

THE RELATIONSHIP BETWEEN HOSPITAL EMPLOYEES' PARTICIPATION IN
A WORKSITE WELLNESS PROGRAM AND POSITIVE CHANGES IN THEIR
DIET, EXERCISE, AND WEIGHT MANAGEMENT BEHAVIORS

A THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER
OF SCIENCE IN THE GRADUATE SCHOOL
OF TEXAS WOMAN'S UNIVERSITY

COLLEGE OF HEALTH SCIENCES

BY

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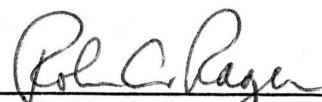
DENTON, TEXAS
MAY 1999

TEXAS WOMAN'S UNIVERSITY
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April 13, 1999
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To the Associate Vice President for Research and Dean of the Graduate School:

I am submitting herewith a thesis written by Renee Suzanne Hebbeler entitled "The Relationship Between Hospital Employees' Participation in a Worksite Wellness Program and Positive Changes in Their Diet, Exercise, and Weight Management Behaviors." I have examined this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science with a major in Health Studies.

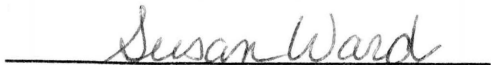


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ACKNOWLEDGEMENTS

I would like to thank my husband, Brian, for his continued support, confidence, patience and most of all his love, without which I would have had much difficulty in completing this project. Thank you so much Brian, for encouraging me to always believe in myself and to reach for the stars no matter the distance.

Deep gratitude and appreciation is extended to my chairperson, Dr. Robin Rager, for pushing me to excel. His continued guidance, time and patience are extremely appreciated, and were essential in the completion of this project. Special thanks to my committee member, Dr. Susan Ward, for her input and support throughout the project.

A special thanks to all of my family for their continued support and always believing in me. Thanks mom for instilling within me a drive to reach my goals and to realize that they are attainable. Without your distance support, and encouragement I would be lost.

ABSTRACT

Completed Research in Health Studies
Texas Woman's University

Hebbeler, R. S. The relationship between hospital employees' participation in a worksite wellness program and positive changes in their diet exercise and weight management behaviors. M.S. in Health Studies, 1999, 52 pp. (R. Rager).

This study examined the relationship between participation in a worksite wellness program by hospital employees and positive changes in their diet, exercise, and weight management behaviors. Research data were collected using a survey questionnaire developed by the researcher and her advisor as part of an evaluation of the hospital's worksite wellness program. The program had been implemented in Fall of 1997. The behavior-change questions solicited information on dietary modification of fruit, vegetable, and fat intake; changes in level of exercise, and weight management. Questionnaires were distributed to the 449 employees, and 97 respondents returned completed questionnaires, for a 21.6% response rate. Descriptive statistics and chi-squares tests for significant differences were used to analyze the data between the 64 participants and 33 non-participants. No significant differences were found in the dietary and exercise behaviors between the two groups. However, significant changes were found in weight loss behavior for the non-participants.

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CHAPTER I

INTRODUCTION

Corporate America is becoming more cognizant of the importance of disease prevention and health promotion in maintaining the performance and effectiveness of its workers. The impact of worksite wellness, during the past two decades, has caused many corporations and businesses to see the importance of providing health/wellness promotion programs at the worksite for their employees. With over 70% of men and women employed in the United States, the worksite offers an opportunity for promoting, reinforcing, and maintaining health behaviors within a substantial portion of the population (Bungum, Orsak, & Chng, 1997). This could impact the amount spent on health care greatly, especially when estimates are that by the year 2000 health care costs will represent approximately 18% of the gross national product (Anspaugh, Hunter, & Mosley, 1995). While many of these programs are supported by local hospitals, few hospitals appear to have such programs for their own employees. However, as hospitals by themselves begin to search for ways to control their employees' health care costs, some hospital administrators are beginning to see the wisdom of providing worksite wellness programs for their own workforce (Eubanks, 1991).

Although hospitals are developing wellness programs for their own employees, few studies on positive health risks behaviors among hospital workers appear in the literature. Even fewer studies can be found which evaluate the effectiveness of these programs, and the ones that have been published seldom address the program's impact on the employees' positive health risk behaviors. Therefore, the need for more studies to be conducted with hospital employee populations is apparent, and would provide useful information for health educators and wellness directors to devise effective programs that are specific for this population's needs.

Purpose of the Study

The purpose of this study was to examine the relationship between hospital employees' participation in a worksite wellness program and positive changes in their health risk behaviors related to diet, exercise and weight management.

Hypotheses

The following null hypotheses were addressed in the study:

1. There is no statistically significant difference in positive dietary behaviors during the past 12 months between hospital employees who participated in the employee wellness program and those who did not participate.

2. There is no statistically significant difference in positive exercise behaviors during the past 12 months between hospital employees who participated in the employee wellness program and those who did not participate.
3. There is no statistically significant difference in positive weight management behaviors during the past 12 months between hospital employee who participated in the employee wellness program and those who did not participate.

Definition of Terms

The following terms have been defined for the purpose of this study:

1. Dietary behaviors. An individual's behaviors regarding the consumption of high-fat foods or fruit and vegetable intake.
2. Exercise behaviors. An individual's behaviors regarding their level of physical activity.
3. Heavy exercise. Physical activity requiring a relatively high level of physical exertion (e.g., intensive running, cycling, or swimming) for a combined total time of at least 30 minutes per day at least three days per week.
4. Light exercise. Physical activity requiring a relatively low level of physical exertion (e.g., stretching, slow walking) for a combined total time of at least 30 minutes per day at least three days per week.

5. Moderate exercise. Physical activity requiring a relatively moderate level of physical exertion (e.g., brisk walking, jogging) for a combined total time of at least 30 minutes per day at least three days per week.
6. Non-participants. Those employees who did not participate in any of the employee wellness activities or programs during the past 12 months.
7. Participants. Those employees who participated in one or more of the employee wellness activities or programs offered during the past 12 months.
8. Sedentary. A person who engages in at least a low level of physical exertion (i.e., light exercise, such as stretching or slow walking) for less than a total combined time of 30 minutes per day at least three days per week.
9. Weight management. An individual's efforts to reduce or control his/her weight.
10. Worksite wellness program. A worksite-based program that provides employees with opportunities to participate in various health-promoting activities.

Limitations

The limitations of this study included the following:

1. The scope of the study was limited to the employees of one specific hospital in North Texas.
2. Due to the small sample size, the findings of the study may not be

representative of all employees of the hospital.

3. Subjects were limited to those who voluntarily participated in the survey questionnaire.

Assumptions

The following is a list of assumptions associated with this study:

1. The subjects were able to read and understand the survey questionnaire.
2. The subjects answered the survey questionnaire honestly.
3. The survey instrument collected valid information about the subjects' health risk, health risk behavior, and wellness program participation.

Justification

With more hospitals becoming involved in worksite wellness for their own employees, there is an increasing need for them to determine whether they are reaching their program's established goals and objectives related to the modification of positive health risk behaviors within the employee population. This awareness and involvement in worksite wellness would allow hospitals to enhance employee health and subsequently control their employee health care costs. Unfortunately, little evaluation of the effectiveness of wellness programs provided for hospital employees has been done. If health educators and other health promotion professionals are to design effective and appropriate health

promotion programs for the hospital workforce population, more studies that evaluate the impact of these programs need to be conducted.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter reviews the literature in three major categories: the importance and background of worksite wellness programs, current programs being provided at hospitals, and evaluations of hospital employee wellness programs.

Importance and Background of Worksite Wellness Programs

A plethora of literature exists in the area of worksite health/wellness promotion, including the discussion of program ideas, implementation, and evaluations, as well as reviews of a variety of programs in different worksite settings. However, the vast majority of the literature reviewed dealt only with the implementation and benefits of worksite health promotion programs within large corporations. Such findings indicate that the benefits associated with these programs include a decrease in employee absenteeism, weight, smoking, and heart disease risk and an increase in productivity, morale, and worker loyalty (Shi, 1993; Huston, 1990). With such benefits from these wellness programs, many businesses can anticipate that the programs will help to decrease the amount they spend per employee on health care, which was \$3,741 on average

in 1996, as well as have a more stable, better-performing workforce (Lugo, 1997).

Hospitals appear to be lagging behind other organizations in providing health promotion programs for their workforce. This is surprising; in view of the fact that they report the second highest rates of illness and injury compared to other professions, as well as higher rates of injury than non-health care workers. Combined with the fact that the nursing profession is ranked as one of the top 15 most stressful careers by the National Safety Council, this is more than adequate justification that the hospital population is unique and needs to have programs aimed at their specific needs (Woods, 1996).

Yet, few hospitals have joined in the movement seen in other industries to develop wellness programs for their own employees. Hospitals need to follow the lead set by other organizations in devising appropriate and effective wellness interventions for their employees, so that they will not only portray a healthy image to the community but also receive the myriad of benefits that other industries have experienced (Huston, 1990). The ultimate outcome for the community will be a better level of care from the hospital (Khoiny, 1987).

Current Programs for Hospital Employees

With hospitals experiencing health care costs and injury claims that equal or exceed those of other businesses and industries, an increase in the desire by

hospital management to implement employee health/wellness promotion programs at their hospitals has occurred recently. However, since the early 1980s, some hospitals have already been looking after their employees' health through prevention efforts. For example, in 1984, Erlanger Medical Center provided a dietary modification program for female hospital employees (Heath & Broadhurst, 1984). Another example of a hospital employee wellness program is that of Hartford Hospital, which began in 1982. Their program focused on physical fitness, nutrition, stress management, and modification of high-risk behaviors (Rielly, Gunn, & Sadowski, 1987).

Methodist Hospital in Memphis, Tennessee has developed a worksite health promotion program that focuses on nurses called "Nurse to Fit." The need for this focus became apparent when 66% of the nurses reported not being physically active, 33% were clinically obese, and only 43% said they practiced a healthy lifestyle (Speros & Knack, 1994). The program is focused on the unique health risks and environmental, personal, and professional stresses faced by the nursing profession. The program goal was to help create a positive culture and attitude toward healthy lifestyle practices (Speros & Knack, 1994).

Another hospital employee wellness program reported in the literature includes the Beth Israel Hospital in Boston, which created an Employee Ambassador Program. The program focused on increasing participation among employees in the hospital's wellness program. The hospital had an onsite fitness

facility in which program participation was low; therefore, this new program strategy was initiated to increase the rates of employee usage (Frampton, Brochu, & Murray, 1996). Lourdes Hospital in New York initiated a program called "Nursing Wellness." This program was aimed at dealing primarily with helping nurses to develop ways to cope with stress and address the underlying attitudes of the profession (Demarco, 1991). Sisters of Charity Hospitals in Kentucky developed a program that focused on well being and prevention within their environment. The program addressed smoking cessation, blood pressure and cholesterol control, exercise/fitness, and overall wellness. The goal of the program was to decrease medical claims and absenteeism, and improve job satisfaction. The program was to include four dimensions of wellness: nutritional, spiritual, medical, and fitness (Dundon, 1996).

Evaluations of Hospital Employee Wellness Programs

Brown (1998) conducted an extensive review and analysis of the literature available on worksite wellness programs, using 1,082 articles. The articles were rated for their evidence of program evaluation and effectiveness outcomes. The analysis of the articles showed that only 11 of them contained evidence of the use of randomized trials in the evaluation studies they reported. Brown concluded that more research using stronger methodological designs needs to be done in the evaluation of worksite wellness promotion programs to determine

the actual benefits of such programs. This is particularly true regarding hospital employee wellness programs. Of the six hospital wellness programs discussed above, no formal evaluation was found.

Many studies have been found in the literature in which program evaluations have been conducted; yet most of these studies did not include health risk behaviors as part of their evaluation measures. The literature also contains evaluations of the effectiveness of various strategies used to enhance worksite wellness program participation rates among employees, in which the motives for participation versus non-participation have been addressed (Anspaugh, Hunter, & Savage, 1996). Other studies have focused on the comparison of the demographic characteristics of worksite wellness program participants versus non-participants (Alexy, 1991).

A study at the University of Michigan Medical Centers examined the relationship between employees' preferences for types of worksite wellness programs and their gender and health risk status. However, the impact of the programs on employees' health risks was not addressed (Edington, Sharp, Vreeken, Yen, & Edington, 1997). The goal of North Colorado Medical Center's wellness program, the "Wellness Connection," was to enhance employee wellbeing and curtail rising health care costs. The program focused on behavior change, awareness, education, and work culture enhancement. However, the only program evaluation results reported were related to the success of the

program in decreasing health care utilization and workers compensation claims (Woods, 1996).

Few studies were found in the review of literature for this thesis that evaluated worksite wellness programs for their effectiveness in changing health risk behaviors. Instead, the focus of most of the studies tended to be on the financial benefits and participation numbers associated with the programs. One study that did report positive changes in employee health risk behaviors as a result of worksite wellness program participation is that of Good Samaritan Hospital. This worksite wellness program, called, "Good Health for Good Life," was developed as a partnership between the hospital and Summex Corporation. The evaluation of the program showed that in 1997, the employees who participated in the program increased their aerobic activity by 20.7%, and had a 7.8% decrease in weight. The company also reported that it spent \$513.71 less that year in health care costs on program participants versus non-participants (Wellness program results, 1998).

Providence General Hospital's wellness program was also evaluated for its effectiveness, and positive outcomes of the program were found. Its program, "Wellness Challenge," helped to decrease health care costs by \$1.5 million over a three-year period, while also lowering absenteeism and improving health behavior. This has resulted in the hospital's having 33.6% fewer health care

claims compared to the average claims experience at nine similar hospitals in the region (Chapman, 1996).

As this review of literature has shown, although many hospitals are implementing programs for their employees and have had positive results, few evaluations have been conducted concerning the impact of the programs on employees' positive health behavior risks. Evaluation of the effectiveness of hospital employee wellness programs in decreasing the participants' health risk behaviors is important in providing health educators and health promotion planners the information they need to determine what types of programs will be most appropriate and most effective for this unique workforce population.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine the relationship between hospital employees' participation in a worksite wellness program and positive changes in their health behaviors related to diet, exercise, and weight management. In this chapter, the setting, population, sample, instrument design, data collection procedures, and treatment of the data are discussed.

Setting

Employees at a hospital located in North Texas were surveyed at the completion of year one of a worksite wellness program initiated at their facility. The setting for this study was 110-bed non-profit community hospital located in a small city with a population of approximately 70,000 people in the North Texas region. This hospital initiated a wellness program for its employees in the fall of 1997, partially funded by a grant from the Texas Department of Health to the Texas Woman's University for the development of worksite weight management initiatives at the hospital. The study reported in this thesis is part of a comprehensive evaluation of the outcomes of the first-year implementation of the wellness program.

Wellness Program Activities and Components

The wellness activities and components initiated at the hospital during the past 12 months varied in content. The activities were as follows: “Lunch n’ Learn” health/fitness seminars, “Five-a-Day” healthy eating campaign to encourage daily eating of fruits and vegetables, “Weight Watchers at Work” weight management program, two employee wellness fairs, “Walk Across America” fitness contest, indoor walking trail, outdoor walking trail, employee wellness resource room, and the employee walking club. In addition to these activities, two wellness-related components were provided at the hospital: a health-risk-related insurance program called “Healthy Solutions,” and the offering of discounted memberships for hospital employees to Global Fit fitness centers located in surrounding communities.

The “Healthy Solutions” risk management program is a health-risk-rated health benefits program that offers the incentive of lower health insurance premiums for employees who are at low health risk based on certain health risk factors, or who are attempting to make a positive change in their health risk behaviors. The program is administered for the hospital by a third-party organization. Employee participation in the program is voluntary, but participants are required to remain in the program for at least 12 months. To qualify for the program, the employee must complete the “Healthy Solutions” health risk appraisal (HRA), which includes a health risk questionnaire, cholesterol and,

blood pressure screenings, and height/weight/frame size measurement. The HRA questionnaire is used to gather self-reported information on the following health risk areas: stress, exercise, back care, smoking, driving habits, weight control, dietary habits, self-care, mental health, alcohol consumption, and frequency of health checkups.

The results of the HRA questionnaire and physiological measures are summarized for each participant in an individual "Health Risk Profile." The profile reviews the participant's present level of health, outlines potential risk areas, and gives specific recommendations for positive steps that person can take to modify personal behavior-related factors. If the participant's health risk profile indicates one or more significant risk factors related to lack of exercise, smoking, overweight, high blood pressure, or high cholesterol, that person must pay a higher health insurance premium than participants who do not have these risk factors. For those "at risk" participants, the cost of the premium increases incrementally based on the number of risk factors present. However, if "at risk" participants complete and sign an "Individual Action Plan" and pursue that plan to modify their risk conditions, they will qualify for the lower-risk premium. As a result, this program provides a financial incentive for "at risk" participants to change their health risk behaviors.

Study Population and Sample

The population for this study was identified as all employees (N =449) at the North Texas hospital. These individuals included nurses, laboratory technicians, human resources personnel, and other support personnel. A non-randomized sample of convenience was used. The hospital population is 82% Caucasian, 8.0% African American, 8.0%Hispanic, 1.1%American Indian and less that 1% Asian. The employees consist of 77.2% female and 22.8% male. A total of 449 employees of the hospital were included in the sample for the study, and 97 employees (21.6%) voluntarily participated in the study by returning completed survey questionnaires. A letter of permission and cooperation regarding the involvement of the hospital's employees in this study was obtained from an authorized representative of the hospital (See Appendix A).

Protection of Human Subjects

Prior to initiation of this thesis study as well as the comprehensive program evaluation conducted under the grant project, an application for review of the use of human subjects in this investigation was submitted by the grant project director to the Human Subjects Review Committee of Texas Woman's University and received approval (See Appendix B). Only volunteers were used in this study. In order to protect the anonymity and confidentiality of the subjects, no names of survey respondents were solicited on the survey questionnaire. A

statement at the beginning of the survey questionnaire explained the purpose of the study, that subjects' participation was anonymous and voluntary, and that by completing and returning the questionnaire the subjects were providing their informed consent to participate in the study (See Appendix C).

Development of the Instrument

The instrument used for collection of data in this study was developed by the researcher and the project director of the worksite wellness program evaluation being conducted by Texas Woman's University under the grant from the Texas Department of Health. The questionnaire was used to collect the following types of information from the employee respondents: 1) demographic information, 2) health risk status, 3) health/fitness behaviors, 4) health/fitness interests, 5) readiness to change health/fitness behaviors, and 6) any additional comments the subjects wanted to add (See Appendix C).

The items from the survey questionnaire that were pertinent to this thesis study were those which dealt with the subjects' participation in wellness program activities or components during the past 12 months, and their reported positive changes in diet, exercise, and weight management during that same time period. To gather these data, the following questionnaire items were used: questions 3 and 4 (gender and race/ethnicity); 6 (participation in the risk-rated health insurance premium program); 14 (positive changes in diet, exercise, and weight

loss during the past 12 months); and 24 and 25 (participation in the hospital's employee wellness activities during the past 12 months(See Appendix C).

To assure the content validity of the survey questionnaire, three health promotion professionals reviewed the questionnaire and provided the researcher with feedback and recommendations for revision. These revisions included the addition of blood pressure and cholesterol as an item, as well as behavior modifications. After revisions were made based on the expert review, a pilot study was conducted with eight employees at the hospital. Based on the results of this pilot study, final revisions to the instrument were made and the instrument was administered to the study sample.

Procedure for Data Collection

The investigator collected the data for the study by distribution of the survey questionnaires to the 449 employees via the hospital's internal mailing system. The questionnaires were attached to the employees' paychecks by the hospital's human resources staff. The employees then had three weeks to complete and return the survey questionnaire. Upon completion of the questionnaires, the participants placed them in either the occupational health nurses' mailbox or a marked survey collection box in the hospital cafeteria, both of which were accessible to all employees. At the end of the three-week period for returning the completed questionnaires, the hospital's occupational health

nurse collected the submitted questionnaires from the two survey collection boxes and provided them to the investigator.

Treatment of the Data

From the data, groupings were made of participants and non-participants of the wellness program. These groups were assigned based on participation in any of the wellness activities or programs offered to the employees. To analyze the data, descriptive statistics and chi-square tests for significant differences in health-risk behavior change for the participant versus non-participant groups were performed, using the SPSS for Windows statistical package.

CHAPTER IV

FINDINGS

In this chapter, the findings from the data analysis for this study are presented. The sections of the chapter include the following: survey response rate, demographics of the subjects, program participation, positive health risk behavior changes, and summary of the findings.

Survey Response Rate

Survey questionnaires were distributed to the 449 employees at the hospital. A total of 97 questionnaires were returned, for a 21.6% return rate.

Demographics of the Subjects

Table 1 presents the demographic characteristics of the subjects. The majority of the respondents were female (81.6%) and Caucasian (85.7%); 5.1% were African American and 5.1% were Hispanic. The age range of the respondents was 21 to 60 years of age, with the majority of the subjects in the 31-40 (34.7%) and 41-50 (34.7%) age ranges.

Table 1

Demographic Characteristics of the Subjects (N=97)

Demographics	N	% of Total Respondents
Caucasian	84	85.7
African American	5	5.1
Hispanic	5	5.1
American Indian	1	1.0
Asian	1	1.0
Other	1	1.0
Males	17	17.3
Females	80	81.6
Ages 20-30	19	19.4
Ages 31-40	34	34.7
Ages 41-50	34	34.7
Ages 51+	9	9.2

Program Participation

Table 2 presents the program participation rates of employees for the 11 worksite wellness program activities and components offered by the hospital during the 12-month period evaluated in this study. Of the 97 respondents in this study, 64 (66%) of them were participants in at least one of the activities or components, and 33 (34%) were non-participants. The activities/components receiving the highest participation rates were the “Healthy Solutions” risk-rated health premium program, with 51 (52.6%) of the respondents indicating that they had participated in that component; and the two health fairs, with a combined participation of 28 (28.9%) of the respondents. The lowest participation was for the resource room, with only one participant (1%).

Table 3 shows the overall level of participation in program activities/components by the respondents during the 12-month period. Of the 64 participants, most of them participated in only one or two activities/components, with 29 (45.3%) reporting they had participated in one program offering, 14 (21.9%) in two program offerings, 7 (10.9%) in three program offerings, and 14 (21.9%) in more than three of the program activities/components. These levels of participation are presented graphically in Figure 1.

Table 2

Respondents' Participation in Program Offerings

Program Activity/ Component	No. of Participants	% of Total Respondents
Healthy Solutions	51	52.6
Lunch 'n Learn	9	9.3
Five-a-Day Campaign	14	14.4
Weight Watchers	8	8.2
Health Fairs	28	28.9
Indoor Walking Trail	11	11.3
Outdoor Walking Trail	3	3.1
Walking Club	4	4.1
Walk Across America	7	7.2
Global-Fit	4	4.1
Resource Room	1	1.0

Table 3

Overall Participation Levels

Total number of program components/activities	No. of Participants	% of Participants
1	29	45.3
2	14	21.9
3	7	10.9
4	4	6.3
5	3	4.7
6	3	4.7
7	2	3.1
8	1	1.6
9	<u>1</u>	<u>1.6</u>
Total	64	100.0

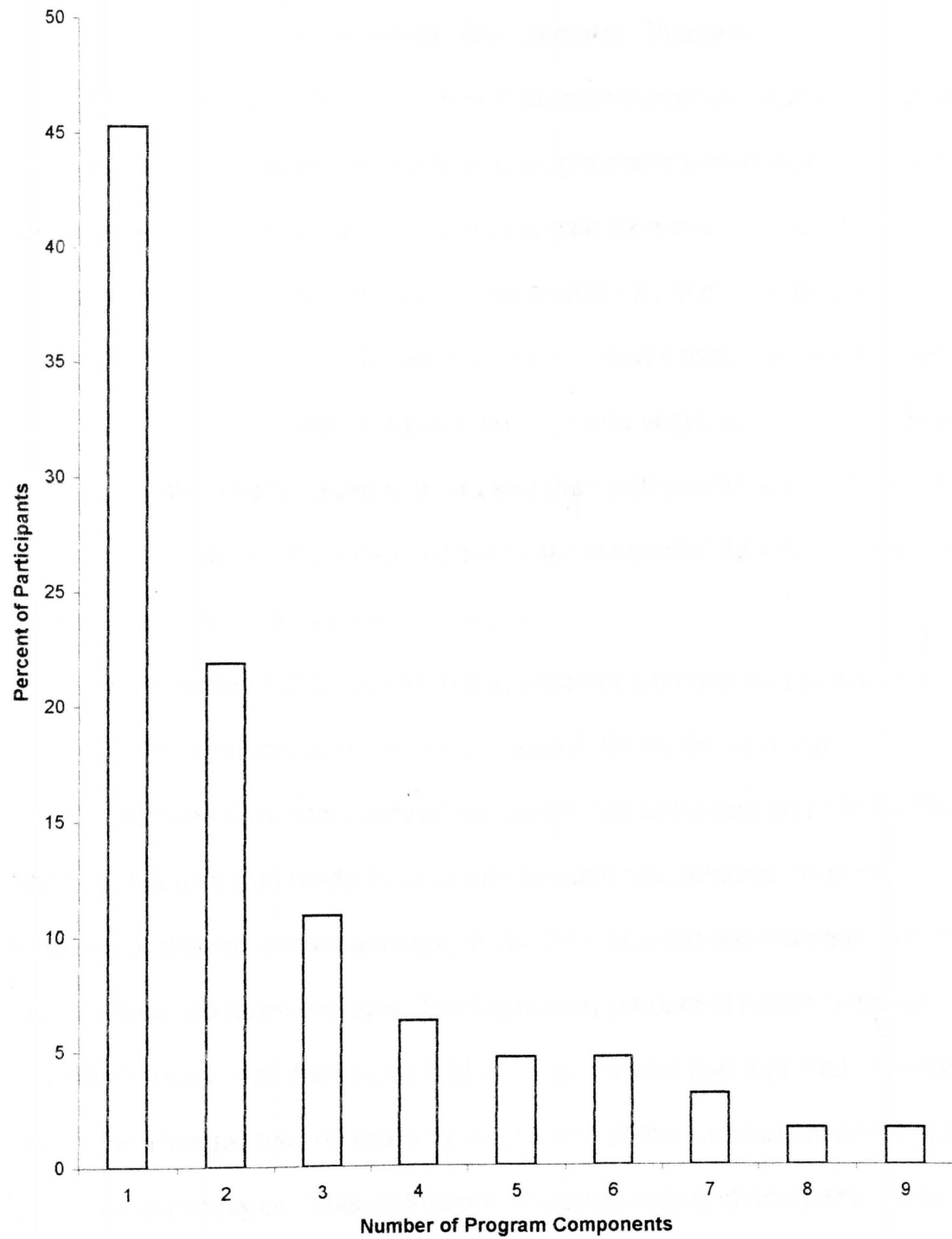


Figure 1. Percentages of Participants per Total Number of Program Components in Which They Participated

Positive Health Risk Behavior Changes

Table 4 presents the descriptive statistics for positive health risk behavior changes, including dietary, exercise, and weight management behaviors, for participants and non-participants during the past 12 months. The participants did have positive results for decreased fat intake (64.1%) and increased fruits and vegetables in their diet (45.3%) were as the non-participants decreased their fat intake as well (63.6%) and increased their fruit and vegetable intake (54.5%). Of the participants, 40.6% began or increased their exercise habits, and only 25.4% lost weight. However, the non-participants had a reported 42.4% increase their exercise and a reported 45.5% lost weight.

The number of positive health risk behavior changes for participants versus non-participants is presented in Table 5. Of the 64 participants, 23 (35.9%) reported they had changed two health risk behaviors and 13 (20.3%) reported that they had made three positive health risk behavior changes. Whereas of the non-participants only 8 (24.2%) reported two changes, yet 11 (33.3%) reported three changes. The least likely amount of health behavior changes to occur was 4 with only 4 (6.3%) participants and 3 (9.1%). No positive health risk changes was reported by 12 (18.8%) of the participants and 4 (12.1%) of the non-participants. This distribution of participants and non-participants behavior changes is graphically depicted in Figures 3 and 4.

Using the Pearson chi-square test, the differences between the participants and non-participants for positive health risk behavior changes were tested for statistical significance. The results of these chi-square tests are presented in Table 6. The level of significance used was 0.05. No statistically significant differences were found between the two groups on these behavior change measures, except for weight management, where a greater proportion of the non-participants reported positive changes in weight management behavior compared to the than the participants ($p = .046$).

Table 4

Positive Health Risk Behavior Changes for Participants and Non-Participants

Positive Health Risk Behavior Changes	Participants		Non-Participants	
	N	%	N	%
Increased fruits and vegetables	29	45.3%	18	54.5%
Decreased fat intake	41	64.1%	21	63.6%
Began or Increased	26	40.6%	14	42.4%
Managed weight	16	25.4%	15	45.5%

Table 5

Number of Positive Health Risk Behavior Changes for Participants versus Non-Participants

No. of Positive Health Risk Behavior Changes	Participants		Non-Participants	
	No.	%	No.	%
No Change	12	18.8	4	12.1
One Change	11	17.2	7	21.2
Two Changes	23	35.9	8	24.2
Three Changes	13	20.3	11	33.3
Four Changes	4	6.3	3	9.1

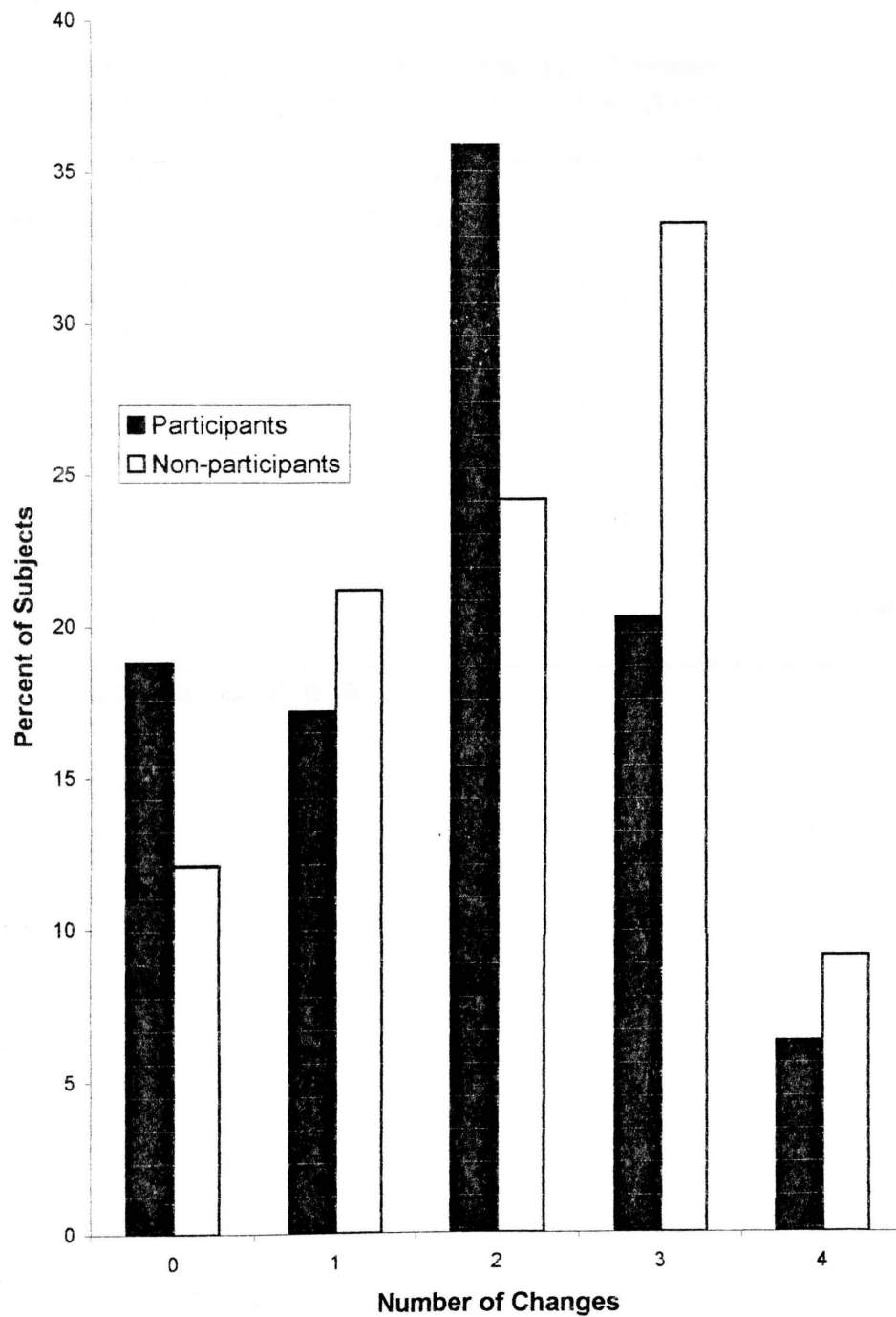


Figure 2. Number of Positive Health Risk Behavior Changes for Participants vs. Non-participant

Table 6

Test of Statistical Significance of Difference Between the Participant Group and Non-Participant Group for Positive Health Risk Behavior Changes

Health risk behavior change	Pearson Chi-square value	df	p
Increased fruits and/or vegetables	0.743	1	.398
Decreased fat intake	0.002	1	.967
Began/increased exercise	0.029	1	.865
Lost weight	3.985	1	.046*

*Significant at the .05 level.

Summary of the Findings

In summary, both the participants and non-participant groups showed increases in their positive health risk behaviors. The participants and non-participants both had overall positive health risk behavior changes. A total of 64.1% of the participants decreased their fat intake, compared to 63.6% of the non-participants, 45.3% reported an increase of fruit and vegetable intake, compared to 54.5% of the non-participants, and 40.6% reported an increase in their exercise habits, which is compared to 42.4% of the non-participants. Only 25.4% made a positive change in their weight during the past 12 months, compared to 45.5% of the non-participants. No statistically significant difference was found between the two groups for the positive changes made in diet or exercise. However, a statistically significant difference was found for weight management, with the non-participant group having a significantly higher proportion of respondents who made positive health behavior change for this measure compared to the participant group.

CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary of this study, discussion of the findings, and conclusions. Recommendations for future research studies are also presented.

Summary of the Study

The purpose of this study was to examine the relationship between hospital employees' participation in a worksite wellness program and their positive changes in health risk behaviors related to diet, exercise and weight management. In addition, this study also conducted a comparison of participants versus non-participants regarding their level of program participation and the extent of their positive health risk change.

The sample of convenience used in this study included 449 employees of the hospital. A total of 97 surveys were returned, for a 21.6% return rate. The instrument used to collect the data was a survey questionnaire developed by the researcher and the project director of the worksite wellness program evaluation project being conducted by Texas Woman's University under a grant from the Texas Department of Health. The questionnaire was used to collect the following

types of information from the employee respondents: 1) demographic information, 2) health risk status, 3) health/fitness behaviors, 4) health/fitness interests, 5) readiness to change health/fitness behaviors, and 6) any additional comments the subjects wanted to add. The items from the questionnaire that were used in this thesis study were those dealing with the subjects' participation in wellness program activities or components during the past 12 months, and their reported positive changes in diet, exercise, and weight management during that same time period.

To analyze the data, descriptive statistics and chi-square tests for significant differences in positive health-risk behavior change for the participant versus non-participant groups were performed, using the SPSS for Windows statistical package. Of the 97 subjects, 64 were participants and 33 were non-participants. A total of 64.1% of the participants decreased the fat in their diet, 45.3% increased their fruit and vegetable intake, and 40.6% reported they either began exercising or increased their level of exercise. This is compared to 63.6% of the non-participants who decreased their fat intake, and 54.5%, who increased their fruit and vegetable intake. However, 45.5% of the non-participants decreased their weight compared to only 25.4% of the participants. Eleven (17.2%) of the participants reported one positive health risk change, 23 (35.9%) of the participants made positive changes in two health risk behaviors, and 13 (20.3%) had three or more positive health risk behavior changes; and 12 (18.8%)

reported no positive changes in health risk behaviors. Whereas the non-participants had only 8 (24.2%), change two positive health risk behaviors, compared to 23 (35.9%) of the participants. Of the four positive health risk changes analyzed, a statistically significant difference between the groups was found for only one positive change: weight management.

Discussion

The results of this study indicate that the worksite wellness program provided for employees at this hospital had little impact on the program participants compared to non-participants in regard to their making positive health risk behavior changes. Surprisingly, the non-participant group actually had slightly better outcomes compared to the participant group for the two of the four behavior changes, and a significantly better outcome for the weight management change. However, it is possible that these findings could have been influenced by several factors.

First of all, since the study was a relatively small convenience sample, it may not have been representative of all participants and non-participants employed at the hospital. Secondly, few of the participants participated in those wellness program activities which required substantial involvement of the employee in making a behavior change. Instead, most of the participants were involved in the more passive program offerings, such as the Healthy Solutions

risk-rated health premium program component and attendance at the health fairs.

These kinds of awareness and education programs are important in helping individuals to recognize the need for positive behavior change, but have little direct impact on their actually taking behavior-change action. Thirdly, the non-participants could have been participating in wellness or fitness programs other than the hospital's program during the 12-month period, which could have resulted in their making positive health behavior changes due to these external programs. This is a plausible explanation, since the hospital environment is very structured, restrictive, and demanding in its work schedules, so that employees could not participate in some of the more intensive and time-consuming behavior-change activities offered by hospital's worksite wellness program during the employees' shifts.

Fourthly, the non-participants could have been trying to make positive changes in their behavior to be accepted for the "Healthy Solutions" risk rated program, thereby resulting in their having a higher percentage of positive health risk behavior changes. Fifthly, since the subject group was a convenience sample who voluntarily participated in the study, the non-participants who responded may be over represented by the individuals who were motivated to respond because they had made a positive health behavior change. Conversely, those who did not make such a change may have been less interested in responding to the survey. Lastly, the non-participants have made a positive

change in one of these health behaviors due to direct or indirect influence of a co-worker who participated, or simply because they heard about the program and decided to make the changes on their own.

Conclusions

Using the Pearson chi-square test, the differences between the participants and non-participants for positive health risk behavior changes were tested for statistical significance at the .05 level. Based on the results of this analysis of the data, the following conclusions can be made regarding the three null hypotheses used for this study:

Null Hypothesis 1: There is no statistically significant difference in positive dietary behaviors during the past 12 months between hospital employees who participated in the employee wellness program and those who did not participate. This null hypothesis was not rejected.

Null Hypothesis 2: There is no statistically significant difference in positive exercise behaviors during the past 12 months between hospital employees who participated in the employee wellness program and those who did not participate. This null hypothesis was not rejected.

Null Hypothesis 3: There is no statistically significant difference in positive weight management behaviors during the past 12 months between hospital employees who participated in the employee wellness program and those who did not participate. This null hypothesis was rejected.

The findings from this study suggest that more appropriate wellness programs offerings need to be implemented at hospitals. Hospital employee work schedules and time restraints need to be taken into consideration when planning such programs. Inclusion of an array of incentives for participation in the program and as rewards for making positive behavior changes, such as prizes, awards, or monetary rewards, would likely increase the program's impact on the employees' health risk behaviors.

Recommendations for Further Research

Based on the findings and conclusions from this study, the following recommendations for further research are made:

1. Replicate the study using a larger sample size from different hospitals that provide wellness programs for their employees.
2. Replicate the study using other outcome measures (e.g., reduction in blood pressure, reduction in serum cholesterol, etc.)
3. Replicate the study at the same hospital after changes in the program have been made, e.g., addition of more appropriate program offerings and/or incentives for participation and behavior change.
4. Redesign the instrument or make modifications for improved validity and reliability.

Future study of worksite wellness programs for hospital employees is imperative for a better understanding of this unique work environment. Health educators and other health professionals need this information in order to design and implement more effective hospital worksite programs in the future.

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APPENDICES

APPENDIX A

Hospital Approval

October 16, 1998

Robin Rager, PhD
Department of Health Studies
Texas Woman's University
P.O. Box 425499
Denton, TX 76204-5499

Dear Dr. Rager:

We are pleased to provide you and your graduate students at Texas Woman's University with permission to conduct a survey of our Hospital employees regarding their health/fitness status, behaviors, needs, interests, and program participation.

As you and I discussed, we will assist in this study by printing the questionnaires using the camera-ready original you provide to us, and distributing the questionnaires to all employees. We will also collect the completed questionnaires by having the employees drop them in the survey box in the hospital cafeteria or send them to me via interoffice mail. We will then provide you with the completed questionnaires for analysis of the data.

We understand that this survey will be anonymous, and that our employees will be at minimal risk as human subjects in the study via their completion of the survey questionnaire.

Please let us know if you will need any other support from us to conduct this survey. We look forward to working with you in this cooperative effort.

Sincerely,

Manager, Occupational Health Services

APPENDIX B

Human Subjects Review Committee Approval

TEXAS WOMAN'S
UNIVERSITY
DENTON / DALLAS / HOUSTON

HUMAN SUBJECTS
REVIEW COMMITTEE
P.O. Box 425619
Denton, TX 76204-5619
Phone: 940/898-3377
Fax: 940/898-3416

October 23, 1998

Dear

Your study entitled "The Relationship Between Health Risk Status, Health Behaviors, and Stage of Readiness and Employee Interest and Participation in a Worksite Health Promotion Program" has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

Be reminded that both the University and the Department of Health and Human Services (HHS) regulations typically require that agency approval letters and signatures indicating informed consent be obtained from all human subjects in your study. **These consent forms and agency approval letters are to be filed with the Human Subjects Review Committee at the completion of the study. However, because you do not utilize a signed consent form for your study, the filing of signatures of subjects with the Human Subjects Review Committee is not required.**

Your study was determined to be exempt from further TWU HSRC review. However, another review by the Committee is required if your project changes. If you have any questions, please feel free to call the Human Subjects Review Committee at the phone number listed above.

Sincerely,



Chair

Human Subjects Review Committee

cc. Graduate School
Dr. Sondra Ferstl, Office of Research & Grants Administration
Dr. Susan Ward, Department of Health Studies

APPENDIX C

Survey Questionnaire

Employee Wellness Program Survey

Dear Employee:

In cooperation with Texas Woman's University, _____ is conducting an employee wellness study. The purpose of the study is to determine the health behaviors, health risk status, health/fitness program interests, and Employee Wellness Program participation of _____ employees. Your responses to the survey below will provide valuable information for use in designing effective and popular _____ Employee Wellness Program offerings during the coming year.

The survey should take about 15 minutes for you to complete. Your participation in this survey is voluntary. Since we are not requesting your name on the questionnaire, your responses will be anonymous – we will not know the identity of anyone completing this survey. *Your return of your completed questionnaire constitutes your consent to act as a subject in this study.*

The results of the survey will be reported in the employee newsletter. You can contact me at 7160 if you have any questions or concerns about the study. Thank you!

Manager, Occupational Health Services
Employee Wellness Program

Directions: Please complete all sections of this questionnaire, and drop it in the _____ Employee Wellness Program Survey box in the hospital cafeteria or send it to Occupational Health Services, **by Friday, November 6.**

-
1. Department: _____
 2. Job Position: _____
 3. Gender: ☐ Male ☐ Female 4. Age: _____
 5. Race/Ethnicity: ☐ African American or Black ☐ Hispanic
 ☐ American Indian or Alaska Native ☐ White
 ☐ Asian or Pacific Islander ☐ Other
 6. During the past year (prior to September 1998), were you enrolled in the "Healthy Solutions" Health Risk Management program in which your health insurance premium rates are based on your health risk status? ☐ Yes ☐ No
 7. Are you currently enrolled in the "Healthy Solutions" risk-rating program?
☐ Yes
☐ No → Why are you not enrolled in this program? (Check all that apply):

☐ I have too many health risk factors to qualify
☐ I don't think I can modify my health risk factors enough to qualify
☐ I don't think the insurance premium cost savings is worth the time and effort involved in qualifying for the program
☐ Other: _____

8. Have you ever been informed by a health professional that you have any of the following health problems?

Cancer	☐ Yes	☐ No	☐ Not sure
Diabetes	☐ Yes	☐ No	☐ Not sure
Heart disease	☐ Yes	☐ No	☐ Not sure
High blood pressure	☐ Yes	☐ No	☐ Not sure
High cholesterol	☐ Yes	☐ No	☐ Not sure
More than 20 lbs. overweight	☐ Yes	☐ No	☐ Not sure

9. Has any member of your birth family (father/mother, sister/brother, grandparent) had any of the following health problems?

Cancer	☐ Yes	☐ No	☐ Not sure
Diabetes	☐ Yes	☐ No	☐ Not sure
Heart attack (before age 55)	☐ Yes	☐ No	☐ Not sure
High blood pressure	☐ Yes	☐ No	☐ Not sure
High cholesterol	☐ Yes	☐ No	☐ Not sure
More than 20 lbs. overweight	☐ Yes	☐ No	☐ Not sure

10. How many servings of fruits and/or vegetables do you eat during a typical day?
(One serving = 1 cup of fresh vegetables, or ½ cup of cooked vegetables, or 1 cup of fruit, or ¾ cup of fruit juice)

☐ 1 or fewer servings per day	☐ 4-5 servings per day
☐ 2-3 servings per day	☐ More than 5 servings per day

11. Approximately what percentage of high-fat vs. low-fat foods do you consume during a typical day?

☐ Less than 25% high-fat	☐ 50% high-fat
☐ 25% high-fat	☐ 75% high-fat or greater

12. Do you exercise for a total combined time of at least 30 minutes per day, at least 3 days per week?

☐ No ☐ Yes → Exercise level (check one):

- ☐ light exercise (e.g., stretching; slow walking)
- ☐ moderate exercise (e.g., brisk walking; jogging)
- ☐ heavy exercise (e.g., intensive running/cycling/swimming)

13. Do you currently smoke or use smokeless tobacco? ☐ Yes ☐ No

14. During the past 12 months, which of the following changes have you made (and maintained) to reduce your health risks? (Check all that apply):

- ☐ I'm eating more fruits and/or vegetables in my diet
- ☐ I'm eating fewer high-fat foods in my diet
- ☐ I've reduced the level of cholesterol in my blood
- ☐ I've increased my level of exercise (check all that apply):
 - ☐ From sedentary (inactive) → light exercise
 - ☐ From light exercise → moderate exercise
 - ☐ From moderate exercise → heavy exercise
- ☐ I've reduced my weight
- ☐ I've reduced my blood pressure
- ☐ I've stopped smoking and have remained non-smoking
- ☐ I've stopped using smokeless tobacco (snuff, chewing tobacco)
- ☐ Other: _____
- ☐ None of the above

15. During the past 12 months, have you decreased your consumption of high-fat foods at the cafeteria?
- ☐ Yes ☐ No → Why not? (Please check all that apply):
- ☐ I didn't like the lower-fat food choices on the menu
 - ☐ The high-fat food choices were more appealing to me
 - ☐ Other reason: _____
- ☐ I didn't purchase food at the cafeteria
16. During the past 12 months, have you increased your consumption of fruits and/or vegetables at the cafeteria?
- ☐ Yes ☐ No → Why not? (Please check all that apply):
- ☐ I didn't like the fruit or vegetable choices on the menu
 - ☐ The high-fat food choices were more appealing to me
 - ☐ Other reason: _____
- ☐ I didn't purchase food at the cafeteria
17. During the past 12 months, have you routinely selected low-fat foods from the snack machines rather than high-fat foods?
- ☐ Yes ☐ No → Why not? (Please check all that apply):
- ☐ I didn't like the low-fat food choices in the snack machines
 - ☐ The high-fat food choices were more appealing to me
 - ☐ Other reason: _____
- ☐ I didn't purchase food from the snack machines
18. During the past 12 months, have you routinely selected fruit juice from the snack machines rather than soft drinks?
- ☐ Yes ☐ No → Why not? (Please check all that apply):
- ☐ I didn't like the fruit juice choices in the snack machines
 - ☐ The soft drink choices were more appealing to me
 - ☐ Other reason: _____
- ☐ I didn't purchase beverages from the snack machines
19. Which of the following best describes your plans about eating fruits and/or vegetables?
- ☐ I have no plans to eat more fruits and/or vegetables within the next 6 months
 - ☐ I am thinking about eating more fruits and/or vegetables within the next 6 months
 - ☐ I am making plans to eat more fruits and/or vegetables within the next 30 days
20. Which of the following best describes your plans about eating high-fat foods?
- ☐ I have no plans to eat fewer high fat foods within the next 6 months
 - ☐ I am thinking about eating fewer high-fat foods within the next 6 months
 - ☐ I am making plans to eat fewer high-fat foods within the next 30 days
21. Which of the following best describes your exercise plans?
- ☐ I have no plans to do more exercise within the next 6 months
 - ☐ I am thinking about doing more exercise within the next 6 months
 - ☐ I am making plans to do more exercise within the next 30 days

22. Which of the following best describes your plans about your weight?

- ☐ I have no plans to lose weight within the next 6 months
- ☐ I am thinking about losing weight within the next 6 months
- ☐ I am making plans to lose weight within the next 30 days
- ☐ I am currently involved in a weight loss program

23. Which of the following best describes your plans about smoking or smokeless tobacco use?

- ☐ I have no plans to quit smoking/smokeless tobacco use within the next 6 months
- ☐ I am thinking about quitting smoking/smokeless tobacco use within the next 6 months
- ☐ I am making plans to quit smoking/smokeless tobacco use within the next 30 days

24. During the past 12 months, have you participated in any I employee wellness activities or used any employee wellness resources?

☐ Yes → Which of the following activities or resources? (Check all that apply):

- ☐ "Lunch n' Learn" health/fitness seminars
- ☐ "Five A Day" healthy eating campaign
- ☐ "Weight Watchers At-Work" weight management program
- ☐ Fall 1997 employee wellness fair
- ☐ Fall 1998 employee wellness fair
- ☐ "Walk Across America" fitness contest
- ☐ Indoor walking trail
- ☐ Outdoor walking trail
- ☐ Employee Wellness Resource Room
- ☐ Employee Walking Club

☐ No → Please indicate why you didn't participate in the activities or use the resources. (Check all that apply):

- ☐ I wasn't aware of the wellness activities/resources offered to employees
- ☐ I'm too busy with my job responsibilities to participate in the activities
- ☐ I wasn't interested in the activities/resources offered
- ☐ Other reason: _____

25. During the past 12 months, have you purchased a discounted fitness center membership available to employees through "GlobalFit"?

☐ Yes

☐ No → Please indicate why you didn't purchase a discounted GlobalFit membership. (Check all that apply):

- ☐ I wasn't aware that the discounted membership was available to me
- ☐ Even with the discount, the membership was too expensive for me
- ☐ I wasn't interested in having a fitness center membership
- ☐ I'm a member of another fitness center
- ☐ Other reason: _____

26. If they were offered at _____, in which of the following wellness program activities would you participate? (Check all activities that you would participate in):

- ☐ A healthy diet/exercise program in which you received "rewards" (coupons for free healthy cafeteria food items and free health/fitness items) for exercising and having a healthy diet.
- ☐ A stair-climbing program in which you received "rewards" (coupons for free healthy cafeteria food items and free health/fitness items) for using the stairs instead of the elevators.
- ☐ "Weight Watchers At-Work" weight management program
- ☐ An employee walking club

- ☐ An employee jogging club
- ☐ An employee cycling club
- ☐ An on-site aerobics class
- ☐ Other: _____

27. If they were offered at _____ which of the following wellness program resources would you use?
(Check all resources that you would use):

- ☐ Health/fitness/diet videos for you to borrow
- ☐ Health/fitness/diet books for you to borrow
- ☐ Health/fitness/diet CD-ROM programs for you to borrow
- ☐ On-site cardiovascular equipment (e.g., treadmills, exercise bikes)
- ☐ On-site weight equipment (e.g., Nautilus, free weights)
- ☐ Other: _____

28. Would you be willing to pay a small fee to participate in the on-site aerobics class?

- ☐ Definitely ☐ Maybe ☐ Definitely not

29. Would you be willing to pay a small fee to use the on-site cardiovascular and weight equipment?

- ☐ Definitely ☐ Maybe ☐ Definitely not

30. Any suggestions or comments you would like to provide to us?

***** Thank you for your participation in this survey! *****