness reports?
2) What are the prevalent disease conditions and health outcomes seen among AHELP users who submit HRAs?
3) How do AHELP participants rate with categories of food consumption and physical activity?
4) Do emotional health indicators play a role in worksite wellness? How well do employees cope in the workplace?
5) What is the prevalence of smoking and alcohol use among AHELP participants?
6) Are there gender differences in key health outcomes for AHELP participants?
7) How did health outcomes differ between male and female employees by high-risk indicators such as increasing body mass index (BMI), total cholesterol, smoking and age?

Data were analyzed using SAS 9.3 to generate (1) descriptive statistics, and (2) Cochran-Mantel-Haenszel chi-square tests for contingency tables to answer the evaluation questions. The primary health behaviors evaluated were (1) food categories consumed, (2) physical activity levels, (3) emotional health indicators and coping skills, (4) risky behaviors such as smoking, and alcohol use. Primary health outcomes evaluated were (1) BMI, (2) systolic blood pressure, (3) diastolic blood pressure, (4) total cholesterol, (5) high-density lipoprotein, (6) random blood glucose, and (7) total HRA scores.

Evaluation Results

A total of 2,174 ADH employees reported health behaviors and outcomes through HRAs between 2010 and 2013. Missing responses are not reported in the results and the totals differ from the overall total in select tables. More female employees submitted responses for HRAs than their male counterparts (Table 1). The racial and ethnicity distribution of AHELP contributors who submitted HRAs was predominantly White. The majority of respondents were between 35-50 years of age. Table 2 shows the BMI distributions of participants. Only 25% of AHELP employees are in the healthy BMI range. The distributions of disease conditions among employees show that high blood pressure, high cholesterol, depression and arthritis are most prevalent (Fig. 1).

Table 1. Demographics of Arkansas Healthy Employee Lifestyle Program (AHELP) participants, 2010-2013.

Characteristics	Number	Percent
Sex		
Women	1,750	80.5
Men	424	19.5
Race & Ethnicity		
African American	436	20.1
American Indian/Alaskan Native	14	0.6
Asian/Pacific Islander	36	1.7
Hispanic	19	0.9
Other	25	1.1
White	1,644	75.6
Age Groups		
Less than 35	551	25.3
35-50	931	42.8
Greater than 50	692	31.8
Mean Age = 44 years (SD±11)		

SD = standard deviation

Table 2. Body Mass Index (BMI) distributions of Arkansas Healthy Employee Lifestyle Program (AHELP) participants, 2010-2013.

BMI Classes	BMI	Number	Percent
Underweight	<18.5	42	1.9
Normal weight	18.5-24.9	543	25.1
Overweight	25.0-29.9	665	30.8
Obese	>30.0	912	42.2
Mean BMI = 30.2 (SD±7.9)			

SD = standard deviation

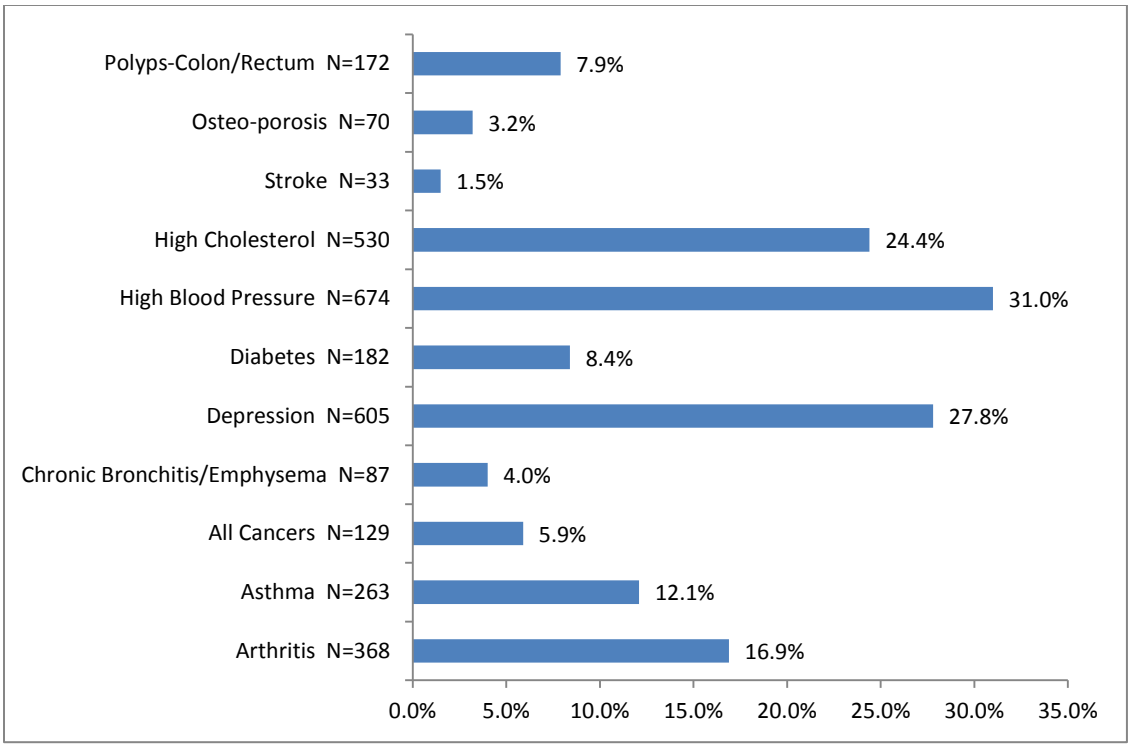

Fig. 1. Distribution of disease conditions among Arkansas Healthy Employee Lifestyle Program (AHELP) participants, 2010-2013.

Table 3. Average health outcome measures for Arkansas Healthy Employee Lifestyle Program (AHELP) participants, 2010-2013.

Health Indicator	Numbers	Mean (SD)
Systolic Blood Pressure	2,164	122 (±11) mm Hg
Diastolic Blood Pressure	2,164	79 (±17) mm Hg
Total Cholesterol	2,174	205.3 (±22.0) mg/dl
High-density Lipoprotein	2,174	44.5 (±7.9) mg/dl
Random Blood Glucose	2,174	100.2 (±8.4) mg/dl
BMI	2,164	30.2 (±7.9)
Total Health Risk Assessment Score	2,164	72.7 (±9.7)

SD = standard deviation

Table 3 shows that the average systolic blood pressure is higher than normal, which is <120 mm Hg in the upper arm (American Heart Association, 2013). The average diastolic blood pressure is in the normal range of <80 mm Hg (American Heart Association, 2013). The average total cholesterol is also higher than normal (<200 mg/dl) and is in the borderline high range for

increased risk of coronary heart disease (American Heart Association, 2013). The average level of high-density lipoprotein (HDL) is lower than recommended for protection against heart disease. HDL levels ≥60 mg/dl are cardio-protective; levels <40 mg/dl for men and <50 mg/dl for women increase the risk of coronary heart disease (American Heart Association, 2013). Low-density lipoprotein (LDL) was not available in this dataset. The average random blood glucose level is within normal limits of ≤200 mg/dl (Diabetes Care, 2012). The average BMI for men and women is in the obese range of >30.0 (CDC, 2012). The average total HRA score for men and women is in the range of 50-74 or 'Doing well' range (Wellsource Inc., 2000). Wellness ranges are based in scores derived from the National Institutes of Health, Heart, Blood, Lung Institute's National Cholesterol Education Program guidelines and the US Preventive Services Task Force, Guide to Clinical Preventive Services.

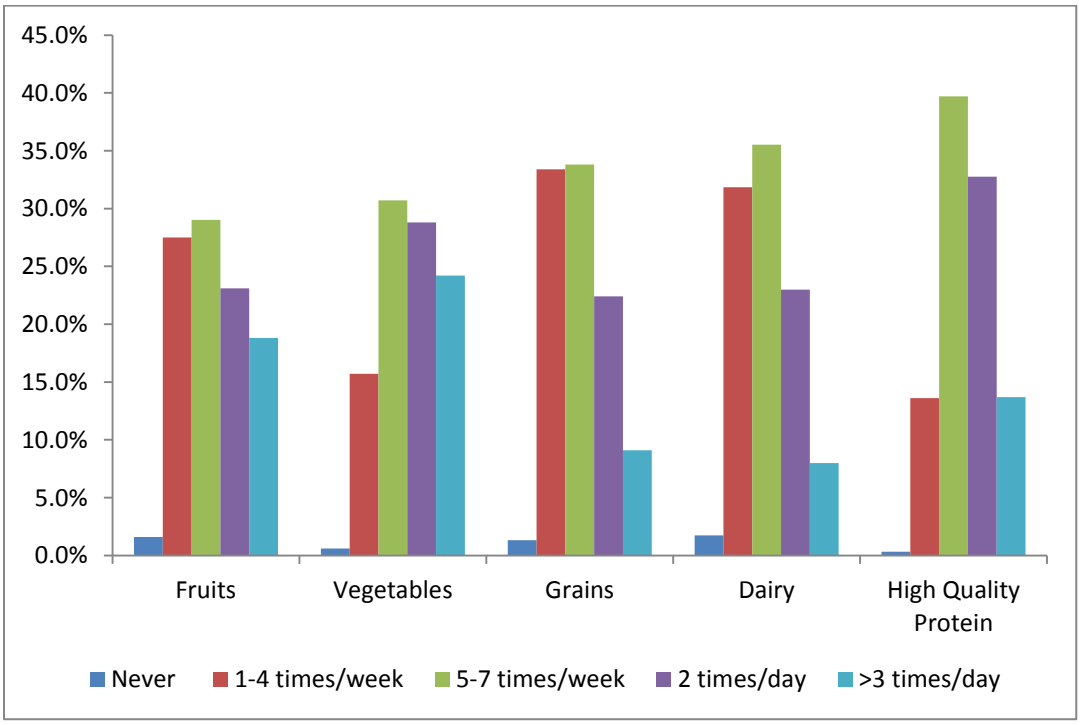

Fig. 2. Arkansas Healthy Employee Lifestyle Program: Consumption of healthy foods among participants, 2010-2013.

Healthy food consumption for fruits, vegetables, grains, dairy and high quality protein were in the range of 5-7 times per week for most employees (Fig 2). Fig. 3 shows that the consumption of processed meats, fried foods, fats, sweets and desserts averaged 1-4 times per week for the majority of employees.

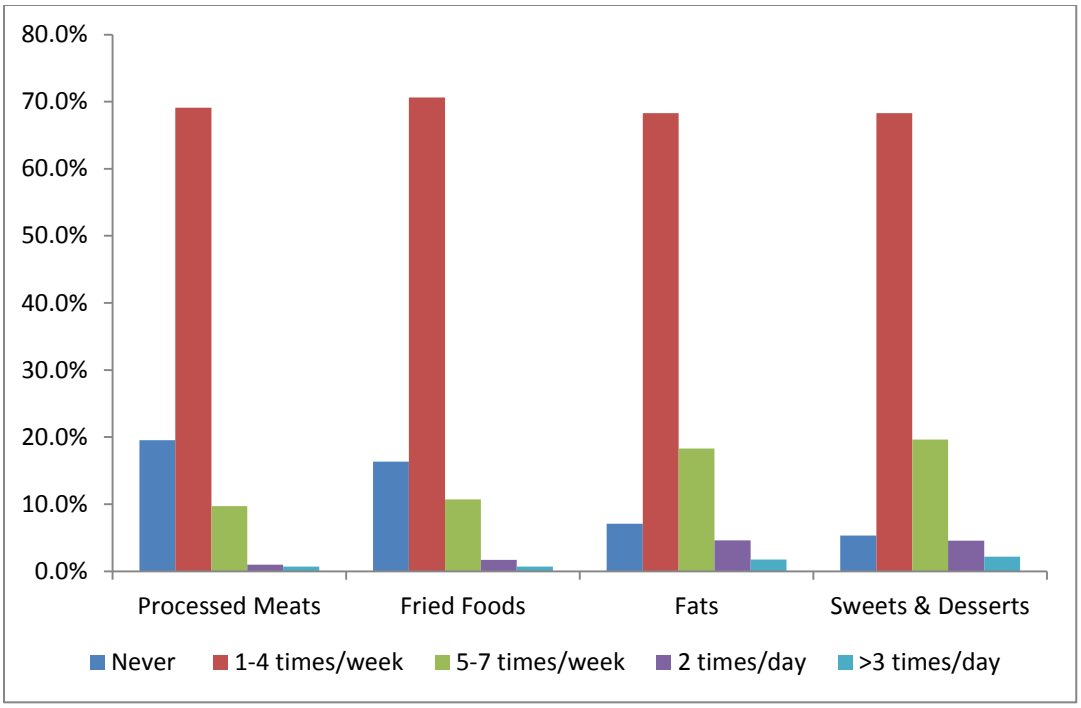

Fig. 3. Arkansas Healthy Employee Lifestyle Program: Consumption of not-so-healthy foods among participants, 2010-2013**.**

Table 4. Distribution of at least 20-30 minutes moderate-intensity aerobic activity by days per week among Arkansas Healthy Employee Lifestyle Program participants, 2010-2013.

Duration	Numbers	Percent
6-7 days/week	441	20.3
4-5 days/week	606	27.9
2-3 days/week	632	29.1
1 day or less/week	370	17.0
None	125	5.7

Table 4 shows that most employees reported engaging in moderate-intensity aerobic activity on more than 2-3 days per week that resulted in heavy breathing and increased heart rates.

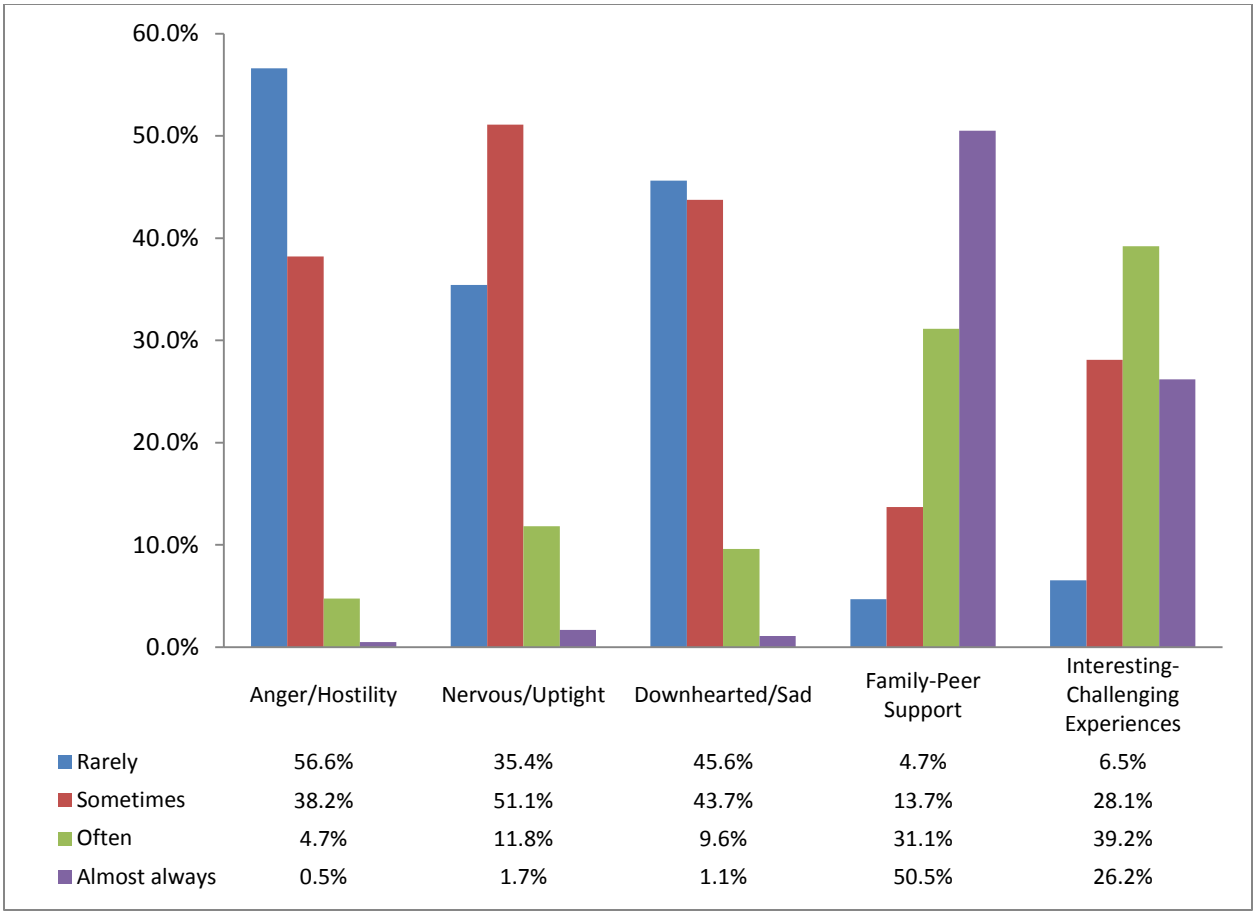

Fig. 4. Emotional health indicators among Arkansas Healthy Employee Lifestyle Program participants, 2010-2013.

Table 5. Coping skills for effectiveness in managing daily workplace stress among Arkansas Healthy Employee Lifestyle Program participants, 2010-2013.

Coping Skills	Numbers	Percent
Very effective	806	37.1%
Somewhat effective	1,180	54.3%
Poorly effective	128	5.9%
Ineffective	60	2.8%

Fig. 4 shows that emotional indicators of health such as anger or hostility, being nervous or uptight, and feeling downhearted or sad were emotions experienced by one-third to half of all employees sometimes. Approximately 75% of employees reported receiving family and peer support, and experienced interesting and challenging situations at work that were positive (Fig.

4). Most employees were either somewhat effective or very effective in coping with workplace stress (Table 5).

Table 6. Arkansas Healthy Employee Lifestyle Program: Tobacco and alcohol use among participants, 2010-2013.

	Cigarette Smoking		**Alcohol Use Problem**		**Binge Drinking**	
Responses	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Yes	200	9.20%	62	2.80%	83	3.80%
No	1,469	67.60%	2,112	97.20%	2,091	96.20%
Past Use	505	23.20%	*Not collected*			

The distribution of self-reported cigarette and alcohol use are seen in Table 6, with most employees reporting non-use of either cigarettes or alcohol. Binge drinking for the consumption of ≥6 drinks on weekends was reported by 3.8%. Averages of 6 cigarettes per day were reported by those employees who smoked.

Fig. 5 shows that the majority of female employees had the recommended preventive screenings – clinical breast exams, mammograms and Pap smears in the past year to rule out breast and cervical cancer or pre-cancer. About 50% of male employees had clinical prostate exam to rule out prostate enlargement or cancer within the past year (Fig. 5).

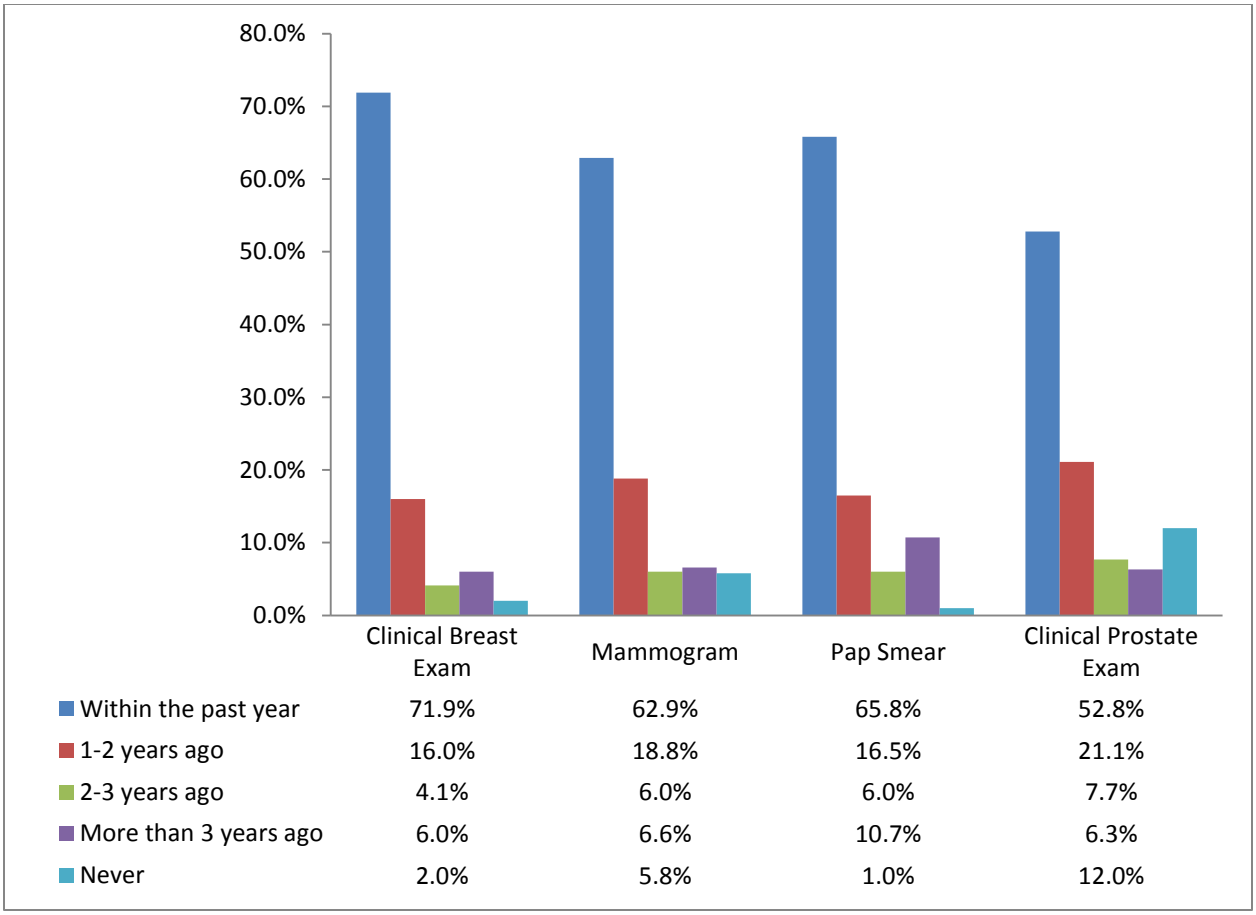

Fig. 5. Preventive screenings among Arkansas Healthy Employee Lifestyle Program participants, 2010-2013.

Table 7 shows that men had higher average systolic and diastolic blood pressures compared to women. Total cholesterol levels were in the borderline cardiac risk ranges for both men and women. High-density lipoprotein (HDL) was in the low at-risk cardiac ranges for both men and women. Average BMI for both genders were in the obese range and the average HRA wellness scores were in the 'Good' range. Significant gender differences were observed for systolic and diastolic blood pressures and random blood glucose; however, these parameters are in the normal ranges for men and women.

Table 7. Arkansas Healthy Employee Lifestyle Program: Gender differences for health outcomes among participants, 2010-2013.

Health Outcomes	Mean (SD)	t value	p value
Systolic BP			
Men	125 (±8) mm Hg	9.93	<.0001*
Women	122 (±11) mm Hg		
Diastolic BP			
Men	81 (±7) mm Hg	6.27	<.0001*
Women	78 (±8) mm Hg		
Total Cholesterol			
Men	206.3 (±23.1) mg/dl	0.01	NS
Women	205.1 (±21.6) mg/dl		
High-density Lipoprotein			
Men	43.8 (±8.6) mg/dl	-1.85	NS
Women	44.7 (±7.7) mg/dl		
Random Blood Glucose			
Men	101.6 (±8.3) mg/dl	3.73	<.001*
Women	100.0 (±8.4) mg/dl		
Body Mass Index (BMI)			
Men	30.1 (±7.4)	-0.08	NS
Women	30.1 (±8.0)		
Total Health Risk Assessment Score			
Men	72.7 (±10.0)	0.01	NS
Women	72.7 (±9.6)		

SD = standard deviation
*Statistically significant

Discussion

Evaluation findings indicate that most ADH employees who participated in HRA assessments reported engaging in healthy food habits and moderate physical activity at least 2-3 times a week. The self-report of risky behaviors such as smoking and alcohol consumption were low. However, the self-report of risk factors such as BMI, total cholesterol, high blood pressure and low HDL, which is cardio-protective, indicate that the risk for coronary and cerebrovascular events is borderline high for this population. Obesity is widely prevalent among ADH employees and is a significant cardiac risk factor.

Limitations with this assessment included inadequate data collection for exercise and fitness measures, salt and water intake, cardiac stress tests, immunization data and quality of life measures. Also, the average total HRA score generated by the external entity masks the cardiovascular risks seen in this population. Validity of the HRA depends largely on the accuracy of participants' self-report of their health practices and health histories, and is often subject to bias. Data validity is also affected by many factors such as the confidentiality of data collected, incentives and work environments. The variety of testing options utilized could have also impacted reliability. For example, different testing laboratories can report results of blood lipid screenings differently that may adversely affect the reliability of cholesterol assessments. In other instances, test results can be used to help eliminate bias with self-reported behaviors. For example, a blood test for smoking can prove to be more reliable than a self-reported smoking question. The use of actual fitness test data will be more reliable than self-reported fitness levels. AHELP HRAs can be improved for efficacy through the collection of more evidence-based information.

Recommendations

1) Suggest better data collection methods for health behaviors, fitness data for aerobic and strengthening exercises, better definitions of daily foods consumed, salt intake, past and present weights and BMIs.
2) Work with the external information technology company that manages the AHELP database to derive wellness scores based on cardiovascular risks, cancer risks, and stress factor risks.
3) Offer AHELP clients' web-based opportunities to improve health risk assessment scores through webinars, resources for healthy food and physical activity access, physical education and on-line physical activity training.
4) Recommend web-based reminders for recommended preventive screenings and immunizations.
5) Provide web-access to ChooseMyPlate.gov for SuperTracker to plan, analyze and track diets and physical activity.
6) Recommend early medical consults for those at high cardiovascular and cancer risk based on HRA scores.

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