University of Nevada Cooperative Extension

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Results From a Workplace Health and Wellness Program

Pamela Powell, Extension Educator

University of Nevada Cooperative Extension developed and delivered a six-month workplace Health and Wellness Program. This publication reports on the evaluation results from that pilot program.

Program Introduction:

Health statistics in the United States are alarming. According to the Centers for Disease Control and Prevention (U.S. Department of Health and Human Services, 2012), more than one-third (35.7 percent) of adults in the United States are obese. Obesity can lead to chronic diseases such as heart disease, stroke, type 2 diabetes and certain types of cancer. Costs associated with preventable disease related to obesity and physical inactivity are estimated to be approximately $147 billion, in 2008 dollars (HHS, 2012). In many instances, these diseases are preventable.

Chronic disease is the leading cause of death and disability in the United States and accounts for 70 percent of all deaths (The Council of State Governments, 2006). While there is no specific definition for chronic disease, it is generally referred to as a condition that is associated with persistent and recurring health problems, and is measured in months and years, not days and weeks (Thrall, 2005). In Nevada, the five most common causes of death are diseases of the heart, cancer, stroke, chronic lower respiratory diseases and unintential injuries (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2008), each with implications related to living a healthy lifestyle. Modifying our behaviors, such as increasing physical activity, eating for our health, and avoiding tobacco and excessive alcohol consumption, can impact the incidence of chronic disease.

The effect of chronic disease and poor lifestyle behaviors has a profound impact on all aspects of an individual's life, including at the workplace. This is evidenced in reduced productivity, absenteeism and increased medical costs. In an effort to help employees become healthier, many employers are developing health and wellness programs that support increased physical activity, better nutrition and education about the impact of positive lifestyle changes. Medical costs fall by $3.27 for every dollar spent by workplace wellness programs, and absenteeism costs fall by about $2.73 for every dollar spent, (Baicker, K., Cutler, D., and Song, Z., 2010).

Program Overview:

In March 2013, University of Nevada Cooperative Extension received a grant to develop, implement and evaluate a six-month pilot Workplace Health and Wellness program for employees at a local business. The program was to be delivered between April 1, 2013 and September 30, 2013. The scope of work included in this grant encompassed:

- Teach 15-20 nutrition/physical activity classes based upon employee-identified needs. Each class was designed to be 45-60 minutes.
- Provide three evening/weekend classes for employees and their families to promote family wellness.
- Secure guest speakers to present topic information on incorporating physical activity while addressing physical limitation as well as injury prevention.
- Create a resource listing shared via a dedicated bulletin board for employees.
- Design and administer evaluation instruments to measure program impacts.

Cooperative Extension hired, trained and supervised a health and wellness coach to assist in program delivery. The coach hired was a licensed registered dietician and certified personal trainer.

Program Background:

Prior to program development, the employer sent a 16-question survey to all employees asking about their interest in participating in a health and wellness

program offered through the worksite. Employees ranked their likelihood of participation in various types of program offerings as well factors that prevent or inhibit them from achieving wellness goals. Employees were notified that survey participation was voluntary and confidential. They were further informed that information gathered from the survey would be used to develop a health and wellness course that was based upon employee identified needs and interests. Sixty-seven employees (33 percent) who received the survey responded. The aggregate survey data was used for program development purposes.

Program Delivery:

Survey respondents to the formative evaluation indicated the need for multiple class times due to varying work schedules. Therefore, two classes were offered to employees and their families once a week from noon to 1 p.m. and repeated immediately following from 1 p.m. to 2 p.m. Two weeks into the program, employees requested a third class time be added. Thus, a third class was provided on on a second day during the lunch hour. All employees were invited to attend any and all of the classes, and to participate in multiple classes. Attendance ranged from four to 22, depending upon class topic and prior scheduled conflicts.

Class topics were developed based upon survey responses and one-on-one conversations with employees. Classes were designed to be interactive, combining lecture, activity, and a question and answer session. Copies of all PowerPoint presentations, supplemental handouts and resources were provided to attendees, and each attendee was given a three-ring binder to organize handouts. Classes taught included:

- Being Healthy: It is more than just the number on your bathroom scale
- Jump-start Your Fitness
- MyPlate Plan
- Shortcuts to Fitness
- Strength Training
- Portion Control
- Reading Food Labels
- Seven Habits of Highly Healthy People
- H2O on the Go
- Size and Self-Acceptance
- Physically Connected Eating
- FAD Diets
- A Quick Cupboard
- Stress: Friend or Foe
- Managing Stress
- Eating Out
- Cholesterol and Chronic Disease
- Time Management

While previously published Cooperative Extension materials were modified for this course, new curriculum was developed to address employee identified needs for education.

In addition to the class offerings listed above, two guest speakers taught additional classes covering the incorporation of physical activity. One class focused on injury prevention, as well as how to be physically active when dealing with physical limitations. A second class focused on the proper use of gym

Medical costs fall by $3.27 for every dollar spent by workplace wellness programs.

Absenteeism costs fall by about $2.73 for every dollar spent.

(Baicker, Cutler and Song. 2010)

equipment and was repeated the following month. A third class invited families to participate in a healthy cooking activity.

Program Evaluation:

At the end of each class, participants were asked to complete an evaluation survey. The survey instrument was designed to measure knowledge gain, attitude change and behavior change immediately following the class, and used a retrospective pre-post format. The retrospective pre-post survey allows participants to rate their knowledge at the end of the program on the post-survey and to think back to how much they knew before the program on the pre-survey. Both the pre-survey and post-survey are completed at the end of the class, and this helps to alleviate the potential of respondents' over- and/or under-assessing their perceived learning, a potential constraint of the tradition pre-test post-test method. This method was chosen to help address the problem of "response shift bias" (Colosi and Dunifon, 2006). As class attendance numbers varied, so did the number of completed individual class surveys. The range of completed surveys was four to 14.

Each immediate survey consisted of eight to 10 topic indicators, offered in a pre-post Likert-type scale format. In addition, the immediate survey asked participants what they liked best about the class and to list one change they could make based upon the information presented in the class.

One week following completion of the six-month program, a second survey was administered. This "end-of-session" survey followed the same design as the immediate survey, including 26 retrospective pre-post questions. In addition, participants were asked to rate 12 additional statements and to describe how their physical activity, eating habits and wellness goals had changed because of the class. Participants were asked what they liked best about the health and wellness series and what changes they would make to future classes. All surveys were voluntary and confidential. All evaluation instruments and research procedures were approved at the University of Nevada, Reno Office of Research Integrity, to ensure that correct investigative protocols were maintained throughout the entire process to protect respondents' confidentiality.

Evaluation Results (Immediate):

Survey results for the evaluations administered immediately after each class revealed statistically significant increases in participant knowledge, attitude and behavior change, based on comparison of pre-test and post-test scores for 137 of the 145 survey questions. Cronbach's coefficient alpha was used to estimate reliability for the Likert-type scale survey items for each immediate class survey. A score of .70 or higher indicates survey reliability. Of the 18 immediate class surveys, 16 received reliability scores ranging from .822 to .984 (Santos, 1999). Table 1 lists the topic rated highest for each class, when comparing pre- and post-mean scores, for surveys with reliability scores over .70.

Chronic Diseases – such as heart disease, stroke, cancer and diabetes - are among the most prevalent, costly, and preventable of all health problems.

(CDC, 2008)

Table 1: Immediate Class Evaluation
Class topic receiving highest score for each class (comparing pre-mean score to post-mean score)

I Understand:	Class Title
What information is provided in a blood chemistry panel test	Being Healthy: It is more than just the number on your bathroom scale
New ways to incorporate increased physical activity into my day; and 2) It is possible to increase my physical activity during my work hours	Jump-Start Your Fitness
How often the Dietary Guidelines are reviewed	MyPlate Plan
Interval training and its importance	Shortcuts to Fitness
How having an exercise plan will help me be successful when beginning a strength training program; 2) One effective set of each strength training exercise is all that is needed	Strength Training
A baseball is a good estimate of a 1-cup portion of rice, pasta, ice cream or fresh fruit	Portion Control
The recommended amounts of cholesterol and sodium are the same for a 2,000, or 2,500-calorie diet	Reading Food Labels
How to recognize irrational thoughts that will hinder my progress toward successful lifestyle changes	Seven Habits of Highly Healthy People
Diluted juice or sports drinks are cost-effective ways to adequately rehydrate after increased physical activity lasting more than 1 hour	H2O on the Go
Becoming a physically connected eater is a process requiring support, self-acceptance and sound nutrition education	Physically Connected Eating
A healthy snack can include my favorite foods, in moderation, and there will be one or two food groups present	A Quick Cupboard
Eustress can impact us just as strongly as distress	Stress: Friend or Foe
The Thoughts-to-Action Model	Managing Stress
Dining out can fit into a healthy lifestyle	Eating Out
The difference between dietary cholesterol and blood cholesterol; and 2) Saturated fat is more closely related to increased blood cholesterol levels than dietary cholesterol	Cholesterol and Chronic Disease
The need to know about how long tasks take	Time Management

Evaluation Results (End-of-Session):

Results from the "end-of-session" survey (administered one week after the final class) revealed statistically significant increases in participant knowledge, attitude and behavior change in 23 of the 26 survey questions using the same method of pre-test and post-test score comparison. Table 2 shows the ranked mean scores for each of the teaching topics included in the "end-of-session" Likert-type scale survey (1= poor and 5=excellent). The rankings shown in Table 1 indicate which topics had the greatest average score improvement comparing pre- to post-scores for the 26 topics surveyed. The reliability score, using the Cronbach's coefficient alpha for the "end-of-session" survey was .962.

"The difference between dietary cholesterol and blood cholesterol" showed the highest knowledge gain. "Stress can be positive or negative" ranked second. "How we respond to stress may become automatic, reacting without thinking" and "how to use the MyPlate plan to help me build a healthy diet" tied for third in measuring knowledge gain.

Table 2: End-of-Session Evaluation
Topics Used to Evaluate a six-month Health and Wellness Program

Topic	N Matched Pairs	Pre-Test Mean Scores	Post-Test[a] Mean Scores	Difference Between Pre and Post	Ranking
The difference between dietary cholesterol and blood cholesterol	13	2.08	3.92	1.84	1
Stress can be positive or negative	13	3.38	4.54	1.76	2
How we respond to stress may become automatic, reacting without thinking	13	2.77	4.46	1.69	3*
How to use the MyPlate plan to help me build a healthy diet	13	2.69	4.38	1.69	3*
Saturated fat is more closely related to increased blood cholesterol levels than dietary cholesterol	12	2.08	3.67	1.59	5
While the number on the bathroom scale is important, there are other numbers to consider when achieving optimal health	13	3.00	4.54	1.54	6*
The recommendations for aerobic and strength training	13	2.77	4.21	1.54	6*
How to recognize irrational thoughts that will hinder my progress toward positive change	13	2.62	4.15	1.53	8
How to safely execute muscle training in all my major muscle groups	12	2.92	4.33	1.41	9
Effective goals are measurable, focused on behavior and obtainable	12	3.00	4.33	1.33	10
By identifying sources of stress in our lives, we are better able to manage and cope with stress	13	3.15	4.46	1.31	11*
New ways to incorporate physical activity into my life	13	3.15	4.46	1.31	11*
The importance of having regular blood chemistry tests	13	2.85	4.15	1.30	13*
The importance of setting realistic goals when beginning a health and wellness program	13	3.08	4.38	1.30	13*
I do not need to join a gym to have an effective strength training program	13	3.23	4.46	1.23	15
The portion size is not the same as the serving size	12	3.08	4.25	1.17	16
Healthy eating doesn't require special foods that I don't normally eat	13	3.38	4.54	1.16	17
Ways to eliminate solid fats, added sugar and salt from my diet	13	2.85	4.00	1.15	18
I should not rely on thirst to know when to drink water	13	3.38	4.46	1.08	19*
Fad diets can be harmful as well as ineffective	13	3.38	4.46	1.08	19*

Rating code: 5 = excellent; 1 = poor (continued)
[a]Differences between pre-test and post-test scores statistically significant at $p<.05$
Cronbach's Alpha = .962
* indicates tie

Table 2 (Continued): Topics Used to Evaluate a six-month Health and Wellness Program

Topic	N Matched Pairs	Pre-Test Mean Scores	Post-Test[a] Mean Scores	Difference Between Pre and Post	Ranking
I can use a Nutritional Facts Label to make appropriate food choices	13	3.00	4.00	1.76	21*
My moving toward size and self-acceptance promotes good health	13	3.08	4.08	1.00	21*
Being healthy is an important priority that will help me better accomplish all other priorities	13	3.31	4.31	1.00	21*
Hunger is a signal that our body needs fuel, and it is healthy to trust it	13	3.38	4.31	0.93	24
Good hydration means I perform better during increased physical activity and in my daily schedule	13	3.54	4.46	0.92	25
When whole food groups are excluded from my diet, I may not be getting some important nutrients needed by my body	13	3.46	4.38	0.92	26

Rating code: 5 = excellent; 1 = poor

[a]Differences between pre-test and post-test scores statistically significant at $p<.05$

Cronbach's Alpha = .962

* indicates tie

Participants were also asked to rank their agreement with 12 additional statements that described how their physical activity, eating habits and wellness goals had changed because of the class. Table 3 shows the ranked mean score for these 12 statements using a 5-point Likert scale with "5 being excellent," and "1 being poor." Having more control of "portion sizes" and "eating behaviors" ranked one and two, respectively. After taking the class, participants indicated they "look for ways to improve my health" (ranked one), and "find ways to increase my physical activity" (ranked two).

Table 3: Topics Used to Evaluate a six-month Health and Wellness Program

Topic	Mean Score	Ranking
a. After taking this class, I feel as if I have more control over my……		
Portion sizes	4.23	1
Eating behaviors	4.15	2
Managing my priorities for better health	4.08	3
Exercise habits	4.00	4
Ability to manage stress	3.85	5*
Thoughts of body image	3.85	5*
Cronbach's Alpha = .908		
b. After taking this class, I…..		
Look for ways to improve my health	4.46	1
Find ways to increase my physical activity	4.23	2
Try to reduce stress	4.08	3*
Eat more fruits and vegetables	4.08	3*
Plan my daily meals	3.85	5
Limit fats and sugars in my diet	3.77	6

Rating code: 5 = excellent; 1 = poor

Cronbach's Alpha = .902

* indicates tie

Changes in Eating Habits:

In addition to the questions asking participants to rate topic items using a Likert-type scale, participants were also asked to describe any changes to their eating habits because of the Health and Wellness series. All respondents indicated this class series had helped them change their eating habits. Comments from participants included:

- "Size of portion; eating more balanced meals, Eating more fruits and vegetables."
- "I try to eat more of the food groups I had mostly neglected up to now; I watch the amount of food I put on my plate."
- "My portions and needs are not the same as my growing boys, so I've adjusted theirs up and mine down for grains and added more veggies for all of us."

Changes in Physical Activity Levels:

Since a main component of the health and wellness series was to encourage increased physical activity, participants were asked if their physical activity habits had changed as a result of this class. All respondents stated that the class had caused them to increase their physical activity. Comments included:

- "Aerobic 2X weekly and strength training 3X weekly."
- "For me physical activity is difficult at best. Having this class has helped me to find more alternative activities."
- "I continue to try to get up and move around during the work day."

When participants were asked if because of this class they felt more confident in their ability to achieve their wellness goals, all stated yes. Comments included

- "I learned that I need to build muscle to burn more fat and process food better. I reward myself once a week vs. once a day since I have a goal and I'm seeing results."
- "Whoo hoo!☺"
- "Understand foods and body; the needs, the reactions; the way it all relates helps you to understand what to do right; understand stress, knowing how to deal with it helps positive reactions. Understanding how everything we do in life affects our health helps us live a healthier life."
- "It is the little things that can make a big difference."

Liked Best / Liked Least:

Two final questions asked particiants what they liked best about the health and wellness series, and what changes needed to be made should a similar class series be offered in the future.

Participants indicated they appreciated the "feeling of safety in the group." While specific classes were mentioned as favorites, i.e. 1) size and self-acceptance, and 2) portion control, the concepts of open conversation and sharing personal examples captured the supportive nature of class dynamics. Participants stated they felt comfortable asking questions and appreciated the realization they were not the only ones having issues with adopting/maintaining a healthly lifestyle.

While this series achieved very positive impacts, in planning for future classes, participants provided suggestions for improvement. First, participants stated the program was too long. One participant suggested that the course be segmented by topic, with a break between each topic. The analogy used was "There is so much information, that it is like trying to eat a big meal in a few hours."

While hands-on activities were provided, more were needed. Homework assignments were suggested as a means for reinforcement. More time to plan menus, develop strategies and practice concepts

learned was also suggested. In the future, instructors should remind participants to write goals in the notebook and not just on the evaluation, which was given to instructors. These goals should have been reviewed more frequently, including participants efforts to achieving their goals.

Impact for One Participant:

While all participants indicated they had increased their knowledge and learned positive strategies to benefit their personal health, one participant additionally reported a dramatic A1C level reduction. A1C is a blood test that measures how well blood sugar levels have been controlled in the preceeding two to three months. The higher the A1C level, the poorer the blood sugar control and the higher the risk for diabetes complications. An A1C level of 8 percent or higher indicates a chronic uncontrolled blood sugar level. A normal level can range from 4.5 percent to 6 percent. For those who have been previously diagnosed with diabetes, a target A1C level of 7 percent is optimal (Mayo Clinic, 2013). Prior to the class beginnings, one participant previously diagnosed with diabetes reported an A1C level of 9.6 percent. Closer to the end of the series, this participant was retested and had achieved an A1C level of 6.6 percent. While participants were not asked to undergo blood tests in order to attend the class, or to report on any test results, this participant offered to share the results from the A1C test. Participants were, however, encouraged to understand what various blood tests measured and their importance, as well as to work with their health care provider to undergo appropriate preventative measures.

Summary:

The CDC, in its 2009 report "The Power of Prevention: Chronic Disease….the public health challenge of the 21st century," indicates that four modifiable factors are responsible for much of the illness, suffering and early death related to chronic diseases. Increasing physical activity, practicing good nutrition, eliminating tobacco use and avoiding excessive alcohol consumption can impact the levels of chronic disease in the United States. As chronic disease is the leading cause of death in the United States, employers are offering workplace health and wellness programs to encourage healthy lifestyles for their employees. Healthy employees have lower absenteeism, lower medical care costs and higher productivity.

The six-month pilot health and wellness series reported on in this publication consisted of 18 separate classes, repeated two additional times. In addition, guest speakers and outside acitivies were offered to reinforce class topics. Evaluation responses indicate the Workplace Health and Wellness Program was beneficial for the employees who attended. Employees stated they specifically appreciated the class conversation and support and the non-judgmental sharing of personal experiences. All particiants increased their knowledge about class topics and indicated a change in attitude and behavior. Participants did recommend that future classes should provide more hands-on activities and that more outside opportunities be available. However, due to personal and work-related time constraints, it was often difficult to schedule activities that the whole class could attend. As

> "There is so much information, that it is like trying to eat a big meal in a few hours."

motivation varies among each student, additional time should be devoted to learning varous motivation techniques to help support wellness efforts.

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