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Client choice in coronary artery disease risk factor reduction : significance for worksite health promotion intervention

Gail Ann McKay
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Significance for worksite health promotion intervention**

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San Jose State University, 1991

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**CLIENT CHOICE IN CORONARY ARTERY DISEASE
RISK FACTOR REDUCTION: SIGNIFICANCE FOR
WORKSITE HEALTH PROMOTION INTERVENTION**

A Thesis

Presented to

**The Faculty of the Department of Nursing
San Jose State University**

**In Partial Fulfillment
of the Requirements for the Degree
Master of Science**

By

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May, 1991

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ABSTRACT

CLIENT CHOICE IN CORONARY ARTERY DISEASE RISK FACTOR REDUCTION: SIGNIFICANCE FOR WORKSITE HEALTH PROMOTION INTERVENTION

By Gail Ann McKay

A descriptive study was done to examine client choice in coronary artery disease (CAD) risk reduction in a volunteer sample of 60 county employees. The setting was a predominantly blue collar work force in northern California. Bandura's self-efficacy theory (1977) served as the conceptual framework for this study.

Utilizing the American Heart Association's RISK Scale (a heart hazard appraisal tool), rates of agreement were calculated between the RISK Scale target priority for CAD risk reduction and each client's priority for risk reduction. Although 70% of the sample in this study agreed with the professionals' recommendation for CAD risk reduction as indicated by the RISK Scale, it is important that 30% did not choose the RISK designated target for behavioral change. Results from this study suggest the importance of client choice in contracting to change behavior, but additional research is needed to validate whether choice is essential to compliance with behavioral change.

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Chapter 1

INTRODUCTION

Coronary heart disease is the leading cause of death and disability impacting American workers in their prime productive years. Weinstein et al. (1987) state, ". . . more than one in three Americans will die from coronary heart disease (CHD), and one in five will develop symptoms of CHD before the age of 60" (p. 1417). Multiple lifestyle factors impact coronary heart disease. Therefore, coronary artery disease risk is more effectively assessed and prevented by looking at all major risk factors contributing to this condition. Studies have shown that by initiating lifestyle change, one can significantly reduce coronary artery disease (CAD) risk (Lefebvre et al., 1986; Ostwald, 1989; Superko, Wood, & Haskell, 1985).

Worksite projects for health promotion provide increased client awareness of CAD risk factors and give specific recommendations for alteration of lifestyle. However, knowledge of the need for risk reduction is not enough to cause actual lifestyle change. Factors such as an individual's perception of ability to achieve a goal and sense of control over life are powerful determinants of motivation and behavioral change (Bandura, 1982). Therefore, client participation in selection of lifestyle improvement may be a critical factor in changing behavior.

Statement of the Problem

Assessment and recommendation for CAD risk factor reduction does not necessarily lead an individual to modify his or her lifestyle. The psychology of motivation and behavioral change is complex. However, client choice may influence the substitution of healthy behaviors for unhealthy behaviors. Levenkron and Greenland (1988) found conflict between the client's choice for

lifestyle change and the recommendation for change indicated by the American Heart Association's heart hazard appraisal tool--the RISK Scale. This study was designed to further examine the importance of client choice in initiating behavioral change within a worksite population.

Research Question

This study sought to answer the following question: How often will a client select a RISK Scale designated target as a priority for risk reduction?

Purpose and Need

The purpose of this study was to examine the agreement between the client's priority for risk reduction and the RISK Scale's recommendation in contracting for behavioral change to reduce CAD risk factors. This study was designed to contribute to the literature on motivation for behavior change in employee health promotion.

Coronary heart disease risk factor screening in a worksite population provides opportunities for risk reduction that many adults would not otherwise have. Use of the RISK Scale with this population provides a valid and comprehensive health risk profile for each individual. Data from this study would add to knowledge on behavioral change. Affirmation of client choice as a significant factor in initiating behavioral change would enable one to plan more effective health promotion interventions.

Definition of Terms

For the purpose of this study, the following definitions apply:

1. Self-efficacy refers to the individual's perception of ability to succeed in goal attainment.

2. Relationship is the percentage of agreement between the client selected target and the RISK Scale identified target for coronary artery disease risk factor reduction.
3. Target is a coronary artery disease risk factor.
4. Risk reduction is elimination or control of a factor or factors leading to coronary artery disease.
5. Health risk profile is measured by the RISK Scale, the American Heart Association's validated appraisal instrument (1985).

Research Design

The design of this study was descriptive. Approval to conduct this study was obtained from San Jose State University's Human Subjects Institutional Review Board and from the Public Health Nursing and Health Services Division of a county health department. A volunteer sample of 74 subjects was obtained from a county employee population. A final sample consisted of 60 subjects. After attending an informational session on coronary artery disease, employees were given the opportunity to sign up for free coronary artery disease risk factor screening and counseling sessions held at the worksite. Each subject gave written permission to participate in the research study prior to the screening, and anonymity of the data was preserved through numerical coding.

On four scheduled screening dates at the worksite during a two-month period, measurements of height, weight, blood pressure, and fingerstick total serum cholesterol were taken by trained professional nurses. Each client also completed a demographic data sheet and a health history questionnaire. The clients returned in 1 to 2 weeks following the screening to receive the results and counseling on their coronary artery disease (CAD) risk profile which was calculated by using the American Heart Association's RISK Scale tool. At this

time, the client selected a single personal priority that he or she wanted to address for risk reduction.

The data were analyzed using frequencies and rates to determine the percentage of agreement between client selected target and RISK Scale identified target for CAD risk factor reduction.

Chapter 2

CONCEPTUAL FRAMEWORK

Albert Bandura's self-efficacy theory provides the conceptual framework to understand the motivation for behavioral change to reduce coronary heart disease risk factors. Self-efficacy refers to the individual's perception of ability to succeed in goal attainment and is most influenced by past accomplishments (Bandura, 1977). Since self-efficacy includes the individual's sense of control over life and coping skills, client choice in risk factor reduction becomes an essential factor to consider when planning a health promotion intervention.

According to Kirsch (1986), self-efficacy theory is derived from social learning theory originally reported and developed by Rotter in 1954. In Rotter's social learning theory, expectancy for success was the equivalent of self-efficacy in the decision to initiate a behavior (Kirsch, 1986). Additionally, a social learning theory included reinforcement as a major factor in predicting behavior. The assumption in social learning is that successful accomplishment is a form of reinforcement.

Maddux and Stanley (1986) state, "Self-efficacy expectancy is presumed to have the most powerful influence on both the initiation of a behavior and persistence in the face of frustration or failure" (p. 251). Bandura (1982) states, "The stronger the perceived efficacy, the more likely are people to persist in their efforts until they succeed" (p. 128). Individual perception of self-efficacy is also based on information from verbal persuasion, physiological state, and observation of similar people succeeding in goal accomplishment (Bandura, 1982).

Literature Review

Levenkron and Greenland (1988) studied 241 patients in an ambulatory clinic for heart disease prevention. In contracting for coronary artery disease (CAD) risk factor reduction, they found that mere knowledge of the need for risk reduction was not always enough to initiate behavior change. The American Heart Association's validated health risk appraisal instrument, the RISK Scale, was used to perform CAD risk assessments on the 241 subjects. The measurements used to predict CAD risk were age, sex, smoking status, blood pressure, body weight, and serum cholesterol. On the basis of the RISK Scale, the patient was told the single risk factor that posed the greatest threat to his or her health. Patients then selected a risk factor that they wanted to reduce. The overall rate of agreement between patient's choice for risk factor reduction and RISK Scale target was 63%. Albert Bandura's self-efficacy theory for behavioral change served as the theoretical basis for this study.

Smith, McKinley, and Thorington (1987) studied the validity of over 40 health risk appraisal instruments in terms of the 10 year risk of death due to CAD. They found three characteristics most significant in assigning validity. The first characteristic was the method of risk estimation. Logistic regression analysis had the best correlation in predicting actual risk. Second, the greater the range of risk scores, the more likely the instrument would produce valid results. Third, age was an important risk factor and must be taken into consideration in an accurate tool.

Tools predicting mortality and morbidity ranked the highest in validity. Tools, such as the RISK Scale, predicting overall heart disease risk ranked second. The RISK Scale assigns risk, not based on probabilities but on arbitrary scales, ranging from high to low. Even though RISK is based on the

Framingham, Stanford, and Chicago heart disease studies, the range of potential risk scores is restricted when using arbitrary scales (Smith, McKinley, & Thorington, 1987).

RISKO does take age into consideration and does age-adjusted correlation coefficients for those 54 years of age and under and subjects 55 years of age and older. The scale does not include age directly in each profile but assigns clients to age categories. RISKO acknowledges that if the client is a woman under 45 years or a man under 35 years of age, the score represents an upper limit on the individual's real risk of developing heart disease. The real risk is probably lower than indicated by the client's score.

Ostwald (1989) conducted a health promotion study with a worksite population to determine the degree of intervention needed to produce lifestyle changes in the areas of diet and exercise. Three levels of intervention were utilized and measured: mild, moderate, and intensive. Results of this study indicated that intensive intervention generally did not produce significantly greater results. In accordance with self-efficacy theory, this study showed that employees provided with information about their health status, persuasive information on risk reduction, and a supportive environment make significant behavioral changes with a minimum of intervention.

Brownell, Marlatt, Lichtenstein, and Wilson (1986) reviewed the literature seeking the commonalities in the addictive disorders of obesity, alcoholism, and smoking to understand and prevent relapse in behavioral change. Coping skills as an integral part of self-efficacy were one of the factors related to success in maintaining behavior change in all three disorders.

Ryan (1987), writing about motivating lifestyle change, explains that the medical model has been studied extensively to understand the sources of

behavioral change. The medical model assumes that the patient will comply with the physician's recommendation if the condition is serious. Ryan (1987) states, "The results demonstrated no consistent relationship between the physician's evaluation of an illness and compliance" (p. 55). This would tend to support the importance of patient choice in setting up an intervention for behavioral change. Ryan goes on to promote the Health Belief Model which encompasses the tenet of self-efficacy as one of the motivating factors in behavioral change. Like Ryan (1987), Pender and Pender (1987), in their Health Promotion Model, recognize the importance of the client's perceived self-efficacy and control of health as critical factors in participation in health promoting behaviors.

Johnson, Nicklas, Arbeit, Franklin, and Berenson (1988) designed a "Heart Smart" behavioral model for school children and their families in Louisiana to reduce heart disease risk factors. This model utilizes both social learning theory and behavioral learning theory in both the intervention and maintenance phases of behavioral change. Orleans, George, Houpt, and Brodie (1985) surveyed a national sample of family practice physicians regarding the treatment and referrals they make for smoking, obesity, and insufficient exercise. Results show that knowledge of medical risk and behavior change advice are not sufficient for patient compliance. Knowledge of behavioral treatments is needed by physicians attempting successful interventions.

Ockene, Sorensen, Kabat-Zinn, Ockene, and Donnelly (1988) take the unusual stance of examining the noneconomic costs as well as the benefits of lifestyle behavior change. Behavioral change to reduce one risk factor may lead to an increase in another risk factor and reduce the anticipated benefit of change. Cessation of smoking leading to subsequent weight gain and resulting in an

elevation in blood pressure illustrates this point. Resultant benefits from lifestyle change are greatest for individuals who are at high risk from multiple factors.

Summary

Self-efficacy theory is used by the authors to explain the psychological as well as physical and social benefits and maintenance of behavioral change. In particular, it is important in health promotion interventions for the health professional to discover what the client perceives as important in contemplating lifestyle change. Patient choice, again, is viewed as extremely important in a successful intervention. Smoking cessation or dieting may be perceived by the client as profoundly decreasing the individual's quality of life. The costs of risk reduction may exceed the benefits from the individual's viewpoint.

Changes in behavior may cost the individual social relationships in order to maintain the behavioral change. In order to promote a behavioral change in such a situation, the health professional might collaborate with the client and come up with a "modified" rather than an "ideal" level of change to gradually maintain the motivation to work toward the more costly goal. All goals should originate with the client, and alternative behavior control strategies can help to maintain motivation. Self-efficacy theory supports the recommendations offered by these authors.

Chapter 3

RESEARCH DESIGN

This was a descriptive study of the agreement between the client's priority for coronary artery disease (CAD) risk reduction and the RISK Scale's designated target for CAD risk reduction. A volunteer sample of 74 subjects was obtained from county blue collar workers, county clerical workers, and county administrative staffs. A public health nurse in the county's Health Promotion Program presented a 30-minute informational slide show on coronary artery disease and reduction of risk factors at a division safety meeting. Following this presentation, employees were given the opportunity to sign up for free screening and counseling sessions on work time in order to determine their individual risk for coronary heart disease. Informational flyers regarding procedures for signing up for the CAD screening were also distributed at the meeting and left at the worksite for those unable to attend the safety meeting.

Procedure

Permission to conduct this research study was obtained from a county health department's public health nursing division (Appendix A), the county health department's medical services division (Appendix B), and the Human Subjects Institutional Review Board at San Jose State University (Appendix C). Prior to any data collection, each client was asked to sign two consent forms to participate in the research; one consent form for the county health department (Appendix D), and one consent form for San Jose State University (Appendix E). To maintain confidentiality, all data gathering forms containing the client's demographics, health history, and physiological measurements were identified by number only.

Further, to maintain anonymity of the client, the data were reported as aggregate data.

The study consisted of CAD risk factor screening and counseling utilizing the American Heart Association's RISK0 Scale (Appendix F) during a 6-week period from March to May. Trained professional nurses gathered measurements on height, weight, blood pressure, and fingerstick total serum cholesterol. Due to time constraints and lack of facilities, clients were weighed with their work shoes. In order to utilize the RISK0 Scale weight charts, six brands of work shoes were weighed and the average weight of the six brands was subtracted from the individual client's weight before assigning the client to a weight category on the RISK0 Scale. The following six brands of men's work shoes were weighed to determine the weight of an average pair of work shoes:

1.	Gorilla	Style 8016	3 lbs
2.	Gorilla	Style 8507	3 lbs
3.	Herman	Style 810	3 lbs
4.	H & H West	Style 116312	3 lbs
5.	H & H West	Style 2453	3 lbs
6.	Red Wing	Style 14144	3 lbs

Since all of the six brands had an average weight of 3 lbs, 3 lbs were subtracted from each client's weight before assigning them to a RISK0 Scale weight category.

Each client was asked to complete a demographic data sheet and a health history questionnaire (Appendix G). Test data were entered in the American Heart Association's RISK0 Scale (Appendix F) to determine the client's CAD risk factors and overall risk of heart disease. The clients returned in 1 to 2 weeks following their screening to receive results and counseling on their individual

coronary artery disease risk profile. The clients received information on the benefits of reducing any or all of the risk factors present.

During the counseling session, a bar graph was utilized to illustrate the extent to which each risk factor contributed to the individual's overall risk for CAD. The client was then asked to select a priority for risk reduction. The client's choice for risk reduction was then written as a goal in a lifestyle improvement plan, and the methods for attaining this goal were also written. A copy of this lifestyle improvement plan, along with the completed RISK Scale and bar graph of the client's four major risk factors, were given to the client. The researcher sought to answer whether client choice for risk reduction would vary from the RISK Scale identified target.

Analysis of Data

Data were analyzed using frequencies, rates, and means. In addition, the data were analyzed to determine the percentage of agreement between client selected target and the RISK Scale identified target for CAD risk factor reduction.

Chapter 4

DATA ANALYSIS AND INTERPRETATION

A volunteer sample of 74 clients was screened to assess for individual risk for coronary artery disease (CAD). Five clients were eliminated from this study due to failure to sign a consent for participation in the research. Four clients were eliminated for confusing or missing data. Failure to return for the counseling session eliminated an additional four. One client was eliminated as a pipe smoker. Complete data were available for analysis on 60 clients.

Demographic and risk factor data for the client population are shown in Table 1. Clients were further subdivided into groups based on presence of any combination of the four modifiable factors that RSKO uses (i.e., smoking, blood pressure, weight, and serum cholesterol).

Description of Total Sample

Table 1 shows 88% of the clients in this study were males ($n = 53$). Females ($n = 7$) comprised only 12% of the sample. Of the total sample, 7% had a personal history of coronary artery disease, and 7% had a family history of coronary heart disease. A majority of the participants (88%) were 54 years of age or younger, and 12% were 55 years of age and older.

Table 2 displays the data for client characteristics according to the number of risk factors present. Clients with one risk factor ($n = 6$) were 10% of the total sample. There were more males ($n = 4$) than females ($n = 2$) in Group 1. Group 2 consisted of clients with two risk factors ($n = 24$), and they made up 40% of the total sample. Group 3 ($n = 22$) were clients with three risk factors and comprised 37% of the total sample. Group 4 clients ($n = 8$) with four risk factors made up the remaining 13% of the sample population.

Table 1

Client Demographic and Risk Factor Profile (N = 60)

	Clients
Background	
Male	53 (88%)
Female	7 (12%)
Positive personal history of CAD	4 (7%)
Positive family history of CAD	4 (7%)
Risk Factor Profile	
Age	
54 or younger	53 (88%)
55 or older	7 (12%)
Systolic blood pressure (mean)	130 mm Hg
Diastolic blood pressure (mean)	82 mm Hg
Weight	
% in high or very high	
RISKO Scale category	28 (47%)
Serum cholesterol (mean)	197 mg/dl
Current smoker	15 (25%)
RISKO score (mean)	8

Table 2

Client Characteristics Grouped by Numberof Coronary Artery Disease Risk Factors Present (N = 60)

	Group 1 Clients with 1 Risk Factor (<u>n</u> = 6)	Group 2 Clients with 2 Risk Factors (<u>n</u> = 24)	Group 3 Clients with 3 Risk Factors (<u>n</u> = 22)	Group 4 Clients with 4 Risk Factors (<u>n</u> = 8)
Background				
Male	4 (67%)	22 (92%)	19 (86%)	8 (100%)
Female	2 (33%)	2 (8%)	3 (14%)	---
Positive personal history of CAD	1 (3%)	---	4 (18%)	---
Positive personal history of CAD	----	1 (4%)	3 (14%)	---
Risk factor profile				
Systolic blood pressure (mean)	117 mm Hg	128 mm Hg	134 mm Hg	141 mm Hg
Diastolic blood pressure (mean)	75 mm Hg	84 mm Hg	83 mm Hg	87 mm Hg
Weight % in high or very high RISK0 Scale category	----	10 (42%)	12 (55%)	6 (75%)
Serum cholesterol (mean)	169 mg/dl	172 mg/dl	219 mg/dl	229/mg/dl
Current smoker	----	3 (13%)	4 (18%)	8 (100%)
RISK0 score (mean)	5	7	9	11

Clients with four risk factors ($n = 8$) had the highest mean systolic (141 mmHg) and diastolic (87 mmHg) blood pressures. Group 3 had the second highest mean with 134 mmHg for systolic and 83 mmHg for the diastolic blood pressure.

The mean serum cholesterol was highest (229 mg/dl) in the clients with four risk factors. It was second highest in Group 3 (219 mg/dl); Group 2 was the next, and Group 1 had the lowest average cholesterol.

Smoking was a risk factor in 25% of the total sample. Current smokers comprised 13% of Group 2 (clients with two risk factors), 18% of Group 3 (clients with three risk factors), and 100% of Group 4 (clients with four risk factors).

Of all clients ($N = 60$), 47% ($n = 28$) of them were in the high or very high RISK Scale category for weight (Table 1). Group 4 clients with four risk factors ($n = 8$) had the highest percentage (75%) of clients in the high or very high RISK Scale weight category. Group 3 ($n = 22$) had the second highest percentage with 55% ($n = 12$) in the high or very high RISK Scale weight category. Of Group 2 clients, 42% ($n = 10$) were in the high or very high RISK Scale category for weight.

The RISK mean score increased as additional risk factors were identified. The overall mean RISK score of 8 fell between Group 2, with a mean of 7, and Group 3, with a mean of 9, indicating that the sample was evenly divided between clients having three or more and two or fewer risk factors for CAD.

The average risk factor profile for all clients was characterized by moderate overweight associated with elevation in systolic blood pressure. Clients with multiple risk factors had higher mean RISK total score values that placed them at greater risk for CAD.

In order to obtain an individualized client profile for each participant, the degree of risk for each of the CAD risk factors (weight, blood pressure, serum cholesterol, and smoking) was ranked from low to very high on a bar graph based on the RISK Scale determination for each factor. A single predominating risk factor for each participant was identified on the RISK Scale in 52% ($n = 31$) of the total sample ($N = 60$). The remaining 29 participants (48%) had two or more risk factors identified by RISK that contributed equally to the overall CAD risk. This part of the sample will be discussed later in this chapter. The data from the single predominant risk factor sample ($n = 31$) were further divided into five categories according to their agreement with the RISK identified predominant target priority.

Single Predominant Risk Factor Subgroup

The five categories included: (a) the agreement of client priority for risk reduction with RISK identified predominant target for all clients ($n = 31$); (b) agreement of client priority for risk reduction with RISK identified priority target in clients ($n = 6$) with one risk factor; (c) agreement of client priority for risk reduction with RISK identified priority target in clients ($n = 13$) with two risk factors; (d) agreement of client priority for risk reduction with RISK identified priority target in clients ($n = 11$) with three risk factors; and (e) agreement of client priority for risk reduction with RISK identified priority target in client ($n = 1$) with four risk factors.

The first category included all clients in the single predominating risk factor sample ($n = 31$). Table 3 illustrates the rate of agreement between the single targets identified by RISK and the priority for risk reduction chosen by the client. Table 3 also shows the distribution of RISK Scale priority for each participant ($n = 31$) on the four risk factors of smoking, blood pressure, body

weight, and serum cholesterol. The client priority column indicates the number of clients ($n = 22$) whose personal choice concurred with the RISK Scale target priority and gives the percentage of agreement (71%).

Table 3

Agreement of Client Priority for Risk Reduction with
RISKO Identified Predominant Target Priority ($n = 31$).

RISKO Target	RISKO Target Priority	Client Priority	Percent Agreement
Smoking	3	2	67%
Blood Pressure	7	3	43%
Body weight	14	13	93%
Serum Cholesterol	7	4	57%
Total	31	22	71%

The second category in the single predominating risk factor sample ($n = 31$) included the priorities of clients with one risk factor. Table 4 shows the rate of agreement (50%) between the identified RISK Scale priority for clients with one CAD risk factor ($n = 6$) and the priority for risk reduction chosen by the client ($n = 3$).

Table 4

Agreement of Client Priority for Risk Reduction with
RISKO Identified Predominant Target Priority for
Clients with One Risk Factor (n = 6).

RISKO Target	RISKO Target Priority	Client Priority	Percent Agreement
Smoking	--	--	--
Blood Pressure	3	1	33%
Body weight	2	2	100%
Serum Cholesterol	1	0	0
Total	6	3	50%

The priorities for clients with two risk factors comprise the third category within the single predominant risk factor sample (n = 31). Table 5 indicates the rate of agreement (85%) between the clients with two CAD risk factors identified by RISKO (n = 13) and the priority for risk reduction chosen by the client (n = 11).

Table 5

Agreement of Client Priority for Risk Reduction with
RISKO Identified Predominant Target Priority for
Clients with Two Risk Factors (n = 13).

RISKO Target	RISKO Target Priority	Client Priority	Percent Agreement
Smoking	2	1	50%
Blood Pressure	2	1	50%
Body weight	9	9	100%
Serum Cholesterol	--	--	--
Total	13	11	85%

The fourth category within the single predominant risk factor sample ($n = 31$) includes the priorities of clients with three risk factors. Table 6 indicates the rate of agreement (64%) between the priorities designated by RISKO for the clients with three CAD risk factors ($n = 11$) and the priority for risk reduction chosen by the client ($n = 7$).

Table 6

Agreement of Client Priority for Risk Reduction with
RISKO Identified Predominant Target Priority for
Clients with Three Risk Factors (n = 11).

RISKO Target	RISKO Target Priority	Client Priority	Percent Agreement
Smoking	--	--	--
Blood Pressure	2	1	50%
Body weight	3	2	67%
Serum Cholesterol	6	4	67%
Total	11	7	64%

The fifth category in the single predominant risk factor sample (n = 31) consists of clients with four risk factors. Table 7 illustrates the rate of agreement (100%) between the client with four risk factors identified by RISKO (n = 1) and the priority for risk reduction chosen by the client (n = 1).

Table 7

Agreement of Client Priority for Risk Reduction with
RISKO Identified Predominant Target Priority for
Clients with Four Risk Factor (n = 1).

RISKO Target	RISKO Target Priority	Client Priority	Percent Agreement
Smoking	1	1	100%
Blood Pressure	--	--	--
Body weight	--	--	--
Serum Cholesterol	--	--	--
Total	1	1	100%

Multiple Risk Factors of Equivalent Risk Subgroup

In this study, 48% (n = 29) of the total sample (N = 60) had two or more risk factors identified by RISKO that contributed equally to the overall CAD risk. The various combinations of factors of equivalent risk are shown in Table 8. Among equivalent risk factors, client priority for change was viewed as an agreement with RISKO if any single risk factor in the combinations listed in Table 8 was chosen. In the sample of clients (n = 29) who had multiple risk factors of equivalent risk, there were 20 (69%) who agreed with the RISKO designated target for risk reduction.

Table 8

Agreement of Client Priorities with RISKO Target Priority
When Multiple Risk Factors Have Equivalent Risk ($n = 29$).

Risk Factor Combination of Equivalent RISKO Targets	No. of Clients	No. of Clients Agreeing with RISKO	Percent Agreement
BP, Cholesterol	3	2	67%
BP, Smoking	2	1	50%
BP, Weight	11	7	64%
BP, Cholesterol, Weight	3	2	67%
Cholesterol, Weight	7	5	71%
BP, Weight, Smoking	1	1	100%
Weight, Smoking	1	1	100%
BP, Cholesterol, Smoking	1	1	100%
Total	29	20	69%

Note: A client's priority for change was considered in agreement with RISKO if any single risk factor in the combination was chosen.

The total sample ($N = 60$) was divided into two sub-groups: (a) the RISKO identified single predominant target group ($n = 31$), and (b) the multiple risk factors of equivalent risk group ($n = 29$) in order to examine the rate of agreement between client selected target priority and the RISKO designated target priority. There was 71% agreement (Table 3) between client selected priority and RISKO target priority in the single predominant target group

($n = 31$). The multiple risk factors of equivalent risk group ($n = 29$) had 69% agreement (Table 8) between client priority for risk reduction and RISKO target priority. The overall rate of agreement for the entire sample ($N = 60$) between client choice for risk reduction and the RISKO designated target was 70%. Therefore, 30% of the sample chose to work on a CAD risk factor other than the one identified by the RISKO Scale.

Review of all sample data ($N = 60$) on client priority targets for behavioral change revealed weight reduction as the dominant target ($n = 29$) at 48% (Table 9). Other prevalent targets included increased exercise ($n = 10$) at 17% of sample and cholesterol reduction ($n = 8$) at 13% of the sample. Stopping smoking and decreasing blood pressure were each targeted by 8% of all clients. Stress reduction as a priority for behavioral change accounted for 5% of the sample.

Table 9

All Clients' Priority for Risk Reduction ($N = 60$).

Client Selected Targets	Number of Clients	Percent of Total
Decrease weight	29	48%
Decrease blood pressure	5	8%
Decrease cholesterol	8	13%
Stop smoking	5	8%
Increase exercise	10	17%
Decrease stress	3	5%

Chapter 5

CONCLUSIONS

The purpose of this study was to examine the relationship between the client's priority and the professional's recommendation for behavioral change to reduce coronary artery disease (CAD) risk factors based on the RISK Scale. Bandura's (1977) self-efficacy theory formed the theoretical basis for this study. Self-efficacy theory stresses the importance of the client's perception of his/her ability to succeed in a behavioral change. Motivation for behavioral change is dependent upon the client's perception of his/her ability to succeed in accomplishing a goal. Therefore, consideration of the client's choice is essential for successful behavioral change when the health professional provides counseling to reduce CAD risk.

Self-efficacy theory may explain why weight reduction had the highest rate of agreement between the RISK target priority and the client's priority in this study. The majority of clients may have experienced some degree of success with weight reduction in the past which would heighten their perception of ability to accomplish the weight reduction goal again. Levenkron and Greenland (1988) also found that weight reduction had the highest rate of agreement between the RISK target priority and client priority. Perhaps the client's perceived ability to succeed at behavioral change in weight reduction is due to the goal of modification of a lifestyle behavior (i.e., lower fat and lower calorie consumption and increase exercises), whereas total elimination of a lifestyle behavior, such as smoking, is harder to accomplish. In this study, smoking had the lowest rate of agreement between RISK selected target and the client's priority for risk reduction. It is important to note that the sample in this study was predominantly

blue collar workers who are known to have a higher percentage of smokers. The message on the health hazards associated with smoking has impressed large numbers of professionals and those with higher education to quit smoking. This blue collar population does not appear to have reduced smoking rates as extensively as white collar populations.

Although 70% of the volunteer sample in this study agreed with the professional's recommendation for CAD risk reduction as indicated by the RISK Scale, it is important that 30% did not choose the RISK designated target for behavioral change. To help promote optimal behavioral change, client choice should be encouraged. According to Murray et al. (1986), coronary artery disease has been found to be multifactorial and, therefore, reduction of any or all risk factors is beneficial in prevention of disease. The focus of behavioral change counseling to reduce CAD risk should be on what the client believes he/she is capable of changing.

Limitations

The small sample size used in this study is a limitation in generalizing the findings to a larger population. The worksite population of blue collar workers might be considered a limitation, but this worksite sample was specifically selected to further examine the health promotion needs of blue collar workers.

Recommendations

This study showed that clients generally agreed with the RISK Scale priorities. Replication of this study using a different population and a larger sample would add validity to the data already compiled. Such a study would further explore the existence of any conflict between client choice for lifestyle change and recommendations for change designated by the American Heart Association's RISK Scale.

The next study to be done should measure the effect of client choice on behavioral change. This research should examine whether client choice for behavioral change increases compliance with the goals set. A control group would be ideal to increase the validity of the study. The control group would consist of clients whose medical provider sets the goals (based on RISK Scale) for risk reduction without any input from the client. The treatment group would be given RISK Scale findings, but the client would choose the risk factor for reduction. Although the results of this study suggest the importance of client choice in contracting to change behavior, additional research is needed to validate whether client choice is essential to compliance with behavioral change.

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APPENDIX A
Permission to Conduct Study

COUNTY OF
Health Department

October 26, 1989

Gail McKay, PHN
County Public Health Nursing

Dear Gail:

I have reviewed your research proposal entitle, "Client Choice in Coronary Artery Disease Risk Factor Reduction." I approve your seeking county employee volunteers through the health Promotion Program services to collect data on health history and to obtain measurements on weight, height, blood pressure, and fingerstick total cholesterol. I understand the data will be used to formulate the employees' coronary artery disease risk profile. I look forward to reviewing the result with you after completion of your study.

Sincerely,

Public Health Nursing

APPENDIX B

Permission to Conduct Study: Agency

COUNTY OF

Health Department

October 30, 1989

Dear Ms. McKay:

The Health Department Health Promotion Program management group has reviewed your research proposal entitled "Client Choice in Coronary Artery Disease Risk Factor Reduction."

We approve your conducting this research in the Department. You have permission to utilize county employee volunteers to collect data on health history and to obtain measurements on weight, height, blood pressure, and fingerstick total cholesterol, which will be used to formulate an employee's coronary artery disease risk profile.

We wish you every success in your project.

Sincerely,

Deputy Health Services Administrator

EEB:cls

cc:

APPENDIX C

Permission to Conduct Study:

San Jose State University

A campus of The California State University

Office of the Academic Vice President • Associate Academic Vice President • Graduate Studies and Research
One Washington Square • San Jose, California 95192-0025 • 408/924-2480

To: Gail McKay, Nursing

From: Charles R. Bolz
Office of Graduate Studies and Research

Date: December 13, 1989

R.B.

The Human Subjects Institutional Review Board has approved your request to use human subjects in the study entitled:

"Client Choise in Coronary Artery Disease Risk
Factor Reduction"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Dr. Serena Stanford immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact Dr. Stanford or me at 4-2480.

cc: Sharon Hogan

APPENDIX D

Consent Form: Agency

County of
Health Department

I hereby request the _____ County Health Promotion Program staff to determine my total blood cholesterol level by using a finger puncture device and a Reflotron analyzer.

I release the _____ County Health Department, Boehringer Mannheim and other product suppliers from any and all claims arising from blood drawing and analyzing.

I understand that the test is a screening test only and that the results are not diagnostic. The test will give me a total cholesterol number that I can discuss with my physician.

All information is confidential and will be used for program purposes which may include gathering data for research.

I give my permission to the Health Promotion Program to contact me regarding follow-up of recommendations.

If you have further questions regarding your screening test, call the Health Promotion Program staff at _____

Print Name: _____ Date: _____

Signature: _____ Work Phone: _____

My total cholesterol reading today is: _____ mg/dL

Machine # _____

Operators Initials _____

Test # _____

County Health Promotion Program

Board of Supervisors
County Executive: _____

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APPENDIX E
Consent Form:
San Jose State University

A campus of The California State University

School of the Applied Arts and Sciences • Department of Nursing
One Washington Square • San Jose, California 95192-0057 • 408/924-3130

Agreement to Participate in Research

RESPONSIBLE INVESTIGATOR: Gall McKay

TITLE OF PROTOCOL: Client choice in coronary artery disease
risk factor reduction.

I have been asked to participate in a research study that is investigating the relationship between the client's choice for risk reduction and the target recommended by his or her health risk profile.

I understand that:

1. I will be asked to complete a demographic data sheet and health history questionnaire. I will be asked to undergo screening tests to obtain the following measurements: height, weight, blood pressure, and fingerstick for total serum cholesterol. Screening procedures will be completed in approximately 15 to 20 minutes. I will be asked to return one week later for education, counseling and interpretation of my coronary artery disease risk profile. If referral is necessary, it is my responsibility to contact my doctor. This second session will require 15 to 20 minutes of my time.
2. The possible risks of this study are - finger discomfort with minimal physical risk.
3. The possible benefits of this study to me are gaining knowledge of my coronary artery disease risk profile and education to reduce my risk of heart disease.
4. The results of this study may be published, but the data from this study will be reported as aggregate data to maintain anonymity of the client.
5. Any questions about my participation in this study will be answered by Gall McKay - (408)683-4697. Complaints about the procedures may be presented to Sharon Hogan - (408)924-3157, thesis advisor, Department of Nursing. For questions or complaints about research subject's rights, or, in the event of research related injury, contact Serena Stanford, Ph.D. - (408)924-2480, Associate Academic Vice President for Graduate Studies & Research.
6. My consent is given voluntarily without being coerced; I may refuse to participate in this study or any part of this study, and I may withdraw at any time, without prejudice to my relations with SJSU or Santa Clara County. I understand that there is no compensation for my participation in the research project. I have received a copy of this consent.

I HAVE MADE A DECISION WHETHER OR NOT TO PARTICIPATE. MY SIGNATURE INDICATES THAT I HAVE READ THE INFORMATION PROVIDED AND THAT I HAVE DECIDED TO PARTICIPATE.

DATE

SUBJECT'S SIGNATURE

INVESTIGATOR'S SIGNATURE

APPENDIX F
RISKO Scale

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APPENDIX G
Health History Questionnaire

CHOLESTEROL SCREENING

The following information will help us determine the population we are serving: All information is confidential and will be used for program purposes which may include gathering data for research.

1. Have you had a cholesterol test/screening done in the past? Yes ☐ No ☐
If yes, when? _____
What was the number: _____mg/dL
If # unknown, was your cholesterol:
Normal ☐ High ☐ Don't Know ☐
2. Are you currently under a doctor's care for high cholesterol? Yes ☐ No ☐
If yes, what recommendations were made? Check appropriate box(s).
Change Diet ☐ Take medication ☐ Increase exercise ☐
3. Do you have a history of coronary heart disease (heart attack or angina)?
Yes ☐ No ☐
4. Do you have: Place ✓ in box(s) if yes.
☐ High blood pressure?
☐ Diabetes?
☐ History of circulation problems (stroke or blood clots)?
☐ Family history of heart disease (definite heart attack or sudden death before age 55 in a parent or sibling)?
Do you smoke: Yes ☐ No ☐
☐ If yes, do you smoke more than 10 cigarettes a day?
How tall are you? _____
How much do you weigh? _____
☐ Are you more than 30% over your ideal weight?

5. What kind of health insurance coverage do you use?
- ☐ Kaiser ☐ Valley Health Plan ☐ Other _____
- ☐ Take Care ☐ Preferred 100
6. Indicate your job classification:
- ☐ Managerial
- ☐ Professional
- ☐ Office Professional (clerical)
- ☐ Blue Collar
- ☐ Other
7. What is your sex? ☐ Male ☐ Female
8. What is your age?
- ☐ 15-24 ☐ 35-44 ☐ 55-64 ☐ 75 +
- ☐ 25-34 ☐ 45-54 ☐ 65-74
9. What is your ethnic background?
- ☐ White ☐ American Indian/Alaska Native
- ☐ Black ☐ Asian/Pacific Island
- ☐ Hispanic ☐ Other, Specify _____
10. Did you attend our Cholesterol Information Session?
- Yes ☐ No ☐

FOR STAFF ONLY

Cholesterol reading _____ mg/dL

Number of CHD Risk factors: 0-1 ☐ 2 or more ☐
(excluding HDL - cholesterol)

Referral Yes ☐ No ☐