

Title of Intervention: Heart Smart

Intervention Strategies: Campaigns and Promotions, Provider Education, Group Education, Individual Education, Supportive Relationships, Environments and Policies

Purpose of the Intervention: To reduce cardiovascular risk factors in children

Population: Children, adults

Setting: Elementary schools in Jefferson Parish, Louisiana, a suburb of New Orleans; school-based

Partners: Louisiana State University, University of New Orleans, American Heart Association, American Lung Association, interdisciplinary team of specialists, school wellness committee, Parent Teacher Association, local celebrities

Intervention Description: One school received both the population strategy and the high-risk strategy, one received the population strategy only, one received the high-risk strategy only and one received neither strategy and served as the control school.

- **Campaigns and Promotions:** Various activities were organized and promoted including health fairs, a geography fun run and a spring field day. A monthly newsletter was sent to all parents containing educational information, suggestions for activities, program information and community events relevant to cardiovascular education. During "Heart Smart Week" kids designed posters to be displayed in the lunchroom, participated in an aerobic warm-up activity with a local sports celebrity, read and wrote compositions about positive self-image and listened to a local celebrity speak about assertiveness. Campaign materials included banners, corsages and t-shirts.
- **Provider Education:** A comprehensive staff development program for faculty and other school personnel included in-service workshops, booster sessions and special classes conducted at the school by an interdisciplinary team of specialists. Subject areas included wellness and heart health education, cardiovascular disease, risk factors for heart disease, health behavior, nutrition and exercise. Activities include hands-on exercises, demonstrations, American Heart Association materials, readings and bibliographies, handouts and a teacher resource guide. Assistance was provided with implementing the curriculum. A special topics course was offered to train facilitators.
- **Group Education:** A cardiovascular health education curriculum was implemented in the classroom. The American Heart Association "Heart Treasure Chest" was adopted for kindergarten. "Juno's Journeys" by the American Health Foundation was used in grades 1-3. The curriculum for grades 4-6 was developed by the research team. It included cardiovascular health, behavioral skills, eating behavior and exercise behavior. A yearlong aerobic exercise component was included in physical education classes. Two to four class periods of physical activity were conducted each week. The physical education instructor taught skills required by the school such as jogging, race walking, interval workouts, rope skipping, aerobic dance and games. Classes began and ended with 5 minutes of walking and static stretching. An aerobic dance class was offered for teachers and parents. Aerobic dance tapes were available use in the classroom. The Superkids-Superfit curriculum for grades 4 through 6 consisted of 12 lessons about basic anatomy and exercise physiology, components of fitness, aerobic vs. anaerobic activities and FIT (frequency, intensity, time). Stress Reduction Techniques such as goal clarification, time management, improved communication, relaxation, imagery, progressive mind relaxation and autogenic training were taught. The Intensive Family Program included parent and child education sessions about nutrition, smoking, alcohol use and physical activity. Lessons included Dine-0-mite (recording eating behaviors), Shopping Wise, Dining Out, Recipe Modification and Snacking. Activities included record keeping, games, role-play and food demonstrations.
- **Individual Education:** Children and their families in the Intensive Family Program received an individualized intervention in the target risk factor areas to alter properties of the family environment. Superkids-Superfit had students develop personal exercise plans and keep an individualized logbook and daily fitness diary. The staff development program included self-assessment tools and a cardiovascular risk assessment. The Intensive Family Program included risk factor screening for parents and family self-monitoring.

- Supportive Relationships: Family involvement and parent education was present in the population schools. Classroom teachers were encouraged to participate in and lead exercises in classes. "Heart Smart Week" included class discussions about the role of nutrition, exercise, smoking, and self-responsibility, sharing and classroom discussion about heart healthy snacks. The Intensive Family Program includes family counseling and screening feedback, contingency contracting and rewards and role-playing.
- Environments and Policies: The "Offer vs. Serve" program was a modification of the school lunch to offer a "heart healthy" school lunch. The program included a reduction of sodium, fat and sugar in school lunches, attention to menu planning, food purchasing, recipe modification and food preparation and production techniques. Heart healthy options were offered alongside regular school options. Salad bars were placed in schools to allow children to serve themselves.

Theory: Diffusion of Innovations, Precede Model, Social Cognitive Theory

Resources Required:

- Staff/Volunteers: Elementary school service providers including administrators, educators and health and food service personnel, local celebrities, community volunteers
- Training: Not mentioned
- Technology: audiovisual equipment, recipe analysis software, data analysis software, computers
- Space: Classroom space
- Budget: Not mentioned
- Intervention: Volunteer recruitment forms, American Heart Association materials, readings and bibliographies, handouts, teacher resource guide, teacher guides for each grade level, activity workbooks for students, physical activity equipment, individualized log books, field day supplies, geography run supplies, intercom system, aerobics tapes, assertiveness video, art supplies, banners, corsages, t-shirts, newsletter, cooking class materials, aerobics instructor, incentives
- Evaluation: Surveys, biological measurement tools (height, weight, triceps subscapular skin folds, waist circumference, blood pressure, serum lipids and lipoproteins), staff and supplies for observations, logs and recall forms, physical activity equipment, scale for weighing food during waste analysis

Evaluation:

- Design: Experimental design
- Methods and Measures:
 - AAHPERD Health Related Physical Fitness Test including mile walk/run for time, sit-ups for 60 second, pull-ups for boys or bent arm hang for girls, and a sit and reach test for flexibility (students)
 - "Heart Smart" knowledge test to evaluate cognitive gains in cardiovascular health (students, staff, family)
 - Attitudes towards targets areas measured by health attitudes scale (staff)
 - Cardiovascular risk factor screening included anthropometric measures, blood pressure, and serum total cholesterol (students, staff)
 - Food preference questionnaire to identify food preferences of children targeted for behavior change (students)
 - Behavior change measures including eating, exercise, coping, drinking, smoking, self esteem, health locus of control, Type A Behavior (staff, students)
 - Family nutrient intake determined through multiple 24-hour food records (student, family)
 - Teacher Effectiveness in the classroom was measured by trained observers who make spot checks of intervener performance using checklist-type observation forms
 - Effects of lunchroom component was measured with observations of student choices in lunchrooms, self reports of school lunch menu choices, recipe analysis for nutrient content, plate waste studies to examine acceptability of lunches

Outcomes:

- Short Term Impact: Adult cardiovascular disease knowledge increased significantly while the child knowledge increase was insignificant. Adults increased leisure physical activity levels The Community-based Physical Fitness Test (1-mile run) improved over the course of the intervention period. Boys

decreased their time significantly. The decrease in girls' time was not significant. Subjects who decreased their mile time also had a significant decrease in systolic blood pressure and subscapular and triceps skinfolds. There were significant increases in HDL cholesterol in intervention school children. Parents in the Intensive Family Program saw significant decreases in systolic blood pressure and diastolic blood pressure. Children had no significant differences for obesity, blood pressure or blood lipids. However, desired trends were noted. There was a trend towards nutrition improvement for families. Total urinary sodium decreased but was not significant.

- Long Term Impact: Not measured

Maintenance: Regular booster sessions were held for teachers. Monthly Wellness Committee meetings monitored the implementation of the program.

Lessons Learned: The total school approach to cardiovascular health promotion was successfully implemented. The program appeared to lead to positive changes in eating and exercise behavior, as well as physiological improvement in risk factor status. Cardiovascular disease must be presented as a major public health problem to the school and community. Administrative support is a prerequisite to faculty and staff interest and motivation. The principal must have the backing of the superintendent and allocated needed staff time and resources, besides being visibly involved and supportive. Faculty and staff commitment and enthusiasm is a must. Parental education, understanding and involvement and support for school health promotion is a definite asset. Volunteers from the community are invaluable. A group of senior citizens helped out in this project. The intensive family program is not realistic/practical for schools due to the special expertise and professionals required. More practical ways to get parents involved include newsletters, participation in health fairs and curriculum involvement.

Citation(s):

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