

A CULTURALLY SPECIFIC HEALTH COACHING PROGRAM TARGETING CARDIOVASCULAR DISEASE RISK IN SOUTH ASIANS: RATIONALE, DESIGN, AND BASELINE DATA

Health coaching is an effective strategy for improving cardiovascular disease risk factors. Coaching interventions have primarily been studied in Caucasians, and the effectiveness in other ethnic groups is not known. Further, adaptation of coaching to include culturally specific components has not been studied. Our aim is to describe a culturally specific coaching program targeted at reducing cardiovascular disease risk in South Asians. Participants initially underwent comprehensive cardiovascular disease risk screening, then received individualized risk assessment and behavioral recommendations. A health coach then contacted participants regularly for one year to provide encouragement with behavior change, troubleshoot challenges, and assess adherence. In the first five years of the program, 3,180 people underwent risk assessment, 3,132 were candidates for coaching, 2,726 indicated a desire to participate in coaching, 1,359 received coaching, and 1,051 completed coaching for at least one year. Culturally specific health coaching is an appealing and feasible intervention for reducing cardiovascular disease risk in South Asians, with very low attrition. Coaching strategies for risk reduction are proven to be effective, but further longitudinal research is needed to determine whether the impact of incorporating cultural specificity improves the effectiveness. This program utilizes non-medically trained personnel as coaches and is relatively inexpensive, with potential for great cost savings in prevention of cardiovascular disease. (*Ethn Dis.* 2013;23[3]:304–309)

Key Words: Health Coaching, Risk, Cardiovascular Disease, South Asian

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BACKGROUND

Health coaching is a tool to engage patients in pursuing behaviors to address their health. As opposed to the traditional method of health care providers prescribing behavioral recommendations, which is widely shown to have poor adherence, coaching engages the patient in the process of recognizing their readiness to adopt new behaviors, reasons for ambivalence, and engaging in behavior change.¹ The use of health coaching has been shown to be an effective strategy for reducing cardiovascular disease risk factors.^{2,3} Preliminary evidence suggests that coaching strategies are also effective in management of related conditions, including type 2 diabetes⁴ and obesity,⁵ and studies to determine the efficacy and required intensity of coaching interventions are ongoing.⁶

Compared to other ethnic groups, South Asians have at least a two-fold increased risk for cardiovascular disease,^{7,8} making primary prevention important in this population. Increased risk has been observed in both native and immigrant populations,⁹ and onset of risk factors and cardiovascular events often occurs as much as a decade earlier than in other ethnic groups.^{10,11} The Indian subcontinent was projected to account for 60% of global cardiovascular burden by 2010,⁹ and South Asians in the United States and Europe have a disproportionately high prevalence of cardiovascular disease risk factors,^{12,13} despite the presence of protective demographic factors (ie, high level of education, marital status)¹⁴. In India, the cost of cardiovascular medications alone is estimated to be \$450 million per year, with a projected cost of \$3.8

billion annually if optimal therapy was achieved.¹⁵ Coaching performed by non-medically trained personnel is a promising and cost-effective complement to medical treatment for primary prevention of risk factors for cardiovascular disease.

Previous studies of coaching interventions have been primarily conducted in Caucasian populations.^{3,16} There is growing interest in assessing the efficacy of this type of intervention for decreasing cardiovascular disease risk in ethnic sub-groups,^{4,17} however, to our knowledge, no prior studies have reported on a coaching intervention in the high risk South Asian population. Further, there is a paucity of evidence on the effect of providing culturally specific coaching that is tailored toward an individual's typical dietary and lifestyle patterns. We describe the recruitment and retention of participants in a coach-based cardiovascular disease risk reduction intervention that aimed to: 1) provide individualized, culturally specific dietary, physical activity, and stress reduction recommendations; and 2) encourage behavior change and improvement in modifiable cardiovascular disease risk

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METHODS

Recruitment and Eligibility

The South Asian Heart Center at El Camino Hospital is a primary prevention program aimed at reducing cardiovascular disease risk in South Asians, with a focus on education and lifestyle interventions. Participants were recruited to the program through outreach events at community centers, temples, and corporations, and by physician referral and word-of-mouth. Adults who self-identified as South Asian (originating from the Indian sub-continent countries of India, Pakistan, Bangladesh, Sri Lanka, and Nepal) were eligible to undergo the cardiovascular disease risk screening process and participate in the coaching program.

Baseline Data Collection

Participants indicated their interest in the program by self-registering on the program's website. The initial screening consisted of three components: Heart-Health Risk Assessment questionnaire, anthropometric measurements, and laboratory testing (Figure 1). The questionnaire consisted of 70 items assessing demographics, personal and family medical history, and behavioral and lifestyle habits, and was obtained via scripted telephone interview by a health coach. Trained staff completed anthropometric measurements (height, weight, and waist circumference) and blood pressure and heart rate. Laboratory measurements were obtained following 10-hours of fasting, and were performed by Berkeley HeartLab (Alameda, CA) and include low density lipoprotein

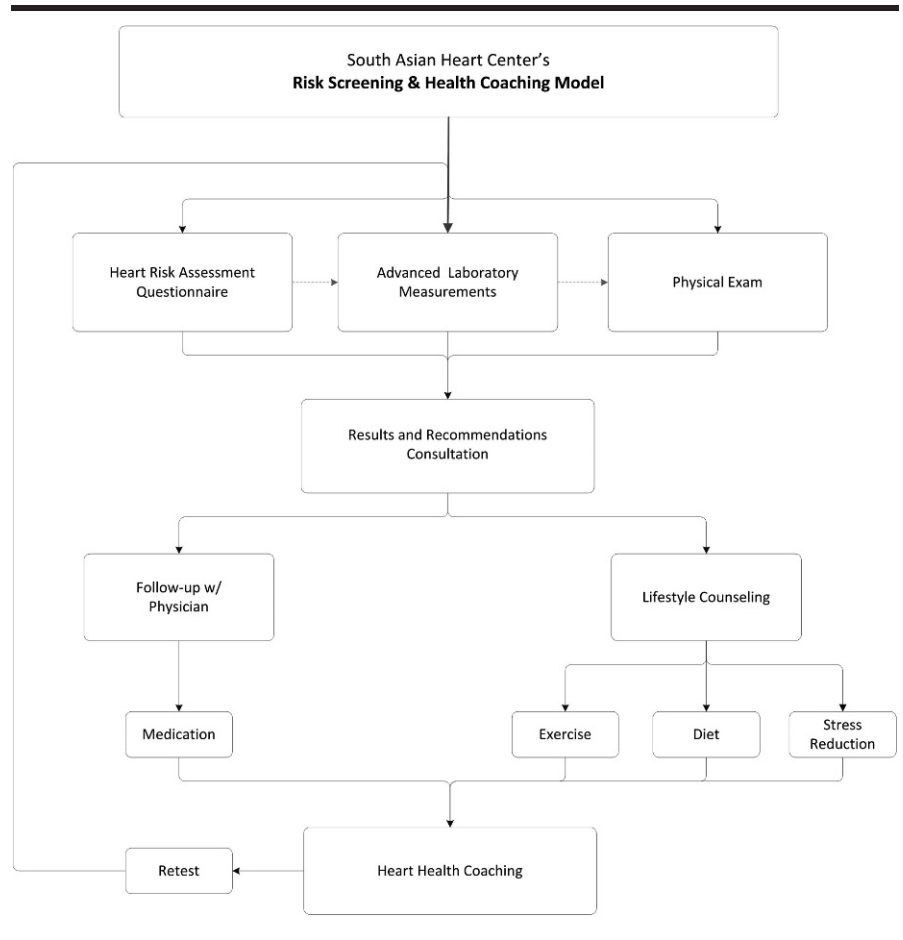


Fig 1. Coaching flow of events

cholesterol (LDL-c) sub-fractions (segmented gradient gel electrophoresis, coefficient of variation [CV] .5%–16.3%), high density lipoprotein cholesterol (HDL-c) sub-fractions (segmented gradient gel electrophoresis, CV 3.5%–36%), Apolipoprotein-B (immunoturbidimetric assay, CV 3.22%), Lipoprotein (a) (immunoturbidimetric assay, CV 1.7%), and other biomarkers associated with cardiovascular disease risk (ie, glucose [CV 2.03%], insulin [CV 2.67%], fibrinogen [CV 2.88%], homocysteine [CV 5.72%], and C-reactive protein [CV 1.96%]). Participants paid insurance co-pay or subsidized full cost of the laboratory testing. At the initial visit, participants were asked if they would like to provide informed consent to participate in the research. All data reported here were

obtained under the approval of the El Camino Hospital Institutional Review Board.

Risk Assessment

A health educator/dietician used the data collected in the initial questionnaire, labs, and anthropometric measurements to create an individual risk report based on a protocol developed by the medical director. The risk level was stratified into four categories: no significant risk factors, one significant risk factor, two significant risk factors, and multiple significant risk factors. Participants returned for a results and recommendations consultation to review their personalized report (Figure 1). At this consultation, the health educator reviewed cardiovascular disease risk factors and made specific lifestyle modification

recommendations based on the participant's current reported diet and physical activity. Dietary recommendations were tailored to the participant's typical diet (ie, South Asian vs Western). For example, the primary grain source was assessed, and recommendations were made to use whole grain components to replace common grain sources such as naan, chapatis, roti, or basmati rice. Similarly, recommendations were made to swap high saturated fat components such as deep fried snacks (eg, pakoras, samosas, namkeens) and Indian sweets (eg, gulab jamun, jalebi) common to the South Asian diet with low saturated fat foods. The overall goals for diet were consumption of at least three fruit servings per day and at least four vegetable servings per day.^{18,19} For physical activity, participants were encouraged to perform at least 150 minutes of physical activity per week.^{20,21} These recommendations were individualized and also incorporated common South Asian cultural practices to increase level of physical activity. Most importantly, getting a predominantly sedentary population to "move" was recommended as a culturally appropriate first step.

At the completion of the results and recommendations consultation, participants were scheduled for an additional phone consultation with a dietitian, and had the opportunity for a phone follow-up with an exercise physiologist and an orientation to Transcendental Meditation with a meditation trainer. Incorporation of Transcendental Meditation was a unique aspect of this program designed to build upon culturally accepted relaxation techniques within the South Asian population. Based on the risk stratification, a follow-up testing schedule for laboratory measurements was determined, ranging from three months to five years. Results of the baseline screening and the risk assessment were recorded in an internet-based database that was accessible to the staff and coaches. At the consent of the

participant, the results were also sent to the participant's primary health care provider. Medication prescriptions were not provided, however, all participants were strongly encouraged to follow up with their primary health care provider, particularly when pharmacotherapy was recommended. For participants with at least one clinical risk factor, the health educator recommended participation in the one-year coaching program (Figure 1). Participants were provided with information about the monitoring and motivating role of the coaches, which includes tracking progress, providing a baby-steps approach to overcoming barriers to making lifestyle changes, assessing adherence, and providing reminders about follow-up blood tests. The coaching program was provided at no cost.

Coaching

The coaching program utilized non-medically trained volunteer coaches, who either indicated an interest in the program, or were recruited by current volunteers. Coaches attended training sessions delivered by Berkeley HeartLab, clinical personnel and experts on health behavior change and motivation. New coaches were assigned to a mentor who provided intensive one-on-one initial training for 1–2 months and ongoing training with lifestyle experts and clinical staff. Each coach had a caseload of approximately 40 participants. Individuals who opted in to the coaching program were assigned to a coach based on the risk stratification, level of coaching required, and workload distribution.

Participants chose whether they would like to be contacted by their coach via phone or email. The coaches' initial contact with a participant occurred 2–6 weeks after the results and recommendations consultation (Figure 1). During this initial email or phone call, participants were asked specific questions regarding their success in incorporating the health educator's

suggested lifestyle changes, and coaches investigated any reported difficulties. The coaches used several templates and scripts that were personalized with relevant details for an individual participant. The medical director, executive director, health educator, and lead coach composed and reviewed all the information provided to participants. Coaches recorded participant responses in progress note format in the internet-based database.

Depending on the number of risk factors, subsequent communication between coaches and participants occurred in intervals of every 4–6 weeks or every 3 months for one year. At each point of contact, coaches continued to assess progress with behavioral recommendations, helped troubleshoot obstacles, and provided encouragement. Troubleshooting included identifying reasons why participants were not meeting goals, and providing alternative suggestions or short-term intermediate goals. Information collected at each point of contact was recorded in the internet-based database in the form of coach-assessed level of adherence for five categories. Four were objective measures: adhering to dietary recommendations; performing physical activity; performing stress reduction activities; and medication adherence (when relevant). Coaches subjectively scored the fifth measure, overall adherence. In the case of non-response by a participant, the coach made three contact attempts before discontinuing the participant from the coaching program.

Follow Up Data Collection

A subset of the Health Risk Assessment questionnaire pertaining to modifiable parameters was repeated for all willing coached and non-coached participants once every year, again by a scheduled, scripted telephone interview. In addition, participants were reminded of their individual recommendations, the solutions that were successful, and asked to advance their goals. Repeated

Table 1. Baseline demographic, behavioral, and clinical characteristics

Characteristic	Coached Participants (n=2726)	Non-coached Opted Out (n=406)	Non-coached Ineligible ^a (n=48)	P
Age, years	43 ± 10	43 ± 10	36 ± 11	.4
Men	1868 (69)	232 (57)	18 (38)	<.05
Birth country				
South Asia	2502 (92)	367 (90)	35 (73)	<.05
United States	96 (4)	23 (6)	9 (19)	<.05
Education				
Bachelor's or higher	2616 (96)	384 (95)	43 (90)	<.05
Married	2525 (93)	368 (91)	40 (83)	<.05
Medical history				
Cardiovascular disease	87 (3)	10 (2)	0 (0)	.3
Type 2 diabetes	233 (9)	35 (9)	1 (2)	.2
Family history				
Cardiovascular disease	1082 (37)	159 (39)	9 (19)	<.05
Type 2 diabetes	1392 (57)	205 (54)	13 (29)	<.05
Behaviors				
Current smoking	107 (4)	14 (3)	1 (2)	.7
>4 Vegetable servings/day	252 (9)	50 (12)	5 (10)	.1
>3 Fruit servings/day	473 (17)	82 (20)	12 (25)	.2
>150 Minutes physical activity	951 (35)	172 (42)	21 (44)	<.05
Stress reduction practice	892 (33)	155 (38)	10 (21)	<.05
Clinical variables				
TC, mmol/L	4.9 ± 1.0	4.7 ± .9	4.4 ± .6	<.05
LDL, mmol/L	3.0 ± .8	2.8 ± .8	2.5 ± .5	<.05
HDL, mmol/L	1.2 ± .3	1.3 ± .4	1.5 ± .3	<.05
TG, mmol/L	1.6 ± 1.0	1.4 ± .8	.9 ± .5	<.05
Glucose, mmol/L	5.1 ± 1.0	5.0 ± .9	4.6 ± .5	<.05
Systolic blood pressure, mm Hg	121 ± 16	119 ± 17	113 ± 14	.2
Diastolic blood pressure, mm Hg	76 ± 10	73 ± 10	70 ± 8	.2
BMI, kg/m ²	26 ± 5	25 ± 4	23 ± 3	<.05
Waist circumference, cm	89 ± 10	87 ± 10	79 ± 7	<.05

Data are mean ± SD or n (%).

TC, total cholesterol; LDL, low-density lipoprotein cholesterol; HDL, high-density lipoprotein cholesterol.

TG, triglycerides; BMI, body mass index.

^a No cardiovascular risk factors.

laboratory and anthropometric measures were offered to all participants per their recommended retest schedule (Figure 1).

Statistical Analysis

Descriptive statistics, Student's *t* test, and Chi-square test of independence were performed using Stata version 11 (College Station, TX).

RESULTS

Over five years, 3,287 individuals completed baseline screening, including questionnaire, anthropometric measurements and blood pressure, laboratory tests, and the results and recommenda-

tions consultation. The great majority, 3,132 (98%) were candidates for the coaching program. Of those, 2,726 (87%) elected to participate in the coaching program, and 1,359 (50%) followed through with their participation. Among the non-participants, 112 (8%) dropped out during the first year, while 1,255 (92%) did not respond to the coaches' three attempts at contact, and were therefore discontinued from the coaching program. Over five years, 1,051 (39%) individuals who opted in to the program completed one year of coaching, and an additional 308 (11%) were active participants in the first year. The primary reasons for attrition included: 1) not completely understanding the coaching program and its benefits in

making sustained lifestyle changes; 2) not understanding the seriousness of risk factors evaluated as part of primary prevention; and 3) not enough time to respond to coaching interventions.

The majority of participants in the coaching program were married (93%) immigrants from South Asia (92%) with college-level education (96%) in their forties (43 years ± 10 years) (Table 1). Few participants reported a history of cardiovascular disease (3%) or diabetes (9%), but there was a very high prevalence of family history of these conditions (cardiovascular disease 37%, diabetes 57%). The prevalence of smoking was very low (4%). Few participants met the recommended daily intake of fruits (17%) and vegetables (9%) or

weekly time spent performing physical activity (35%). With the exception of body mass index ($26\text{kg/m}^2 \pm 5\text{kg/m}^2$), mean values for clinical variables were within normal ranges. Consistent with the eligibility criteria for the coaching program of having at least one cardiovascular disease risk factor, the coached group had more abnormal clinical values than the non-coached group. Compared to the coached group, the non-coached group was less likely to have a college level education (90% vs 96%, $P < .05$), and more likely to have been born in the United States (19% vs 4%, $P < .05$). The non-coached group also had a lower prevalence of family history of cardiovascular disease (19% vs 37%, $P < .05$) and diabetes (29% vs 57%, $P < .05$).

DISCUSSION

We described a culturally specific coaching intervention aimed at decreasing cardiovascular disease risk in South Asians. This program provided coaching by non-medically trained personnel over the course of one year to facilitate improvement in behavioral risk factors. To our knowledge, this is the first adaptation of a health coaching model to incorporate culturally specific components, and the first program targeted at the high risk South Asian population. While a general approach to effecting change in behavior through coaching is effective,² we do not know if additional improvements might result from the tailoring of coaching interventions to address specific cultural dietary and behavioral patterns, or whether interest and adherence of participants would be improved.

We found that a large number of people were interested in and completed the program, indicating this is a feasible and appealing intervention in this population. Attrition primarily occurred at initiation of the intervention, and only 4% of participants who enrolled failed to

complete the program. Additional studies with a longitudinal time-frame are needed to determine whether this intervention is effective at improving clinical risk factors and decreasing incidence of cardiovascular disease in the high-risk South Asian population.

The coached group, who by eligibility definition were at higher risk for cardiovascular disease, also had a markedly higher prevalence of family history of cardiovascular disease and diabetes. This suggests that either genetics or learned familial behaviors, or likely a combination of both, predispose cardiovascular disease risk in the South Asian population. The interaction between genetic predisposition and the environment, including learned behavior, is increasingly thought to be equally as important as either of these factors alone in the development of cardiovascular disease and its risk factors.²²⁻²⁷

However, this interaction has not been specifically studied in South Asians, taking into account culturally specific aspects of diet and behavior. Interestingly, we also observed that the non-coached group were slightly less likely to have a college-level education, and more likely to have been born in the United States. While the impact of these factors on other populations has been studied,^{28,29} further research is needed to disentangle the impact of social determinants of health, such as education level, socioeconomic status, and immigration, in the South Asian population.

Coaching interventions have the potential for cost savings in prevention and treatment of cardiovascular disease. Given the substantial financial burden of cardiovascular disease, as well as the increasing global incidence, determining financially sound methods of prevention and treatment are of paramount importance. As evidenced by the high global incidence and prevalence of cardiovascular disease, current modalities for prevention, in addition to being costly, have less than desirable efficacy.^{30,31} In contrast, preliminary data from trials of

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coaching interventions indicate significant improvements in health, meaning coaching interventions have the dual promise of being effective in both cost and clinical outcomes measures.³⁻⁵ Longitudinal data are needed to determine whether coaching strategies can effect long-lasting improvement in health status, and whether these improvements will be associated with decreased incidence of cardiovascular disease and related costs.

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