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Manager characteristics and support for worksite health promotion programs that target women in small, blue-collar worksites

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**Manager Characteristics and Support for Worksite Health Promotion
Programs that Target Women in small, Blue-collar Worksites**

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**Thesis submitted to the
Eberly College of Arts and Sciences
at West Virginia University
in partial fulfillment of the requirements
for the degree of**

**Master of Arts
in
Applied Social Research**

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organizational climate, diffusion of innovation, wellness**

This study examined the relationship between manager support for health promotion programs and perceived benefits of health promotion activities, organizational health climate, and personal health behaviors among managers in small, blue-collar textile and light manufacturing worksites in eastern North Carolina. Ninety-eight managers completed a self-administered questionnaire that assessed levels of support for, and interest in, employee health promotion programs, perception of organization climate, and perceived benefits of health promotion activities. Demographic data was also collected. Chi-square and correlation analyses were used to assess statistical significance. No significant associations were found between level of manager support and demographic characteristics, perceived benefits of health promotion, personal health behaviors, or organizational health climate. However, level of interest in employee health promotion was significantly related to personal role in employee health ($p > .0001$). Nearly all managers reported some degree of support, therefore more research is needed to better understand these relationships. Small sample size may limit the generalizability of these findings.

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I. INTRODUCTION

The Problem

The workplace can be an effective location for promoting healthy lifestyle behaviors among employees (Heany and Goetzel 1997; O'Donnell, 1997; Aldana 1998; Pelletier 1999). In addition to reaching a large employed population, such programs are cost effective (Goetzel et al. 1998) and can help foster an organizational culture sensitive to reinforcing healthy lifestyle behaviors (Peterson & Wilson 1998).

Workplace health promotion research and practice activities have increased significantly over the past 20 years (O'Donnell 1997; USDHHS 1992). Historically, the majority of worksite health promotion programming and research has focused on large, white collar worksites (Hope et al. 1999), but recent trends include programs developed to address the unique needs of women workers, blue collar workers, rural workers, and smaller workplaces (Campbell et al. 1998).

Recent trends in health promotion have also shifted toward the incorporation of a social ecological model in both the community and workplace interventions (Brownson et al. 1998; Stokols 1992b; Bellingham 1990; Green 1988; Chu 1994) with less emphasis directed solely at individual behavior change efforts and more emphasis on the development of "cultural change strategies to foster socially supportive norms and healthful environmental

conditions within work organizations" (Stokols 1996; Allen and Allen 1986).

Organizational diffusion theories play a particularly important role in the study of the adoption, implementation, and ultimate institutionalization of health promotion programs (Goodman and Steckler 1988) because they take into account the relationship between organizational dynamics and program dissemination. Specifically, these theories examine the factors affecting the direct diffusion of health promotion innovations that often target schools, communities, or worksites as delivery channels. Orlandi (1996) suggests that by deliberately planning for the acceleration of the dissemination process—rather than simply passively observing it—program planners can identify innovative decision makers who serve as "technology gatekeepers" (Rogers 1983) and have the ability to influence which innovations are adopted as well as how the innovations are implemented throughout the organization.

Management support is one theoretical construct identified as crucial in influencing the adoption of innovations like health promotion programs (Rogers 1983; Green and Anderson 1986, Green et al. 1987). Moreover, management commitment influences healthy and safety programmatic success (Cole and Brown 1996). For a program to be implemented successfully, key decision makers need to clearly understand the value and benefits associated with health promotion activities (Chapman 1997; Allen and Leutzinger 1999). A healthful organizational climate is facilitated by involving management in the program planning process (Chenoweth 1986) and by tailoring specific interventions based upon managers' perception of the problem (Willemsen et al. 1999).

Management personnel can also influence institutional norms with their own health behaviors (Heimendinger et al. 1995) and positively influence program participation by showing their support (Crump et al. 1996; Wilson 1990).

Conversely, individual employees have cited lack of support as a significant barrier to personal health behavior changes such as exercise (Jaffee et al. 1996), dietary change, and smoking (Heimendinger et al. 1995).

Many researchers point to the "irrefutable need for more diffusion research" within the field of health promotion (Glanz et al. in Health Behavior Health Education Theory, p.239, 1997). Conducting such research however, often presents significant challenges including cost, time, and the complexities of establishing scientific rigor within a community context. As noted before, little information exists about managers in small, blue-collar workplaces or management support for and diffusion of health promotion programs, specifically those that target women. Thus by examining in more depth the characteristics of supportive managers, this study seeks to further understanding about the successful design and implementation of effective health promotion programs.

By addressing these important issues, this research will contribute to the knowledge base for the design and implementation of future worksite health promotion programs in small, blue-collar workplaces. Since management support is vital to program success, program planners who can influence or accelerate the natural diffusion process by targeting specific managers with supportive and innovative characteristics have the potential to greatly increase the likelihood of program success.

Study Goals

Toward this aim, this research explored the following questions:

1. What demographic or worksite characteristics of managers (such as age, education, gender, job title, and industry type) are associated with level of interest in and manager support for worksite health promotion programs?
2. What behavioral characteristics, such as personal health behaviors (healthy diet, regular exercise, non-smoking, etc.) are associated with the degree of management support for worksite health promotion programs?
3. What other social or contextual characteristics, such as perceived importance of employee health promotion or perception of organizational climate are associated with the degree of management support for worksite health promotion programs?

II. BACKGROUND

Worksite Health Promotion and Disease Prevention

There is a growing body of evidence that supports the workplace as an effective location for the promotion of healthy lifestyles among employees (Heany and Goetzel 1997; O'Donnell 1997; Aldana 1998; Pelletier 1999; Lusk 1997). Worksite wellness programs initially developed largely in response to cost-containment efforts combined with the worksite health promotion and disease prevention (HPDP) movement. They are typically defined as "those programs that provide an ongoing, integrated program of health promotion and disease prevention that integrates the particular components (i.e., smoking cessation, stress management, lipid reduction, etc.) into a coherent program that is consistent with the corporate objectives and includes program evaluation" (Pelletier 1991, Pelletier 1993, Pelletier 1996, Pelletier 1999). Health promotion researchers have used the worksite to target health behaviors associated with morbidity and mortality, including dietary change, smoking cessation, weight loss, and chronic disease screening interventions (Abrams 1994; Jeffery et al. 1993; Sorenson et al. 1996; Glasgow et al. 1996; Campbell et al. 1998).

Because a significant portion of the adult population is in the workforce, worksite health promotion programs can reach a large number of people. Worksites are a "captive audience" and can provide the opportunity for an employee to participate in a health promotion program at work who might not

otherwise do so on their own.

Worksite programs help foster an organizational culture that reinforces healthy lifestyle behaviors (Peterson and Wilson 1998) and offer opportunities to take advantage of existing social support networks as well (Tessaro 1998; O'Donnell 1994; Abrams 1992, Heimendinger et al. 1990, Sorensen et al. 1990).

In addition to the obvious public health benefits, managers and work organizations also value worksite health promotion programs because they can potentially contribute to a healthy workforce, decrease turnover, increase employee morale, increase worker productivity, decrease health care costs, provide positive PR for companies, support injury prevention efforts, and decrease absenteeism (Chapman 1997). Reduction of health care costs is also a preeminent goal for worksite HPDP programs and is often cited to encourage managers to sponsor activities for their employees.

Comprehensive worksite health promotion programs have evolved significantly over the last two decades, with second generation programs placing greater emphasis on multiple levels of intervention, the utilization of new delivery technologies, and on the extension of interventions to dependents, minorities and the working poor. Pelletier (1999) urged researchers to consider ".the most salient issue to address is not whether worksite health promotion and disease management programs should be implemented to reduce risks and enhance productivity, but, rather, how such programs should be designed, implemented, and evaluated in order to achieve optimal clinical effectiveness and cost-effectiveness."

Programs Targeting Women

The workplace is becoming an increasingly important channel for reaching women. Women comprise 46% of the labor force and 70% of women with children under the age of 18 now work outside the home (USDOL, 1996). Stengel marks this trend by noting that in 1960 less than 20% of working women had children under the age of 6, but by 1985 this figure had increased to 50%. Bureau of Labor projections indicate that by the year 2005, women will be entering the workforce at a faster rate than men. Reasons for the growing number of women in the workforce might include financial needs, increased opportunities, government and social pressures to hire women, increased control in the number and spacing of children, women's desire for self-fulfillment outside the home, and a variety of other economic, personal, and social reasons (Freedman and Bisesi 1988).

As women join the labor force in ever increasing numbers, so too the proportion of women who hold multiple roles is rising. Despite studies that report working women are significantly healthier both physically and mentally than their non-working counterparts, the stress of multiple roles can have profound effects on women's health (Freedman and Bisesi 1988; APA Monitor 1997). Conflicting results on the effects of stress from multiple roles on women's health indicate the need for more research to explore these complex relationships (Facione 1994.)

Additionally, the health needs of working women have been found to differ somewhat from that of men (Messing 1997). Work conditions may effect women uniquely (as in chemical exposures affecting reproductive health),

disproportionately (as with multiple roles), or differently with regard to the perception and management of stressors (Collins et al. 1997).

Women and men are not distributed at random throughout the labor force, but are rather segregated into specific industrial sectors and into female-majority jobs within these sectors (Armstrong and Armstrong 1993, Chapter 1).

Tomaskovic-Devey (1993) calculated that for the sexes to be evenly distributed across job titles in North Carolina for example, three quarters of working women would have to change jobs (as cited by Messing 1997). One example of such clustering would be the textile industry, which has been typically dominated by a female labor force. Thus, the textiles and manufacturing industries in particular offer an effective means of reaching women, many of whom may be underserved, undereducated, from a lower income strata, or who may have less access to traditional channels of prevention and health care and prevention (Emmons et al. 1996).

Female blue-collar factory workers face daily stress and health hazards working with heavy machinery, lifting large objects, and completing repetitive tasks often for very low wages yet they remain one of the most under-served and understudied groups in the nation (APA Monitor 1997). Despite indisputable evidence that lifestyle patterns vary according to socioeconomic position and that patterns of health inequity exist for most major disease among workers (Bosma et al. 1997), few programs have been specifically designed to meet the interests and needs of working women, particularly those employed in small or blue-collar workplaces (Messing 1997; Hope et al. 1999). Most traditional worksite health

promotion and prevention programs were designed for male employees who were thought to be at higher risk for such chronic diseases as cardiovascular disease, and, therefore had limited dissemination capacity because they did not address the unique needs, barriers, and motivators for healthy behavior change among working women (Tessaro et al. 1997; Campbell et al. 1997).

Studies indicate that women are more responsive to health information and more likely to participate in worksite health promotion activities (Spilman 1982), particularly women employed in blue-collar workplaces (Hope et al. 1999). Women in worksite health promotion programs cite social support, social norms of the workplace, and a chance to socialize as facilitating factors in program participation (Emmons et al. 1996; Wilson 1990; Gottlieb and Green 1984). Female health promotion program participants with moderate and high behavioral risk factors tend to view the worksite environment as a supportive setting for health behavior change (Emmons et al. 1996). This would support the premise that worksite health promotion programs offer a unique means of reaching under-served, high-risk populations of working women, particularly those in blue-collar workplaces who may have less access to traditional health care and prevention services.

Programs in Small, Blue-collar Workplaces

Too often, worksite HPDP programs are not accessible to high-risk groups of the working population who might benefit most. Traditionally, few programs have been specifically designed for employees working in blue-collar textile and light manufacturing industries (Hope et al. 1999). Most worksite health promotion programs have been designed and implemented in larger, white-collar worksites and therefore do not adequately assess the perceived needs, interests, and barriers to behavior change among blue-collar employees. More variability in program planning is needed to avoid a middle class bias in worksite HPDP programs that may unintentionally limit participation if the programs offered are geared towards the interests and needs of white collar workers (Conrad 1988).

While many large corporations now have comprehensive employee wellness programs, many working men and women in the U.S. are still employed in small companies. Approximately 95% of all U.S. workplaces have fewer than 50 employees, and 42% of all employees work for these organizations (US Bureau of the Census 1995). While the last two decades have witnessed a significant growth in the number and type of HPDP activities offered in the workplace (Fielding and Piserchia 1989; USDHHS 1992), a 1995 survey of North Carolina companies showed that only 13% of companies with 100 or less workers offered programs addressing nutrition, smoking, and exercise (Crump 1995).

A more recent study by Wilson et al. (1998) found that 25% of workplaces

with fewer than 100 employees report some type of worksite health activities. Although recent trends do indicate an increase in HPDP programs designed specifically for smaller worksites and programs that target blue collar employees (Campbell et al. 1997), the vast majority of existing programs still focus primarily on job-related hazards only. When compared to workplaces with at least 100 employees, larger workplaces were almost twice as likely to offer a variety of HPDP programs to their employees (Wilson et al. 1998). Smaller workplaces face unique barriers to implementation. They often lack the resources to give employees time off to attend programs or provide wellness facilities on site, so traditional worksite wellness models may not be feasible (Campbell et al. 1997). Additionally, smaller worksites may be more vulnerable to local, national or global economic trends (i.e. NAFTA), thus making it more difficult to anticipate changing production schedules, layoffs, or plant closings across the duration of a research program period. While women and blue collar workers may be at increased health risk, they may also have the less insurance against economic fluctuations (Benedict and Belton 1997).

Researchers acknowledge that small worksites are excellent candidates for health promotion activities (D'Arcy et al. 1997). Small companies with a high blue-collar to white-collar ratio have been shown to have more difficulty implementing effective smoking policy recommendations (Razavi et al. 1997; D'Arcy et al. 1997), but Sorensen et al. (1996) reported that while blue-collar workers were less likely to participate in a cancer prevention intervention program, when workers became aware of changes their employer had made to

reduce occupational exposures they were then likely to participate in smoking and nutrition activities.

Blue-collar workplaces also typically employ a higher percentage of lower income and minority workers. Individuals who are disadvantaged by race, education, or socioeconomic status find it more difficult to take preventive health actions, delay seeking medical care longer, and are more likely to receive care in clinics and emergency rooms (Wilcox and Mosher 1993) in part because they may have less access to prevention interventions. Although employee participation rates for those individuals at greatest risk have been traditionally low (Brill et al. 1991), recent programs that specifically target these populations in small, rural, blue-collar worksites have seen good participation and favorable outcome results (Campbell et al. 1997).

Shift Toward a Socioecological Model

Traditionally, health promotion and disease prevention programs have targeted health behavior change by focusing primarily on individual behavior characteristics while excluding other factors that may influence health behavior change (Wilson 1996). More recently, however, there has been a shift towards linking individual health behavior change with efforts to strengthen environmental and community supports in order to promote individual and collective well-being (Allen and Allen 1986, Bellingham 1990). This trend holds true not only for community health promotion programs (Stokols 1996) but also for health promotion programs in the workplace as well (Abrams et al. 1994, Campbell et

al. 1997) and reflect the increasingly ecological orientation of the health promotion field (Stokols 1992).

It is difficult to influence and change individual health behaviors associated with higher risk for numerous chronic diseases and conditions. There is a growing recognition among researchers that most public health challenges (e.g., decreasing dietary fat, increasing exercise, decreasing smoking, etc.) are far too complex to be sufficiently understood without the incorporation of broader approaches that integrate psychological, organizational, and cultural perspectives (Stokols 1996).

This shift from person-focused to environmental and community oriented health promotion is increasingly evident in several streams of research, including: the development of cultural change strategies that encourage healthful work environments and foster socially supportive workplace norms (Allen & Allen 1986); the growing number of researchers who acknowledge the role of health policies as one environmental change that can be effective in influencing individual health behaviors (Glanz et al. 1995; Brownson et al. 1995; King et al. 1995); researchers who advocate that policy approaches have a greater impact than individually oriented approaches alone (Brownson et al. 1997), and; those who integrate multiple levels of intervention into their workplace health promotion programs (Campbell et al. 1997; Abrams 1994).

Organizational Climate and Managerial Support

At an environmental level, organizational norms are very powerful sources of influence that guide individuals to respond to situations in specific ways (Hall 1977). If new behaviors are not supported by an organization's culture they may be quickly extinguished (Bellingham and Cohen 1989). Employees are more likely to participate in HPDP activities if they believe it is the norm to do so and sense their co-workers and managers believe they should participate (Kotarba and Bentley 1988).

Managerial support is one domain of organizational health climate found consistently throughout the literature. It has been shown to be crucial in influencing the adoption of innovations like health promotion programs (Rogers 1983; Green and Anderson 1986, Green et al. 1987).

Social learning theory (Bandura 1986) suggests that individuals need specific support and reinforcement from different groups of individuals, such as supervisors, peers, and family members to alter unhealthy actions and develop new healthy behaviors (Bellingham and Cohen 1989). Inactive employees who are at high risk, for example, may observe changes made by leaders of their organization or their peers who are actively participating as role models for healthy behaviors, or receive reinforcement from conversations with co-workers (Rost et al. 1990). When a significant proportion of workers actively support healthy behaviors, this "critical mass" influences other employees to take action and may increase the institutionalization of a program (Abrams et al. 1986). Similarly, when influential employees such as managers engage in healthy

behaviors, organizational norms may shift so that healthy actions are reinforced (Glasgow and Terborg 1988; Glasgow et al. 1990).

Management commitment influences healthy and safety programmatic success (Cole and Brown 1996). For a program to be implemented successfully, key decision makers need to clearly understand the value and benefits associated with health promotion activities (Chapman 1997; Allen and Leutzinger 1999). A healthful organizational climate is facilitated by involving management in the program planning process (Chenoweth 1986) and by tailoring specific interventions based upon managers' perception of the problem (Willemsen et al. 1999).

Management personnel can also influence institutional norms with their own health behaviors (Heimendinger et al. 1995) and positively influence program participation by showing their support (Crump et al. 1996; Wilson 1990). Conversely, individual employees have cited lack of support as a significant barrier to personal health behavior changes such as exercise (Jaffee et al. 1996), dietary change, and smoking (Heimendinger et al. 1995).

Early studies by Emont and Cummings (1991) examined the influence of organizational factors, including degree of manager support, specifically on the effectiveness of a worksite smoking cessation program. While they clearly demonstrated a relationship between the presence of worksite smoking policies with increased worksite smoking cessation program participation and actual cessation rates, they did not, however, find any significant relationship between program participation, cessation rates and manager support. They did

acknowledge the likelihood that manager support of a worksite health promotion intervention mediates program success in some manner. Since other researchers have found management support to be crucial for other health behaviors, these results call for more conclusive study.

In addition to normative influences and organizational resources, management support is an important dimension of the worksite organizational context that defines the social, managerial and operational environment in which a program is administered. Defining management support as the "degree of decision makers' support for the HPDP program as identified by managers' participation in [company]-supported activities, beliefs about the program, percentage of employees who believe their manager supports their participation, and stated support for programs," Crump et al. (1996) found that employees were more likely to participate in health promotion activities when they were supported by managers and that management support was shown to have a stronger influence on men, whites, and those in upper level jobs.

Thus, the cultivation of a liaison, or ally, with decision making power at each worksite is crucial to the success of a health promotion program. The use of a participatory research model that involves managers in program design and implementation may also increase program effectiveness in smaller worksites (Benedict and Belton 1997). Existing health promotion programs in small worksites point to the need for more emphasis on environmental interventions that include managers in the workplace. Extensive contact with managers and employees to consider the culture of the workplace, gain trust, create presence,

and establish rapport are equally important (Tessaro 1997).

Diffusion of Innovations

Organizational diffusion theories play a particularly important role in the study of the adoption, implementation, and ultimate institutionalization of health promotion programs (Goodman and Steckler 1988) because they take into account the relationship between organizational dynamics and program dissemination. Specifically, these theories examine the factors affecting the direct diffusion of health promotion innovations that often target schools, communities, or worksites as delivery channels.

Orlandi (1996) suggests that by deliberately planning for the acceleration of the dissemination process - rather than simply passively observing it - program planners can identify innovative decision makers who serve as "technology gatekeepers" (Rogers 1983) and have the ability to influence which innovations are adopted as well as how the innovations are implemented throughout the organization.

Gaps in Existing Literature

Despite the growing popularity of worksite health promotion programs in recent years, some criticize the gap between research and practice and the poor dissemination of existing worksite health promotion knowledge (O'Donnell 1994). Recent reviews of worksite health promotion literature call for expanded research

in many areas (Glanz et al.1996; Wilson et al. 1996).

Despite the facts that women are the fastest growing segment of today's workforce, are major health care consumers, are the family's principle decision makers on health, and juggle dual roles that can present unique health care needs, women are still largely ignored in worksite health promotion literature and programming (Collins et al. 1997).

Many worksite health promotion research trials have historically targeted large, white-collar workplaces, therefore a lack of literature exists about developing successful interventions for smaller workplaces. While the number of health promotion programs in smaller and blue-collar programs is increasing, most programs only address injury prevention and occupational hazards.

Little is known about manager support in smaller workplaces, which is especially important given recent trends toward the use of a social ecological model in worksite health promotion. Although there is established documentation that management support is vital to the success of a worksite HP program, there is very little literature about working with managers in smaller or blue-collar worksites. Thus, learning more about organizational characteristics, management support for worksite health promotion, and the diffusion process has tremendous implications for the design and success of future health promotion programs that target employees in this population.

III. METHODS

Study Design

Health Works For Women (HWW) was a worksite health promotion intervention supported by grant #U481CCU409660 from the Centers for Disease Control and Prevention awarded to the Center for Health Promotion and Disease Prevention, University of North Carolina at Chapel Hill. The study focused on changing the health behaviors associated with the major causes of morbidity and mortality in women (smoking, high fat/low fruit and vegetable consumption, and physical inactivity), and increasing breast and cervical cancer screening. An ecological framework was employed to target multiple levels of change: (1) at the intrapersonal level, computer generated individually tailored health messages designed to inform women about health risks and provide feedback to initiate behavior change, and (2) at the interpersonal level, a social network intervention utilizing the natural helping ability of women to support health promotion change at the workplace (Natural Helpers Program). Both components of the intervention were theory-based, incorporating constructs from Social Learning Theory (Bandura 1996). Social Support Theory (Isreal 1985), the Health Belief Model (Strecher and Rosenstock 1997) and the Transtheoretical Model (Prochaska et al. 1992). A pre-test/post-test two group randomized design compared four intervention and five control worksites on changes in the targeted health behaviors. Women employees were surveyed three times: at baseline, 6

months, and again at the end of the 18 month intervention period. Intervention worksites received two individually tailored health messages and the Natural Helper program while control worksites received a delayed intervention consisting of computer generated health message only. Worksites were phased into the project over a two-year period from March 1995 to April 1997. This study was approved by the UNC School of Medicine Institutional Review Board (Tessaro et al. 2000). Preliminary results indicate a small but significant increase in certain categories of physical exercise and in fruit and vegetable consumption (Campbell et al. in press).

Worksite Sample

In order to capture those women with highest risk and least access to preventive care, companies were recruited by select protocol. A total of nine workplaces were recruited according to the following eligibility criteria: (1) geographically located in rural, eastern North Carolina county with a minority population of at least 30%; (2) small to medium-sized textile or light manufacturing industries with 125-350 employees; (3) employ a majority of women (at least 51% of work force) for a total of 100+ female employees on site; and (4) no existing systematic health promotion programs at the workplace (Campbell et al. 2000).

Using these criteria, nine counties were identified and a randomized list of 132 eligible workplaces were generated. A total of 113 workplaces were contacted but deemed ineligible after initial screening because of: insufficient

number of women employees (67); too many women employees (1); plant closed or closing imminent (15); existing comprehensive wellness program on site (8); incorrect industry or county (10); no permanent employees (2); incorrect address or duplicate listing (9); and no authority at the workplace to commit to study participation (1). Of the nineteen remaining worksites nine were not interested and the remaining ten were successfully recruited for study participation, with nine active study sites and one pilot company (Campbell et al. 2000). Thus, after all ineligible companies were eliminated, HWW had an overall worksite recruitment and participation rate of more than 50%.

Worksites had no prior knowledge of HWW and were initially contacted by telephone. Recruitment protocol followed five basic steps: (1) identification a key decision maker, usually the human resource or benefits manager; (2) verbal description of the HWW program by telephone; (3) faxing of a detailed program description; (4) follow-up phone call once recruitment materials had been reviewed; and (5) scheduling of a site visit for a face to face meeting with key decision makers. Participating companies signed a non-binding "contract" as a gesture of commitment to the research requirements. In signing this contract, companies agreed to provide: time off the production line in order for female participants to complete a baseline survey; use of worksite facilities such as cafeterias or break rooms for Natural Helper trainings; and assistance with the distribution of an organizational survey to all management staff (Benedict and Belton 1997).

Per recruitment criteria, all nine workplaces were either in the light

manufacturing or textile industry. Sample products included the production of digital LED lights, hospital IV bags and other rubber surgical equipment, the processing of raw rubber to manufacture rubber stopper products, quilts and comforters, men's neck ties, athletic sports apparel, and the dyeing, spinning, weaving of various textile products such as towels and men's leisure shirts.

Manager Sample

Within each of the nine companies, the Human Resource Manager generated a list of all persons considered to be part of the management team at their worksite. HWW did not provide any SIC codes or specified definitions of what roles or job responsibilities constituted a "manager" position, but rather left this to the discretion of the Human Resource Manager who was considered to be more familiar with their own individual organizational culture. All worksites included middle and upper management positions; several worksites additionally included production or front line supervisors because of their supervisory relationships with employees and decision making power within the organization.

Procedures

Shortly after workplace recruitment, an organizational survey was distributed to all on-site managers in order to gain a better understanding of the context and workplace organization at each of the nine study sites. These 37 item questionnaires assessed demographic characteristics and personal health

behaviors of managers, level of manager support for and interest in workplace health promotion initiatives, perception of employee health needs, perception of organizational climate, perception of the HWW project, and specific organizational barriers to health promotion activities.

Each survey was distributed personally by a key workplace liaison (such as a Human Resource Manager or Occupational Health Nurse) and included a cover letter to explain the purpose of the survey, ensure confidentiality, and acknowledge thanks for participation. Because managers were asked to provide their name, job title, and other personal information, a seal-able manila reply envelope was also provided such that surveys could be returned in a confidential manner. Additional written or verbal endorsements from key workplace management liaisons were secured when at all possible to promote a higher response rate. The key liaison then collected all completed surveys over a period of several weeks.

After a period of approximately one month, a second copy of the management survey was sent out to all managers who had not yet responded. This second copy of the survey was sent via U.S. mail to each worksite, addressed to individual managers. Key workplace liaisons provided non-coercive verbal reminders to non-responders. No additional attempts to collect surveys were made.

It should be mentioned that in the case of the first two worksites a lapse of nearly a year passed between the first and second survey administrations. Very few surveys were actually collected on the second attempt, however, therefore it

is presumed that the presence of the HWW intervention at these worksites did not significantly influence overall response.

A summary of response rate by worksite is listed in Table 1. The overall response rate was 61.2%, with the total number of N=98 surveys collected across all nine worksites. This small n may be accounted for by the fact that most smaller, blue-collar workplaces employ fewer personnel at the management level than do larger, white-collar industries.

Table 1. Response Rate by Worksite

Worksite	Type of Industry	Total Managers	# Responses	% Responses
1	Lt. manufacturing	21	12	57.1%
2	Lt. manufacturing	8	4	50.0%
3	Lt. manufacturing	22	16	72.7%
4	Textile	13	8	61.5%
5	Textile	30	17	56.7%
6	Textile	14	14	100.0%
7	Textile/Apparel	20	11	55.0%
8	Textile	20	6	30.0%
9	Textile/Apparel	12	10	83.0%
Total		160	98	61.2%

Measures

Demographics

The demographic data collected from managers included age, gender, ethnic identification (African American, Asian or Pacific Islander, Hispanic, Native American, White, or other), and education in the form of highest grade completed (less than 8th grade, some high school, High school or GED, some college/Associate degree, Baccalaureate degree, Masters degree, Higher than Masters). Because of initial frequency distributions, education was collapsed into three categories for analytical purposes.

Managerial Role Within the Company

In order to gain an understanding of the manager's role within the company, managers were asked how many years they had been employed by the worksite, the number of employees they supervised, their position in the company's organizational chart (first line supervisor, mid-level management, upper level management, chief executive officer, president, none, or other), and the general domain of their job responsibilities (production, sales/marketing, employee benefits, human resources, personnel selection, employee safety, physical plant, or other). The degree of personal involvement in employee health at the worksite (a large part of your role, a small part/not part of your role) was additionally assessed.

Manager Support and Diffusion

Managers were asked about their degree of support for positive health behaviors in the worksite for employees (none, some, a lot, most). Because nearly all managers expressed some support in initial frequency distributions, this support variable was collapsed into dichotomous categories of strong support versus weaker support for the purposes of analysis. The degree of innovativeness with regard to introducing new health ideas and resources at the workplace was also assessed using a 6 item measure adapted from Rogers (1971) and included the following statements: I like to be the first to try new ideas; I usually wait until other colleagues try new ideas first; I prefer to use programs used in the past; I wait for thorough organizational commitment before beginning a project; I enjoy bringing management new ideas; and, I prefer to wait until an idea is thoroughly tested before trying it.

Perceived Health Promotion Needs of Employees

Manager's perceptions of employee health promotion needs were assessed separately for both male and female employees. The list included exercise and fitness, nutrition, weight control, blood pressure, cholesterol, breast cancer, other cancer, stress reduction, depression, prenatal education, smoking cessation, drug/alcohol abuse, relationship violence, back injuries, job hazard/workplace safety, and HIV/AIDS and other STD's. Also included in the list were health promotional activities not currently offered by the company that managers felt should be provided: none, aerobic exercise, walking program,

other exercise, weight management, health fairs, diabetes screening, high blood pressure screening, cancer screening, blood test for cholesterol, coping with stress, smoking cessation, coping with depression, regular wellness presentations, back pain, medical self-care, alcohol/drug abuse, safety/accident prevention, preventing HIV and STD's, confidential testing for HIV and STD's, family planning, prenatal classes, parenting, retirement planning, improving relationships, or other.

Perceived Importance of Employee Health Promotion

Manager's agreement regarding personal attitudes about employee health promotion initiatives were assessed with the following statements: it's cheaper to prevent disease than to treat it; healthy people are more productive; and the work environment has an impact on health, behaviors and lifestyle choices of employees. Managers were asked to rank the importance of employees receiving health information at the worksite, employees changing unhealthy behaviors, employees receiving information about health care costs, and the importance of a managerial role that informs, supports and motivates employees to take healthy actions. Additionally, they were asked to rank the importance of various ways in which a manager could support positive health behavior at the workplace (through verbal encouragement, positive role models, providing information about existing programs such as HWW, encouraging employee participation in programs by allowing flexible work schedules).

Organizational Support for Health Promotion Activities

Managers were asked about their perceptions of their workplaces' climate in regard to the degree of support for health promotion initiative. This 14 item measure adapted from the work of Ribisl and Reischl (1995) assessed agreement with the following statements: (1) worksite is committed to providing employee health promotion activities; (2) promoting employee health is compatible with company objectives; (3) providing health promotion activities is contributing to company success, (4) organizational climate promotes positive employee outlook; (5) employee health is an important company activity; (6) employees feel recognized for their contributions; (7) the company cares about its employees; (8) employees feel good about working here; (9) employees cope with stress in positive ways; (10) managers have generally healthy lifestyles; (11) employees have generally healthy lifestyles; (12) there is a sense of community among employees; (13) co-workers encourage each other to participate in health promotion activities, and: (14) managers and supervisors encourage health promotion program participation.

Manager Interest in Providing Employee Health Promotion Programs

Managers reported their degree of interest in providing employee health promotion activities on a 3 point Likert scale (very interested, a little interested, not interested) but because initial frequency distributions indicated that nearly all managers expressed some interest, this category was collapsed and recoded into two categories of stronger interest versus lesser interest.

Barriers to Proving Worksite Health Promotion

Common barriers to worksite health promotion programs were evaluated (cost, employees not interested, not enough management support, company lacks facilities, dispersed workforce, company lacks expertise and staff, company does not see value in worksite health promotion, competing priorities, high employee turnover, employees are already healthy, and other reasons).

Perception of the HWW Program

Managers were asked about their reaction specifically to the HWW program taking place at their worksite (very interested, moderately interested, neutral, slightly disinterested, opposed), if they were involved in the companies decision to participate in HWW (yes, no), the importance of providing information about the HWW program to employees (very important, important, not very important, not at all important) and whether or not that had participated themselves in any of the HWW activities (yes, no).

Personal Health Behaviors

A series of questions evaluated the personal health behaviors of the managers who completed the survey, including the frequency of physical activity, use of tobacco products, the consumption of low fat foods, daily fruit and vegetable servings, height and weight to calculate Body Mass Index (BMI), blood cholesterol level, blood pressure measurement, adoption of age-appropriate breast and cervical cancer screenings (women only), and adoption in the last six

months of behaviors that support a healthy lifestyle (started a regular exercise program, stopped or cut back smoking, developed skills to manage stress, adopted new habits to maintain health body weight, adopted new eating habits to lower cholesterol, had a medical check-up, took action to maintain healthy blood pressure, and recognized the need for good emotional and mental health). Several derived variables were constructed to determine if managers were meeting the recommended standards in each main health behavior category.

Data Analysis

As previously noted, this research explored the following questions:

1. What demographic or worksite characteristics of managers (such as age, education, gender, job title, and industry type) are associated with level of interest in and manager support for worksite health promotion programs?
2. What behavioral characteristics, such as personal health behaviors (healthy diet, regular exercise, etc.), are associated with the degree of management support for worksite health promotion programs?
3. What other social or contextual characteristics, such as perceived importance of employee health promotion or perception of organizational climate, are associated with the degree of management support for worksite health promotion programs?

To address these questions, statistical analysis using the Statistical Analysis System (SAS) consisted primarily of frequency distributions, cross-tabulations, and correlations. Statistical significance was based on an

alpha level of .01 or less.

Frequency distributions for demographic and workplace characteristics provided a rich, descriptive picture of managers in small, blue-collar worksites and answer relevant questions pertaining to this population. This analysis is based on the premise that a better understanding of the management population will aid researchers in the design of future health promotion programs that will be supported and disseminated effectively throughout workplace organizations.

To address research questions two and three, cross-tabulations were generated to test for associations between the dependent variable manager support and other key variables. As noted, for the purposes of analysis some variable response options were collapsed and recoded into more meaningful ways based on their original frequency distribution.

Cross-tabulations, or joint contingency tables, indicate the joint outcomes of two analytical variables. Such tables provide a way to determine whether two variables are in fact related as hypothesized; that is, whether a bivariate relationship exists. These tables are comprised of a tabular display of the joint frequency distribution of two discrete analytical variables which has r rows and c columns. After standardizing the frequency table to a common denominator by converting to percentages, patterns of covariation are allowed to emerge.

The statistical significance of all cross-tabulations was assessed with chi-square tests. This test is based on a comparison between the observed cell frequencies of the cross-tabulation table with the frequencies that would be expected under the assumption that no relationship exists. Thus, the chi-square

statistic summarizes the discrepancy between observed and expected frequencies under independence (Schlotzhauer and Littell 1997).

For cross-tabulations where any individual cell size was equal to 5 or less and the conditions for a chi-square test could not be met, a Fisher's exact test was performed instead. Based on another type of theoretical distribution, the hypergeometric distribution, it is especially appropriate for tables with small cell frequencies (Schlotzhauer and Littell 1997).

Lastly, correlations were run to measure the strength of the relationship between 4 items of perceived importance of manager support and actual manager support and factor analysis was run on the 14 item perceived organizational climate scale.

IV. RESULTS

Demographic and Workplace Characteristics

On average, 85.7% of participating managers were white, 10.2% were African American, and 4.1% indicated an "other" ethnicity category comprised of Native American, Hispanic, or Syrian-Egyptian. For the purposes of analysis, managers were regrouped as white (85.7%) and non-white (14.3%), as shown in Table 2. The majority of respondents were male (65%) as opposed to female (35%).

Because the frequency of manager age was skewed toward the higher end, this variable was collapsed into three categories of less than 40 years (33.7%), 40-49 years (36.7%), and 50 years or older (29.6%) with an overall mean age of 44.9 years. The majority, or 39.8% of respondents, reported completion of a college degree, with 1 of those completing a master's degree and 2 completing higher than a master's. Many managers had completed some college (31.6%). The rest had completed high school or less (28.6%), with only 6 total from that category not completing at least a high school diploma or GED equivalent.

Table 2. Sociodemographic Characteristics of Managers (N=98)

	Frequency	Percent
Age		
<40	33	33.7%
40-49	36	36.7%
50+	29	29.6%
Ethnicity		
white	84	85.7%
non-white	14	14.3%
Education		
high school or <	28	28.6%
some college	31	31.6%
college grad or >	39	39.8%
Gender		
female	34	35.0%
male	64	65.0%

Although the workplace sample consisted of 6 textile/apparel and 3 light manufacturing workplaces, the manager sample was divided equally between both with 50% response rate from each (see Table 3). The majority of managers had worked at the same workplace for 15 or more years (45.9%), and many others had worked at the same plant between 5-10 years (36.7%). Only 15, or 15.3% had worked at their current workplace for less than 5 years.

Forty-nine percent of respondents considered themselves to be in a middle management position, while 36.7% were front line/production supervisors and only 9.2% were upper level managers such as Plant Managers, Presidents, Vice Presidents or CEOs. Most (51%) supervised a total of ten employees or less, just under one third (27.0%) supervised between 11-40 employees, and the

remaining 22% reported supervisory responsibilities for 41 employees or more.

Fifty-three managers (54.1%) reported that employee health was a large part of their personal role within the company and 21.9% were actively involved in the decision to participate in Health Works for Women. Nearly all managers reported at least some interest in providing health promotion.

Table 3. Workplace characteristics of managers (N=98)

	Frequency	Percent
Industry type		
light manufacturing	49	50.0%
textile	49	50.0%
Years at this workplace		
less than 5	15	15.3%
5-15 years	36	36.7%
15+ years	45	45.9%
Job position		
front line/supervisor	36	36.7%
mid level mgmt	48	49.0%
upper level mgmt	9	9.2%
Total employees supervised		
0-10	49	51.0%
11-40	26	27.0%
40+	21	22.0%
Personal role in health promotion		
large role	53	54.1%
small role	45	45.9%
Involved in decision to participate in Health Works		
yes	21	21.9%
no	75	78.1%

Personal Health Behaviors of Managers

While 31.6% of all managers were within a normal weight range (BMI < 25), the majority, or 49%, were overweight and 18.4% were clinically obese. 45.3% of managers had an acceptable cholesterol level below 200, while 22.1% were high, 6.3% were very high, and 26.3% did not know their current cholesterol level. The majority had normal blood pressure (76%) and 12.5% currently took high blood pressure medicine.

Over twenty-seven percent were current smokers, a rate higher than the national average. Only 21.4% were meeting the current exercise recommendations of 30 minutes or more of physical activity at least three days a week. 45.9% were meeting low fat dietary guidelines while only 2% met standards for daily fruit and vegetable consumption (see Table 4).

Perception of Employee Health Needs and Barriers

The greatest health needs identified for female employees were exercise (78%), weight management (75%), nutrition (64%), high blood pressure (57%), coping with stress (55%), breast cancer (54%), cholesterol (43%), smoking (44%), and workplace safety issues (40%). For male employees the highest health priorities were exercise (85%), weight management (67%), high blood pressure (65%), nutrition (59%), cholesterol (55%), coping with stress (53%), smoking (46%), workplace safety issues (42%) and back care (32%). Other health issues were cited to a lesser degree.

The largest barriers to health promotion at the workplace were cost (67.8%), lack of facilities (58.3%), lack of employee interest (45.8%), and lack of staff or expertise (44.8%).

Table 4. Personal Health Behavior Characteristics of Managers (N=98)

	Frequency	Percent
BMI		
normal <25	31	31.6%
overweight 25-29	48	49.0%
obese 29+	18	18.4%
Cholesterol level		
below 200	43	45.3%
200-240	21	22.1%
above 240	6	6.3%
don't know	25	26.3%
Blood pressure		
normal	73	76.0%
told by doc it's high	4	4.2%
take BP medicine	12	12.5%
don't know	7	7.3%
Non-Smokers		
yes	70	72.2%
no	27	27.8%
Meeting exercise recommendations		
yes	21	21.4%
no	75	76.5%
Meeting fruit/vegetable recommendations		
yes	2	2.0%
no	95	96.9%
Meeting low fat recommendations		
yes	49	45.9%
no	45	50.0%

When the sociodemographic characteristics of strongly supportive managers were compared to those of lesser support (see Table 5), no significant associations were found with age ($p=.2842$), ethnicity ($p=.9949$), education ($p=.6269$), gender ($p=.3330$), industry type ($p=.7252$), or personal role in employee health promotion ($p=.1450$).

Table 5. Sociodemographic Characteristics of Strongly Supportive (N =34) and less supportive managers (N=61).

	Strong Supporters		Lesser Supporters		P value
	N	%	N	%	
Age					
<40	10	29.4%	23	37.7%	.2842
40-49	11	32.4%	24	39.3%	
50+	13	38.2%	14	23.0%	
Ethnicity					
white	29	85.3%	52	85.3%	.9949
non-white	5	14.7%	9	14.7%	
Education					
high school or <	8	23.5%	20	32.8%	.6269
some college	12	35.3%	18	29.5%	
college grad or >	14	41.2%	23	37.7%	
Gender					
female	10	29.4%	24	39.3%	.3330
male	24	70.6%	37	60.7%	
Industry Type					
light manufacturing	16	47.1%	31	50.8%	.7252
textile	18	52.9%	30	49.1%	
Role in health Promotion					
large	22	66.7%	30	49.1%	.1450
small	12	35.3%	31	50.8%	

Likewise, no significant associations were found between level of interest in worksite health promotion the demographic variables such as age ($p=.8728$), ethnicity ($p=.2950$), education ($p=.0295$), gender ($p=.5153$) and industry type ($p=.8307$) at an alpha level of .05. There was however, a significant association between interest and role in employee health where the chi-square value was 17.8388 ($p<.0001$).

Table 6. Sociodemographic characteristics of managers interested in health promotion programs (N =65) and managers who are less interested (N=33).

	Strong Supporters		Lesser Supporters		P value
	N	%	N	%	
Age					
<40	21	32.3%	12	36.4%	.8728
40-49	25	38.5%	11	33.3%	
50+	19	29.2%	10	30.3%	
Ethnicity					
white	54	83.1%	30	90.9%	.2950
non-white	11	16.9%	3	9.1%	
Education					
high school or <	18	27.7%	10	30.3%	.0295
some college	26	40.0%	5	15.2%	
college grad or >	21	32.3%	18	54.5%	
Gender					
female	24	36.9%	10	30.3%	.5153
male	41	63.1%	23	69.7%	
Industry Type					
light manufacturing	33	50.8%	16	48.5%	.8307
textile	32	49.2%	17	51.5%	
Role in health Promotion					
large	45	69.2%	8	24.2%	<.0001
small	20	30.8%	25	75.8%	

When the personal health behaviors of strongly supportive managers were compared to those of lesser support (see Table 7), no significant associations were found with smoking behavior ($p=.4801$), physical fitness ($p=.6395$), daily fruit and vegetable consumption ($p=.6556$), or low fat diet ($p=.1422$). Although this research initially proposed to also examine age appropriate cancer screening, given the small number of female participants (made even smaller by the recommended age criteria for mammograms), there were too few respondents to test this association with manager support.

Table 7. Personal Health Behaviors of Strongly Supportive (N = 34) and Less Supportive Managers (N=61).

	Strong Supporters		Lesser Supporters		P value
	N	%	N	%	
Non-smokers	25	73.5%	42	68.9%	.4801
Meeting exercise recommendations	6	17.7%	14	23.0%	.6395
Meeting fruit and vegetable recommendations	1	2.9%	1	1.6%	.6556
Meeting low fat recommendations	20	58.8%	29	47.5%	.1422

Likewise, no significant associations were found between level of supportiveness and perceived positive benefits of worksite health promotion such as cost containment, productivity, belief that work environment impacts health, or the participation in HWW activities.

Table 8. Perceived positive benefits of worksite health promotion among strongly supportive (N = 34) and less supportive managers (N=61).

	Strong Supporters		Lesser Supporters		P value
	N	%	N	%	
Believe its cheaper to Prevent disease than to treat it	30	88.2%	48	78.7%	.2445
Believe healthy people are more productive on the job	24	70.6%	40	65.6%	.4776
Believe work environment has an impact on health, behaviors, and lifestyle choices of employees	23	67.7%	32	52.5%	.1506
Participated in Health Works for Women activities at my worksite	3	8.8%	8	13.1%	.5624

Correlations were run to measure the strength of the relationship between 4 items of perceived importance of manager support with actual manager support. Although no relationship was found between perceived support and actual support, the four items of perceived importance were significantly correlated. Importance of being a role model ($p < .0001$), importance of sharing HWW health information ($p = .0094$), and importance of proving flexible work time ($p = .0008$) were all significantly correlated with the importance of verbal encouragement.

Table 9. Correlations between perceived importance of providing manager support and actual support.

	Actual support	Importance of verbal encouragement	Importance of role model	Importance of HWW information	Importance of flex work time
Actual support	1.000	0.02800 0.7876 95	-0.03813 0.7137 95	-0.23375 0.0226 95	0.09880 0.3462 93
Importance of verbal encouragement		1.000	0.41044 <.0001 97	0.26244 0.0094 97	0.33898 .008 95
Importance of role model			1.000	0.14253 0.1637 97	0.14105 0.1728 95
Importance of HWW Information				1.000	0.14094 0.1731 95
Importance of Flex Work Time					1.000

And lastly, no significant associations were found between level of supportiveness and perceived organizational health climate (see Table 10).

Table 10. Perception of positive organizational climate among strongly supportive (N = 34) and less supportive managers (N= 61).

	Strong Supporters		Lesser Supporters		P Value
	N	%	N	%	
Company committed to health promotion (HP)	25	73.5%	43	70.5%	.6301
HP compatible with company objectives	27	79.4%	42	68.9%	.2685
Employee HP contributes to company success	29	85.3%	43	70.5%	.1064
Employees have positive outlook	23	67.7%	34	55.7%	.3894
Promoting employee health is an important activity	25	73.5%	40	65.6%	.4239
People feel recognized for their contributions	21	61.8%	37	60.7%	.9277
Company cares about employees	29	85.3%	48	78.7%	.5217
People feel good about working for this company	25	73.5%	44	72.1%	.9609
People at this company cope with stress in positive ways	13	38.2%	22	36.1%	.7598
Managers generally have healthy lifestyle practices	21	61.8%	43	70.5%	.6092
Employees generally have healthy lifestyle practices	12	35.3%	31	50.8%	.2119
There is a sense of community among employees	25	73.5%	40	65.6%	.3605
Employees encourage co-workers to participate in HP	23	67.7%	27	44.3%	.0499
Managers encourage employees to participate in HP activities	25	73.5%	37	60.7%	.2390

V. DISCUSSION

Summary of Findings

Very little research exists on the recruitment of worksites for worksite health promotion programs (Thompson et al. 1997; Biener et al. 1994) and because the majority of programs focus on large worksites, there is even less information specifically about the recruitment of smaller companies. Recruitment for participation can initially be one of the most challenging aspects of worksite health promotion research when working with smaller companies. Often smaller companies lack the resources to give workers substantial time off to attend classes or provide wellness facilities at the workplace (Benedict and Belton 1997), and management may be less informed about the benefits of health promotion (Life Report 1995). Given these challenges, the recruitment of 9 small, blue-collar worksites can be interpreted as a successful worksite sample.

Despite an overall manager response rate of 61.2%, the total number of surveys collected across all nine worksites was only n=98. This was most likely because smaller blue-collar workplaces, which typically employ fewer personnel at the management level than larger, white collar industries, were targeted for this intervention. Additional written or verbal endorsements from key workplace management liaisons were secured when at all possible to help promote higher response rate, thus this may have contributed to the higher response rates at Workplace #6 (National Spinning Co. =100%) and Workplace #9 (West Point

Clinton = 83%).

Generalizability

In general, managers in this study tended to be white, older, male, and have at least some college or a college degree. This would seem to be in keeping with trends in white-collar industries.

The majority of managers surveyed had been employed at their workplace for a long time, over 15 years, and most were at a middle management level. Many were also front line or production supervisors, which is perhaps the result of allowing each workplace to identify management personnel within their own unique organizational context and the fact that smaller, blue-collar workplaces may sometimes employ a less formal managerial structure than their white-collar counterparts. It was sometimes difficult for HWW project staff to obtain an organizational chart from several of these small workplaces, for example, because in some cases one did not exist. It is possible that worksite size may influence manager-employee relationships. Smaller companies tend to have fewer total managers and managers may be more likely to have multiple roles. Often managers in smaller companies may know most or all employees in the company by name (Benedict and Belton 1997).

Interestingly, over one fifth of managers sampled were actively involved in the decision to participate in HWW and the majority indicated that employee health was a large part of their role. Likewise, nearly all managers expressed at least some interest in providing employee health while only 4 did not. Therefore,

results should be interpreted cautiously as this may suggest some selection bias within the sample of those managers who chose to respond to the survey.

As a whole, most managers indicated a lack of healthy lifestyle behaviors. Almost 70% were overweight or obese, just under one third had high cholesterol, and nearly 28% were current smokers - a rate several percentage points higher than the U.S. national average. In addition, barely one fifth met regular fitness recommendations, the majority (50%) do not eat low fat diet, and only a mere 2% consume the recommended servings of five fruits and vegetables per day.

For both male and female employees, managers rated the two most important health priorities as exercise and weight management. Concerns about nutrition, coping with stress, smoking, cancer and other health issues were also frequently cited. This is consistent with reports from female blue-collar employees themselves regarding their own health and wellness priorities (Tessaro et al. 1998; Campbell et al. 2000).

When the sociodemographic characteristics of strongly supportive managers were compared to those of lesser support, no significant associations were found with age, ethnicity, education, gender or industry type or personal role in employee health promotion. Likewise, no significant associations were found between interest and demographic characteristics. There was however, a significant association between interest and role in employee health where the chi-square value was 17.8388 ($p < .0001$). These findings are consistent with existing literature.

Literature suggests that managers with healthy lifestyle behaviors are

more apt to perceive the value of and support health promotion activities. Since most of the managers in this sample were not meeting recommended guidelines for personal health behaviors, however, this may explain why no significant association was found between support and personal health behavior.

No significant associations were found between level of support and healthy organizational climate. Overall, managers tended to report their workplace environment as healthy and positive, so there may not have been much variation among strong supporters and lesser supporters.

Study Limitations and Implications for Future Research

With so many managers reporting some level of interest in and support for worksite health promotion activities, results should be viewed cautiously in light of potential selection bias. Likewise, the majority of managers agreed with statements of innovativeness (85%), while only 14 of the 98 respondents disagreed with the statement "I like to be the first to try a new idea." Most reported a positive perception of organizational climate. Because 1/5, or almost 22%, of all managers were involved with the decision to participate in the Health Works for Women program, one might be cautious of potential social desirability bias as well.

The findings of this study suggest that these existing measures of manager support may fail to capture the relative supportiveness among all workplace managers when faced with decisions about workplace wellness activities, and therefore, may have limited generalizability. There may be other

domains of manager supportiveness that could be explored or operationalized in different ways. And, because potential bias in the sample, it might be particularly insightful to collect comparative data from initial non-responders.

This research may have been hindered by small sample size (n=98).

Replication, with a larger n, may increase statistical power to test associations, particularly if more sensitive measures of support are used.

Data for this study were collected only at one single point in time. Future research might explore multiple data collection points among workplace managers, to study in more depth the dynamic relationships of interest and supportive as they may change over time.

It may be particularly interesting to link manager data to perceptions of manager support among employees. Employees themselves were not directly asked if manager support influenced their participation in the HWW program or their potential behavior change. Given that most managers report some employee support and employee participation was exceptional, one might infer that there could be a possible relationship. However, further research is needed to confirm this. Likewise, future studies may link manager support to the actual health behavioral outcomes of employees.

Since much of these findings were inconsistent with existing literature, more research is needed to further test and explain associations with manager support.

VI. BIBLIOGRAPHY

Abrams, D., J. Elder, R. Carleton, T. Lasater, and L. Artz. 1986. Social Learning Principles for Organizational Health Promotion: An Integrated Approach. Pp. 28-51. Edited by M. Cataldo and T. Coates. New York: John Wiley & Sons.

Abrams, David B., W. Bryant Boutwell, James Grizzle, Jerianne Heimendinger, Glorian Sorensen, Jill Varnes. 1994. "Cancer Control at the Workplace: The Working Well Trial." Preventive Medicine 23:15-27.

Allen, J. and R. F. Allen. 1986. "Achieving Health Promotion Objectives Through Cultural Change Systems." American Journal of Health Promotion 1:42-49.

Allen, J. and R. Bellingham. 1994. Building Supportive Cultural Environments. Pp. 204-216 in Health Promotion in the Workplace, edited by M. O'Donnell and J. Harris. Albany, NY: Delmar.

Allen, Judd and Joseph Leutzinger. 1999. "The Role of Culture Change in Health Promotion." The Art of Health Promotion 3:1-12.

Baker, E., B.A. Israel, and S. Schurman. 1996. "The Integrated Model:

Implications for Worksite Health Promotion and Occupational Health and Safety Practice." *Health Education Quarterly* 23:175-190.

Basen-Engquist, Karen, Karen Suchanek Hudman, Mary Tripp, and Robert Chamberlain. 1998. "Worksite Health and Safety Climate: Scale Development and Effects off a Health Promotion Intervention." *Preventive Medicine* 27:111-119.

Bellingham, R. 1990. "Debunking the Myth of Individual Health Promotion." Pp. 665-675 in *Occupational Medicine: Worksite Health Promotion*, edited by M. E. Scofield. Philadelphia: Hanley & Belfus.

Benedict, Salli and Leigh Belton. 1997. *Recruiting Companies and Working with Managers in Small- to Medium-Sized Blue Collar Workplaces: Reality vs. Plans*. Presented at: American Public Health Association 125th Annual Meeting, Indianapolis, IN, November 9-13.

Biener, L., J. DePue, K. Emmons, L. Linnan, and D. Abrams. 1994. "Recruitment of Worksites to a Health Promotion Research Trial: Implications for Generalizability." *Journal of Occupational Medicine* 36:631-636.

Bosma, H., M. G. Marmot, H. Hemingway, et al. 1997. "Low Job Control and Risk of CHD in Whitehall 11 (Prospective Cohort Study)." *British Medical*

Journal 314:558-565.

Bracht, N. (Ed.) Health Promotion at the Community Level.

Breslow, L., J. Fielding, A. Herman, and C. Wilbur. 1990. "Worksite Health Promotion: Its Evolution and the Johnson & Johnson Experience." *Preventive Medicine* 19:13-21.

Brill, P., H. Kohl, T. Rogers, T. Collingwood, C. Sterling, and S. Blair. 1991. "The Relationship Between Sociodemographic Characteristics and Recruitment, Retention, and Health Improvements in a Worksite Health Promotion Program." *American Journal of Health Promotion* 5:215-221.

Brownson, R. C., D. M. Koffman, T. E. Novotny, R. G. Hughes, M. P. Erikson. 1995. "Environmental and policy Interventions to Control Tobacco Use and Prevent cardiovascular disease." *Health Education Quarterly* 22:478-498.

Brownson, Ross C., Craig J. Newschaffer, and Farnoush Ali-Arbarghoui. 1997. "Policy Research for Disease Prevention: Challenges and Practical Recommendations." *American Journal of Public Health* 87:735-739.

Calvo, Arlene, and Kristi Rahrig. 1997. "Diffusion of Innovations" (Diffusion of

Innovations Overview, University of South Florida, Community and Family Health). Retrieved November 26, 2001

(www.med.usf.edu/~kmbrown/Diffusion_of_Innovations_Overview.htm).

Campbell, Marci Kramish, Irene Tessaro, Brenda DeVellis, Salli Benedict, Kristine Kelsey, Leigh Belton, and Carlos Henriquez-Roldan. 2000. "Tailoring and Targeting a Worksite Health Promotion Program to Address Multiple Health Behaviors Among Blue-Collar Women." *American Journal of Health Promotion* 14:306-313.

Chapman, Larry S. 1997. "Securing Support from Top Management." *The Art of Health Promotion* 1:1-7.

Chenoweth, D. 1986. "To Set the Stage for Employee Health, Change Environment, Cultural Norms." *Occupational Health and Safety* 54:95.

Chu, C. "An Integrate Approach to Workplace Health Promotion. Pp. 182-194 in *Ecological Public Health from Vision to Practice*, edited by C. M. Chu, and R. Simpson. Nathan, Queensland, Australia: Griffith University.

Cohen, Prusak L. 2001. "How to Invest in Social Capital." *Harvard Business Review* 79:86-93.

Collins, Barbara S., Roberta B. Hollander, Dyann Matson Koffman, Rebecca Reeve, and Susan Seidler. 1997. "Women, Work and Health: Issues and Implications for Worksite Health Promotion." *Women & Health* 25:3-38.

Cole, Brian L. and Marianne Parker Brown. 1996. "Action on Worksite Health Safety Problems: A Follow-Up Survey of Workers Participating in a Hazardous Waste Worker Training Program." *American Journal of Industrial Medicine* 30:730-743.

Conrad, P. 1987. "Who Comes to Work-Site Wellness Programs? A Preliminary Review." *Journal of Occupational Medicine* 29:317-320.

Crump, Carolyn E., Jo Anne L. Earp, Chris M. Kozma, and Irva Hertz-Picciotto. 1996. "Effect of Organization-Level Variables on Differential Employee Participation in 10 Federal Worksite Health Promotion Programs." *Health Education Quarterly* 23:204-223.

Cullen, K. W., T. Baranowski, J. Baranowski, D. Herbert, C. deMoor, M. D. Hearn, and K. Resnicow. 1999. "Influence of School Organizational Characteristics on the Outcomes of a School Health Promotion Program." *Journal of School Health* 69:376-380.

Davis, M., K. Rosenberg, D. Iverson, et al. 1984. "Worksite Health Promotion in

Colorado. Public Health Reporter 99:538-543.

Deal, T. E., and A. A. Kennedy. 1982. Corporate Cultures. Reading, MA:
Addison-Wesley.

DeAngelis, Tori. 1996. "Women Factory Workers Face Unique Types of Stress."
American Psychological Association Monitor, November, Vol. 27.

Emmons, Karen M., Laura Linnan, and David Abrams. 1996. "Women Who
Work in Manufacturing Settings: Factors Influencing Their Participation in
Worksite Health Promotion Programs." Women's Health Issues 6:74-81.

Emont, Seth L. and K. Michael Cummings. 1990. "Organizational Factors
Affecting Participation in a Smoking Cessation Program and Abstinence
Among 68 Auto Dealerships." American Journal of Health Promotion.
5:107-114.

Facione, Noreen C. 1994. "Role Overload and Health: The Married Mother in the
Waged Labor Force." Health Care for Women International 15:157-167.

Fellows, J., N. Gottlieb, A. McAlister. 1988. "Employee Health Promotion:
Organizational Correlates and Community Resources." Health Values
12:5-15.

- Fielding, J., L. Breslow. 1983 "Health Promotion Programs Sponsored by California Employers." *American Journal of Public Health* 73:538-542.
- Fielding, J., P. Piserchia. 1989. "Frequency of Worksite Health Promotion Activities." *American Journal of Public Health* 79:16-20.
- Fisher, Brian, Thomas Golaszewski, Donald Barr. 1999. "Measuring Worksite Resources for Employee Heart Health." *American Journal of Health Promotion* 13:325-332.
- Frankish, C. James, Joy L. Johnson, Pamela R. Ratner, and Chris Y. Lovato. 1997. "Relationship of Organizational Characteristics of Canadian Workplace to Anti-Smoking Initiatives." *Preventive Medicine* 26:248-256.
- Freedman, Sara M. and Michael Bisesi. 1988. "Women and Workplace Stress." *Health Values* 12:30-35.
- Gebhardt, D. and C. Crump. 1990. "Employee Fitness and Wellness Programs in the Workplace." *American Psychologist* 45:262-272.
- Glanz, K., B. Lankenau, S. Foerster, S. Temple, R. Mullis, T. Schmid. 1995. "Environmental and Policy Approaches to Cardiovascular Disease Prevention Through Nutrition: Opportunities for State and Local Action."

Health education Quarterly 22:512-527.

Glanz, Karen, Frances Marcus Lewis, and Barbara K. Rimer, Editors. 1997.
Health Behavior and Health Education: Theory, Research, and Practice,
2nd Edition. San Francisco, CA: Jossey-Bass Publishers.

Glasgow, R. E., R. C. Klesges, L. M. Klesges, G. R. Somes. 1988. Variables
Associated with Participation and Outcome in a Worksite Smoking Control
Program. Journal of Consulting and Clinical Psychology 56:617-620.

Glasgow, R., J. Hollis, D. Ary, and H. Lando. 1990. "Employee and
Organizational Factors Associated with Participation in an
Incentive-Based Worksite Smoking Cessation Program." Journal of
Behavioral Medicine 13:403-418.

Glasgow, Russell E., James R. Terborg, Jack F. Hollis, Herbert H. Severson, and
Shawn M. Boles. 1995. "Take Heart: Results from the Initial Phase of a
Work-Site Wellness Program." American Journal of Public Health
85:209-216.

Glasgow, Russell E., James R. Terborg, Lisa A. Strycker, Shawn M. Boles, and
Jack F. Hollis. 1997. Take Heart II: Replication of a Worksite Health
Promotion Trial." Journal of Behavioral Medicine 20:143-161.

- Goetzel, R. Z., B.H. Jacobson, S. G. Aldana, K. Vardell, and L. Yee. 1998. "Health Care Costs of Worksite Health Promotion participants and non-participants." *Journal of Occupational & Environmental Medicine* 40:341-346.
- Goldman, Karen Denard and Kathleen Jahn Schmalz. 2001. "Theoretically Speaking: Overview and Summary of Key Health Education Theories." *Health Promotion Practice* 2:277-281.
- Grayson, Larry R., Althouse, Ronald C., Gary L. Winn, and Michael J. Klishis. 1998. "A New Injury Analysis Methodology for Developing Prioritized Workplace Intervention Strategies." *Applied Occupational and Environmental Hygiene* 13:41-52.
- Green, K. L. 1988. "Issues of Control and responsibility in Workers' Health." *Health Education Quarterly* 15:473-486.
- Henrikus, Deborah J. and Robert W. Jeffery. 1996. "Worksite Intervention for Weight Control: A Review of the Literature." *American Journal of Health Promotion* 10:471-498.
- Hollander, R. and J. Lengermann. 1988. *Corporate Characteristics and Worksite Health Promotion Programs: Survey Findings from Fortune 500*

Companies." *Social Science Medicine* 26:491-501.

Holman, C. D'Arcy J, Billie Cortie, Robert J. Donovan, and Geoffrey Jalleh. 1998. "Association of the Health-Promoting Workplace with Trade Unionism and Other Industrial Factors." *American Journal of Health Promotion* 12:325-334.

Hope, Ann, Cecily Kelleher, and Maire O'Connor. 1999. "Lifestyle and Cancer: The Relative Effects of a Workplace Health Promotion Program Across Gender and Social Class." *American Journal of Health Promotion* 13:315-318.

Horton, W. L. 1988. "Program Success Determinants." *Fitness in Business* Pp. 56, 73.

Jaffee, Lynn, Judy Mahle Lutter, and Peggy Wu. 1996. "Motivation to be Physically Active in a Work Setting." *Melpomene Journal* (Spring):22-29.

Jeffery, Robert W. 1993. "National Institutes of Health Technology Assessment Conference: Minnesota Studies on Community-Based Approaches to Weight Loss and Control." *Annals of Internal Medicine* 119(Suppl.7):719-721.

- King, A. C., R. W. Jeffery, F. Fidinger, et al. 1995. "Environmental and Policy Approaches to Cardiovascular Disease Prevention Through Physical Activity: Issues and Opportunities." *Health Education Quarterly* 22:499-511.
- Know, Sally, Jo Annalee Irving. 1997. "Nurse Manager Perceptions of Healthcare Executive Behaviors During Organizational Change." *Journal of Nursing Administration* 27:33-39.
- Kotarba, J. A. and P. Bentley. 1988. "Workplace Wellness Participation and Becoming of Self." *Social Science Medicine* 26:551-558.
- Lovato, Chris Y. and Lawrence W. Green. 1990. "Maintaining Employee Participation in Workplace Health Promotion Programs." *Health Education Quarterly* 17:73-88.
- Lusk, S. L. 1997. "Health Promotion and Disease Prevention in the Worksite." *Annual Review of Nursing Research* 15:187-213.
- Lusk, S., M. Kerr, and D. Ronis. 1995. "Health-Promoting Lifestyles of Blue-Collar, Skilled Trade, and White-Collar Workers." *Nursing Research* 44:20-24.

McCormack Brown, Kelli. 1999. Diffusion of Innovations. University of South Florida, Community and Family Health. Retrieved August 7, 2001 (www.med.usf.edu/~kmbrown/Diffusion_of_innovations_overview.html).

McLeroy, K. R., D. Bibeau, A. Steckler, et al. 1988. "An Ecological Perspective on health promotion programs." *Health Education Quarterly* 15:351-377.

Messing, Karen. 1997. "Women's Occupational Health: A Critical Review and Discussion of Current Issues." *Women & Health* 25:39-68.

Moos, R. and J. Schaefer. 1987. "Evaluating Health Care Work Settings: A Holistic Conceptual Framework." *Psychology and Health* 1:97-122.

Morris, William R., Karen M. Conrad, Richard J. Marcantonio, Beth A. Marks, and Kurt M. Ribisl. 1999. "Do Blue-Collar Workers Perceive the Worksite Health Climate Differently than White-Collar Workers?" *American Journal of Health Promotion* 13:319-324.

Mukherjee, S., L. Overman, L. Leviton, and B. Hilyer. 2000. "Evaluation of Worker Safety and Health Training." *American Journal of Industrial Medicine* 38:155-163.

O'Donnell, Michael P. 1997. "Benchmarking Best Practices in Workplace Health

Promotion." Pp. 1-8 in *The Art of Health Promotion Newsletter*, Volume 1, edited by L. Chapman. Keego Harbor, MI: American Journal of Health Promotion.

O'Donnell, Michael P. and Jeffrey S. Harris, Editors. 1994. *Health Promotion in the Workplace*, 2nd Edition. Albany, New York: Delmar Publishers Inc.

Oldenburg, Brian, Deborah M. Hardcastle, and Gerjo Kok. 1996. "Diffusion of Innovations." Pp. 270-285 in *Health Behavior and Health Education*, edited by K Glanz, F. Lewis, and B. Rimer. San Francisco: Jossey-Bass Publishers.

Orlandi, Mario A. 1996. "Health Promotion Technology Transfer: Organizational Perspectives." *Canadian Journal of Public Health* 87:S28-S33.

Orlandi, Mario A., C. Landers, R. Weston, and N. Haley. 1990. *Diffusion of Health Promotion Innovations*. Pp. 288-313 in *Health Behavior and Health Education: Theory, Research, and Practice*, edited by K. Glantz, F. M. Lewis, and B. K. Rimer. San Francisco, CA: Jossey Bass Publishers.

Pelletier, Kenneth R. 1999. "A Review and Analysis of the Clinical and Cost-effectiveness Studies of Comprehensive Health Promotion and Disease Management Programs at the Worksite: 1995-1998 Update (IV)."

American Journal of Health Promotion 13:333-345.

Peterson, Michael and John Wilson. 1998. "A Culture-Work-Health Model: A Theoretical Conceptualization." American Journal of Health Behavior 22:378-390.

Razavi, Darius, Hilde Vandecasteele, Catherine Primo, Martial Bodo, Fabian Debrier, Hilde Verbist, and Marianne Paesmans. 1997. "Improving Cancer Prevention at the Worksite: How Are Belgian Companies Dealing With Smoking Regulations?" Psycho-Oncology 6:204-211.

Reardon, J. 1998. "The History and Impact of Worksite Wellness." Nursing Economics 16:117-121.

Ribisl, K. and T. Reischl. "Measuring the Climate for Health at Organizations: Development of the Worksite Health Climate Scales." Journal of Occupational Medicine 35:812-824.

Rogers, E. M. 1995. Diffusion of Innovations, 4th edition. New York: The Free Press.

Rogers, E. M. and F. F. Shoemaker. 1971 Communication of Innovation, 2nd edition. New York: Macmillan.

Rundmo, T. 1994. "Associations Between Safety and Contingency Measures and Occupational Accidents on Offshore Petroleum Platforms." Scandinavian Journal of Work and Environmental Health 20:128-131.

Saghafi, M. M. and A. K. Gupta. 1990. Advances in Telecommunications Management. Greenwich, CT: Jai Press Incorporated.

Statistical Analysis System (SAS) Software, Version 6.12. 1997. The SAS Institute Inc., SAS Campus Drive, Cary, North Carolina.

Schlotzhauer, S. and R. Littell. 1997. SAS System for Elementary Statistical Analysis, Second Edition. The SAS Institute Inc., SAS Campus Drive, Cary, North Carolina.

Schneider, B. 1985. Organizational Behavior. Annual Review of Psychology 36:573-611.

Sloan, R. P. and J.C. Gruman. 1988. "Participation in Workplace Health Promotion Programs: The Contribution of Health and Organizational Factors." Health Education Quarterly 15:269-288.

Sorensen, G., T. Pechacek, and U. Pallonen. 1986. "Occupational and Worksite Norms and Attitudes About Smoking Cessation." American Journal of

- Public Health 76:544-549.
- Sorensen, Gloria, A. Stoddard, J. K. Ockene, M. K. Hunt, and R. Youngstrom. 1996. "Worker Participation in an Integrated Health Promotion/Health Protection Program: Results from the WellWorks Project." *Health Education Quarterly* 23:191-203.
- Sorensen, G., R. E. Glasgow, M. Topor, and K. Corbett. 1997. "Worksite Characteristics and Changes in Worksite Tobacco-Control Initiatives. Results from the COMMIT Study." *Journal Occupational & Environmental Medicine* 39:520-526.
- Speizer, Irwin. 1998. "Asia Hurts Carolina textiles." *News & Observer*, August 8, 1D, 6D.
- Spoth, R. 1990. "Multi-Attribute Analysis of Benefit Managers' Preferences for Smoking Cessation Programs." *Health Values* 14:3-15.
- Steckler, A., R. M. Goodman, K. R. McLeroy, S. Davis, and G. Koch. 1992. "Measuring the Diffusion of Innovative Health Promotion Programs." *American Journal of Health Promotion* 6:214-224.
- Stokals, Daniel. 1992. "Establishing and Maintaining Healthy Environments:

Toward a Social Ecology of Health Promotion." *American Psychologist* 47:6-22.

Stokals, Daniel. 1996. "Translating Social Ecological Theory into Guidelines for Community Health Promotion." *American Journal of Health Promotion* 10:282-298.

Stokals, Daniel, Kenneth R. Pelletier, and Jonathan E. Fielding. 1995. "Integration of Medical Care and Worksite Health Promotion." *JAMA The Journal of the American Medical Association* 273:1136-1142.

Terborg, J. R. 1988. Organizational Context. In: *Methodological Issues in Worksite Research: Proceedings of a Workshop, April 1988*. Washington, DC: U.S. Department of Health and Human Services, U.S. Public Health Service.

Tessaro, Irene, Kimberly Maynard, and Miriam Ornstein. 1997. Lessons Learned in Developing a Health Promotion Program for Women in Small-to Medium-Sized Blue Collar Worksites. Presented at: American Public Health Association 125th Annual Meeting, Indianapolis, IN, November 9-13.

Tessaro, Irene, Marci Campbell, Salli Benedict, Kristine Kelsey, Jennifer

- Heisler-MacKinnon, Leigh Belton, and Brenda DeVellis. 1998.
"Developing a Worksite Health Promotion Intervention: Health Works for Women." *American Journal of Health Behavior* 22:434-442.
- Tessaro, Irene A., S. Taylor, L. Belton, M. K. Campbell, S. Benedict, K. Kelsey, and B. DeVellis. 2000. "Adapting a Natural (Lay) Helpers Model of Change for Worksite Health Promotion For Women." *Health Education Research* 15:603-614.
- Thompson, Beti, June Van Leynseele, and Shirley A.A. Beresford. 1997.
"Recruiting Worksites to Participation a Health Promotion Research Study." *American Journal of Health Promotion* 11:344-351.
- U.S. Bureau of the Census. 1995. *County Business Patterns*. Washington, DC: U.S. Department of Commerce, Bureau of the Census.
- U.S Department of Labor. 1992. *Facts on Working Women: Women with Work Disabilities* (Women's Bureau, No. 92-2). Washington, DC.
- Walker, S. N., K. R. Sechrist, and N. J. Pender. 1987. "The Health-Promoting Lifestyle Profile: Development and Psychometric Characteristics." *Nursing Research* 36:76-81.

Wells, J. C., T. A. Kochan, and M. Smith. 1991. *Managing Workplace Safety and Health: The Case of Contract Labor in the U.S. Petrochemical Industry.* Report prepared under grant W9F00860 for OSHA, U.S. Department of Labor. Beaumont, TX: John Gray Institute, Lamar University System.

Willemsen, Marc C., Andre Meijer, and Marleen Jannink. 1999. "Applying a Contingency Model of Strategic Decision Making to the Implementation of Smoking Bans: A Case Study." *Health Education Research* 14:519-531.

Wilson, Mark G. 1990. "Factors Associated with, Issues Related to, and Suggestions for Increasing Participation in Workplace Health Promotion Programs." *Health Values* 14:29-36.

Wilson, Mark G., David M. DeJoy, Cynthia M. Jorgensen, and Christy J. Crump. 1999. "Health Promotion Programs in Small Worksites: Results of a National Survey." *American Journal of Health Promotion* 13:358-365.

Witte, K. 1993. "Managerial Style and Health Promotion Programs." *Social Science Medicine* 36:227-235.

Wolf, Richard, Trevor Slack, and Teresa Rose-Hearn. 1993. "Factors Influencing the Adoption and Maintenance of Canadian, Facility-Based Worksite Health Promotion Programs." *American Journal of Health Promotion*

7:189-198.