Article

Predictors of Health-Promoting Behavior Associated With Cardiovascular Diseases Among Korean Blue-Collar Workers

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Abstract

The aim of this study was to investigate the contribution of actual cardiovascular disease (CVD) risks, psychosocial and work-related factors as predictors of health behavior. A sample of 234 Korean blue-collar workers, who worked in small companies, was included in this cross-sectional study. Data collection included a survey; anthropometric and blood pressure measures; and blood sampling. Multiple regression analyses showed that the model explained 30% of the variance in health behavior of blue-collar workers. The significant predictors for health behavior included education level, perceived general health, greater family function, higher social support, decision latitude, and non-shift work. Future research should focus on incorporating these significant predictors into effective behavioral interventions designed to promote cardiovascular health in this population.

Keywords

health behavior, occupational health, blue-collar workers, cardiovascular disease, decision latitude

Introduction

Cardiovascular disease (CVD) contributes to around one-third of deaths worldwide today, and that figure will certainly increase in both industrializing and industrialized countries as risk factors for CVD continue to increase.[1] It also remains the number one killer of American and European workers[2,3] and the second killer following cancer in Korean workers.[4] In Korea, workers' compensation costs for CVD have increased dramatically because CVD, caused by overworking, has been recognized as a compensable work-related disease.[4] Cerebrovascular events, including stroke, have accounted for half of the total compensated occupational diseases in Korea.[5]

The high rate of CVD risk factors and inappropriate health promotion programs for workers may be responsible for this problem. Many have linked CVD risk with occupational factors:

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chemical hazards such as carbon disulfide, carbon monoxide, methylene chloride, nitroglycerin, and solvents; lead; noise; and job stressors such as overtime work, shift work, and physical exertion.[6-10] These occupational factors have an enormous effect on workers, particularly blue-collar workers who are of low socioeconomic status and more exposed to high stress, unhealthy work environments, and unhealthy lifestyles.[11]

Studies from Europe and the United States found that blue-collar workers had a higher risk of CVD compared with white-collar workers.[12,13] These studies provide evidence that workers from more-disadvantaged classes and low socioeconomic status are at higher risk of CVD. Thus, health inequality and its relationship to CVD have been shown in Western countries, addressing the fact that blue-collar workers have an increased risk of CVD compared with white-collar workers.[11]

A growing body of literature suggests that a person's knowledge of and attitudes toward health influences his or her preventive therapy.[14] Thus, it is necessary to investigate whether blue-collar workers are aware of the increased risk of CVD associated with job stress and the importance of health behavior. However, studies of health behavior in industrial workers are quite limited. Health behavior, which is health-promoting behavior related to CVD, is influenced not only by actual CVD risk but also by individual factors such as age, gender, education, and knowledge of CVD risk; psychosocial factors such as social and family support; and work-related factors such as decision latitude and job stress.[14-17]

The influence of family function, however, is not well studied in Korean blue-collar workers. Job stress is thought to be related to adverse health behavior.[17] Furthermore, research on the predictors of health behaviors in blue-collar workers, especially in small companies, is limited. Thus, the aim of this study was to examine the predictors of health behavior in Korean blue-collar workers.

Methods

Study Design and Participants

The study incorporated a cross-sectional design. The participants were blue-collar workers who were older than 18 years, working for small companies, and had no history of myocardial infarction, percutaneous transluminal coronary angioplasty, and cognitive impairment.

Data Collection

The data collection procedure is depicted in Figure 1. Following ethical approval by the relevant health research ethics committee at the University Medical Center, individuals were recruited primarily from an occupational health center (OHC) in South Korea during their annual health checkup. Some participants were also recruited at various work sites where the occupational health team conducted annual physical checkups. Flyers posted at those facilities were the principal recruitment tool. After explaining the purpose of the study, we obtained permission from the OHC director and the worker's employers. An information sheet was provided that clearly explained the study's purpose and procedures.

Following informed consent, the participating workers were requested to finish a survey questionnaire at the OHC or at their workplace and to have anthropometric and blood pressure (BP) measurements taken. Blood was drawn for lipid testing by registered nurses in the OHC. After successful completion of the questionnaire, anthropometric and BP measurements, and blood testing, participants were given a gift certificate of Korean Won 10 000 (approximately US$8.30) for their participation in the study. Blood test results were available to those workers who wanted the results. Finally, the researcher performed a review of each participant's health record for the presence of left-ventricular hypertrophy (LVH).

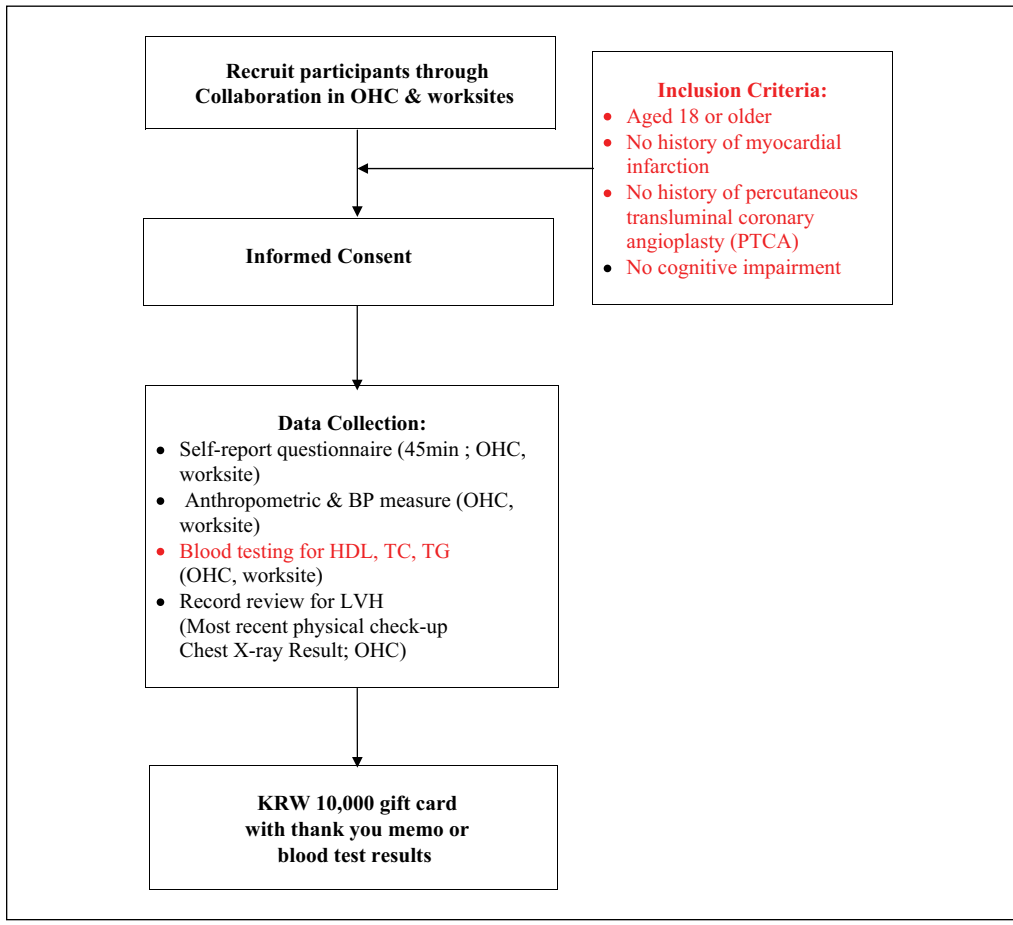

Figure 1. Flowchart of data collection procedure.

Abbreviations: OHC, occupational health center; BP, blood pressure; TG, triglycerides; TC, total cholesterol; HDL, high-density lipoprotein; LVH, left ventricular hypertrophy.

Measures

Data collection measures included the anthropometric and BP measures, blood testing for lipid levels, and the self-administered survey. Each measure is described in detail in the following section.

Anthropometric and BP Measures. Anthropometric measures of height and weight were used to assess body mass index (BMI). Height in centimeters, from bare feet to the head, and weight in kilograms were measured using an automatic measuring instrument. BP was measured on the workers' right arms in a supine position after 5 minutes of rest. It was measured with a conventional sphygmomanometer and stethoscope using standardized procedures at first. Measurements were repeated after 2 minutes of the initial measurement and then averaged by the researcher. If the reading was higher than 140/90 mm Hg, BP was measured again, and the lower of the 2 readings was recorded.

Blood Testing. Blood samples were drawn if a participant's health checkup was due or if the blood test had been done more than 2 months before data collection. Otherwise, the most recent

measurements were retrieved from the participant's health record. Blood was drawn from the venae brachiales by a registered nurse in the OHC and delivered to a certified laboratory for analysis. Blood lipids were determined enzymatically after precipitation by phosphotungstic acid and magnesium chloride. All the analyses were conducted in medical laboratories certified by the Korean Food and Drug Administration; the laboratory personnel were blinded to participant status. Total cholesterol and high-density lipoprotein (HDL) were measured in serum. The Friedewald formulation (low-density lipoprotein [LDL] = Total cholesterol − HDL − [Triglycerides]/5) was used to calculate LDL for triglycerides of 400 mg/dL or less in this study.

Health Behaviors. Health behaviors were defined as any action indicating motivation to reduce CVD risk factors, promote human well-being, and actualize individual health potential. Health behavior is the main outcome variable and was measured by the Health Promoting Lifestyle Profile (HPLP) II. The 52-item HPLP II was developed by Walker and colleagues based on the health promotion model. The health promotion model represents a theoretical viewpoint that explores the factors contributing to health behaviors and the improvement of health and quality of life.[18]

The profile measures the 6 subscales (8-9 items each) using a 4-point Likert scale (1 = *never* to 4 = *routinely*) to measure health behaviors associated with physical activity, nutrition, stress management, interpersonal relations, health responsibility, and spiritual growth. In an indication of scoring, the response categories for the 52 items would be *never, sometimes, often*, and *routinely*. Scores for the items were summed up and averaged. A high mean score indicates a high level of health behavior. The Korean version of the HPLP instrument demonstrated good reliability, with a Cronbach's α of .86 and subscale Cronbach's α ranging from .80 to .88.[19] In the present study, the Cronbach's α for the total score was .93, and Cronbach's α for the subscales ranged from .70 to .86.

Actual Risk of CVD. The Korean Occupational Safety and Health Agency (KOSHA) CVD risk assessment score[4] was used to calculate CVD actual risk based on the guidelines of the World Health Organization (WHO) International Society of Hypertension.[20] The CVD actual risk score was calculated by adding the following CVD risk factors: age ≥55 years in male workers or age ≥65 years in female workers, total cholesterol ≥240 mg/dL or LDL ≥160 mg/dL, smoking, HDL ≤35 mg/dL, family history of CVD, BMI ≥30 kg/m² or lack of physical activity, and the presence of LVH. For physical activity, appropriate amount of exercise was defined as doing exercise 30 min/d for more than 3 d/wk. A positive family history was defined as a report by participants of CVD in any of the participant's biological parents or siblings. The composite score (maximum = 7 points) for CVD risk was reduced by 1 point if HDL was ≥60 mg/dL. The CVD risk assessment scores were added.

Perceived health status was measured by asking the participant about his/her perception of health status with a 5-point scale (1 = *excellent*, 5 = *poor*). This 1-item measurement based on the Medical Outcomes Study questionnaire developed by Ware and Sherbourne[21] has been demonstrated to be a strong predictor of health outcomes in the late period.

Social support and decision latitude was measured by the Job Contents Questionnaire (JCQ). The total score of social support was determined by adding the 2 subscales of JCQ: supervisor support (4 item) and coworker support (4 item). Eum et al[22] evaluated the Korean version of the JCQ with 157 Korean health care workers (nurses and pharmacists) and reported good reliability: .71 for social support, .87 for supervisor support, and .77 for coworker support. The score for decision latitude was obtained by adding the subscale scores of skill discretion and decision authority in JCQ. The reported internal consistency of the measurement ranged from .73 to .81 for the decision latitude subscale and .80 for the social support subscale.[23]

Family function was measured by Family APGAR, which tested family support in 5 areas; adaptation, partnership, growth, affection, and resolve. The Family APGAR proposed by Smilkstein[24] is the simplest self-report instrument available to screen for family dysfunction. It is a 5-item questionnaire developed to detect dysfunction in families. Each question is measured on a 3-point Likert scale, with responses (0 = *hardly ever* to 2 = *almost always*). It has been proposed that a score of 7 to 10 shows a highly functional family, a score of 4 to 6 shows a moderately dysfunctional family, and, finally, a score of 0 to 3 shows a severely dysfunctional family.[23] Lee[25] modified the scoring from a scale of 3 to 4 (0-3) and used it in the study of Korean diabetic patients. Cronbach's α for the workers in this study was .86. The present study used the modified scale. Similarly, a test sample of graduate students (n = 66) demonstrated a Cronbach's α of .86 (Smilkstein[24]).

Combined Exposure to Chemicals or Noise. Workers were asked to report whether they were exposed to chemicals such as carbon monoxide, carbon disulfide, lead, and solvents or noise at work.

Statistical Analysis

Data analysis was conducted using the SPSS, recently renamed Predictive Analysis Software (PASW) 18. Descriptive statistics were computed. Bivariate correlation and multivariate regression analysis were conducted to identify factors that were related to health behaviors. The variables in the model were based on correction with the dependent variable. Actual knowledge of CVD risk was also added because of variables of interest. The statistical significance level was set at $P = .05$. Additionally, a hierarchical linear regression model was constructed to examine the effects of each of the factors; individual factors were entered in the first block. Psychosocial factors were entered in the second block. In the last block, work-related factors were entered if the 3 factors provided significant increase in the overall model R^2 change.

Results

Demographic and Work-Related Characteristics

The demographic characteristics of the participants are presented in Table 1. Most of participants were male (66%), and the mean age was 37 years (data not shown). Participants were of low socioeconomic status; 82% had a high school education or less. About 66% of the participants were married.

Most of the participants (93%) were employed as regular workers. More than a third of the participants (37%) did shift work, and about 31% of the participants worked overtime (more than 60 h/wk). About 47% of the participants reported combined exposure to chemicals and noise.

Health Behaviors

The dependent variable—health behaviors—was measured by HPLP II. The total mean score for the HPLP II item was 2.06 (standard deviation [SD] = 0.39), and subscale scores are also presented in Table 2. In this study, among the 52 items, the highest item score obtained was in the spiritual growth subscale (mean = 2.30; SD = 0.60). The item means with the lowest score was health responsibility (mean = 1.73; SD = 0.50).

Actual Risk and Knowledge of CVD

The prevalence of each component of CVD risk factors by KOSHA risk assessment is shown in the upper part of Table 1. More than a third of the participants presented with either a diastolic

Table 1. Demographic and CVD Risk Characteristics of the Study Participants (n = 234).

Characteristics	n	Percentage
KOSHA CVD risk[a]		
Age ≥55 years (men) or age ≥65 years (women)	4	1.7
Systolic blood pressure ≥130 mm Hg	93	39.8
Diastolic blood pressure ≥85 mm Hg	111	47.4
Total cholesterol ≥240 mg/dL or LDL ≥160 mg/dL	69	29.5
Current smoking (yes)	105	44.9
HDL ≤35 mg/dL	29	12.4
Family history of CVD	60	25.2
BMI ≥30 kg/m² or lack of physical activity	209	89.3
Presence of LVH	2	0.9
Demographic and work-related		
Gender (men)	154	65.8
Marital status		
Never married	80	34.2
Married	154	65.8
Education		
Elementary school or less (Grades 0-6)	2	0.8
Middle school (Grades 7-9)	15	6.4
High school (Grades 10-12)	174	74.4
Junior college/university or more	43	18.4
Type of employment		
Temporary	17	7.3
Regular	217	92.7
Shift work (Yes)	87	37.2
Working hours/week (60 hours or more)	73	31.2
Exposure to any chemicals and noise (yes)	109	46.6

Abbreviations: CVD, cardiovascular disease; BMI, body mass index; HDL, high-density lipoprotein cholesterol; LDL, low-density lipoprotein cholesterol; LVH, left-ventricular hypertrophy.
[a]KOSHA CVD risk factors; age ≥55 years in men or age ≥65 years in women, total cholesterol ≥240 mg/dL or LDL ≥160 mg/dL, smoking, HDL ≤35 mg/dL, family history of CVD, BMI ≥30 kg/m² or lack of physical activity, and the presence of LVH.

Table 2. HPLP II Scale and Subscales (n = 234).

	Item Score		
Scale and Subscales	Mean (SD)	Range[a]	No. of Items
HPLP II	2.06 (0.39)	1.17-3.40	52
Health responsibility	1.73 (0.50)	1.00-3.78	9
Physical activity	1.75 (0.56)	1.00-3.50	8
Nutrition	2.22 (0.48)	1.00-3.67	9
Spiritual growth	2.30 (0.60)	1.00-4.00	9
Interpersonal relations	2.23 (0.43)	1.00-4.00	9
Stress management	2.06 (0.49)	1.00-3.75	8

Abbreviations: HPLP II, Health Promotion Lifestyle Profile II; SD, standard deviation.
[a]Range of scores obtained in this study.

BP (47%) or a systolic BP (40%) higher than the recommended level (130 mm Hg/85 mm Hg). The prevalence of total cholesterol ≥240 mg/dL or LDL ≥160 mg/dL was 30%. More than 10% of the participants had HDL ≤35 mg/dL. A quarter of participants (25%) had a family history of CVD, and around half the participants (45%) were current smokers. Most of the participants (89%) exceeded the obesity criteria for BMI (30 kg/m²) or lack of physical activity suggested by the KOSHA CVD assessment.[4] According to the KOSHA CVD risk assessment classification, about 60% had a medium level of risk and 11% had a high level of risk—more than 3 risk factors and third-degree hypertension—although only 2 participants had LVH. Overall, the participants had a high actual risk for CVD. The mean total score for CVD knowledge was 8.34 out of 15, showing that the participating workers had a low level of knowledge regarding risk factors for CVD.

Psychosocial Factors

Most participants (84%) indicated that their health was more than good (good, very good, or excellent). The range of Family APGAR scores obtained was from 0 to 15 (mean = 10.43; SD = 3.36). Decision latitude was obtained by adding the subscale scores of skill discretion (mean = 28.32; SD = 5.97) and decision authority (mean = 30.11; SD = 7.29). Social support in the workplace (mean = 21.76; SD = 3.99) included coworker support and supervisor support.

Correlations Among the Study Variables

Correlations among the study variables are shown in Table 3. Health behavior was significantly related with age ($r = 0.12$, $P = .006$), perceived general health ($r = 0.23$, $P < .001$), family function ($r = 0.24$, $P < .001$), social support ($r = 0.26$, $p < .001$), decision latitude ($r = 0.18$, $P = .003$), shift work ($r = -0.18$, $P = .002$), and exposure to chemicals or noise ($r = -0.15$, $P = .013$).

Significant Factors Related to Health Behavior

The results of multiple regression are summarized in Table 4. The model explained 30% of the total variance in health behavior ($R^2 = 0.30$; $F_{11, 222} = 6.72$; $P < .001$; adjusted $R^2 = 0.26$). The 6 significant variables were education level ($\beta = 0.21$; $P < .05$), perceived health status ($\beta = 0.25$; $P < .05$), family functioning ($\beta = 0.21$; $P < .05$), decision latitude ($\beta = 0.19$; $P < .05$), social support in the workplaces ($\beta = 0.23$; $P < .05$), and shift work ($\beta = -0.16$; $P < .05$).

Finally, we constructed a hierarchical linear regression to examine the effects of the each of the 3 factors. We found that individual factors increase R^2 change by 0.04, psychosocial factors increase R^2 change by 0.12, and work-related factors increase R^2 change by 0.06, controlling for all the other variables. Thus, health behavior was influenced more by psychosocial and work-related factors than individual factors.

Discussion and Conclusion

The blue-collar workers in this study did not practice health-promoting behaviors regularly. This is borne out by comparing with findings in other studies, where the reported mean item scores on the HPLP II were 2.44 with known CVD[26] or 2.62 without a prior history of CVD,[27] as compared with 2.06 in this study. This study's participants reported using fewer health-promoting behaviors related to stress management (mean =2.06; SD = 0.49). Blue-collar workers may not control stress adequately because of high job stress and low job control and lack of appropriate programs and facilities in the workplace.[17]

Table 3. Correlations Among Independent Variables and Health-Promoting Behavior (n = 234).[a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Health behavior	—											
2. Age	0.12*	—										
3. Gender	0.10	0.47**	—									
4. Education	0.23**	−0.12*	−0.23**	—								
5. Knowledge of CVD risk	0.02	−0.13*	0.05	0.04	—							
6. General health	0.23**	0.26**	0.17**	−0.02	−0.16**	—						
7. Family function	0.24**	0.14*	0.08	0.12*	−0.09	−0.23**	—					
8. Social support	0.26**	−0.08	−0.05	−0.05	0.18**	−0.02	0.03	—				
9. Actual CVD risk	0.06	−0.01	−0.14**	0.01	0.11*	0.06	−0.02	0.08	—			
10. Decision latitude	0.18**	−0.05	−0.30	0.06	−0.04	0.08	−0.01	0.34**	0.08	—		
11. Exposure to chemicals, noise	−0.15*	−0.09	−0.26**	−0.01	−0.24**	−0.01	−0.07	0.07	0.04	0.16**	—	
12. Shift work	−0.18**	−0.32**	−0.30**	−0.16*	−0.10	−0.05	−0.08	0.12*	0.01	0.16**	0.29**	—

Abbreviation: CVD, cardiovascular disease.
[a]*$P < .05$, 2 tailed; **$P < .01$, 2 tailed.

Table 4. Summary of Multiple Regression Analyses of Health-Promoting Behavior (N = 234).[a]

Variables	R^2	β	R^2 Change	Factor R^2 Change	*df*	*F*	*P*
Overall	.300				11, 222	6.72	<.001**
Actual CVD risk		0.076	0.005		1, 222	1.58	.210
Age		−0.038	0.001	0.043	1, 222	0.28	.597
Gender		0.116	0.008		1, 222	2.44	.120
Education[b]		0.213	0.038		1, 222	12.04	.001**
Knowledge of CVD risk		−0.032	0.001		1, 222	0.26	.605
Perceived general health[c]		0.250	0.048	0.121	1, 222	15.07	<.001**
Family function		0.125	0.014		1, 222	2.08	.039*
Social support		0.229	0.040		1, 222	12.44	.001**
Decision latitude		0.192	0.027	0.061	1, 222	8.31	.004**
Exposure to chemicals, noise[d]		−0.118	0.011		1, 222	3.56	.061
Shift work		−0.163	0.019		1, 222	5.84	.016*

Abbreviation: CVD, cardiovascular disease.
[a]*P < .05, 2 tailed; **P < .01, 2 tailed.
[b]Recoded into 2 groups: college or more versus less than high school.
[c]High score is better health.
[d]Recoded into 2 groups: exposure versus nonexposure.

The findings of this study showed that higher levels of education, better perceived general health, higher social support, greater family function, better decision latitude, and non–shift work were significantly related to health behavior. Perceived general health was found to be the strongest predictor for health behavior among blue-collar workers, as shown in previous studies,[28] suggesting that individual workers who indicated their health state to be good or more may be more inclined to practice healthy behaviors such as physical exercise and good nutrition compared with those who indicated their health to be bad or fair. Self-rated poor health state was reported to be an independent predictor of low levels of health behavior in workers.[26,28] Thus, perceived health status is likely to be of importance for practicing health behavior in blue-collar workers.

Among individual factors, only educational level was found to be related with a significant factor of health behavior in this study. Higher educational attainment was related to more healthy behavior. This finding concurs with that of previous studies in the United States, United Kingdom, and Korea[26,28,29] but differs from other studies that found no association between educational level and health behavior.[27,30]

Another significant predictor for health behavior in Korean blue collar workers was social support in the workplace. One study examined social support in the workplace.[15] The findings support the observation that social support is associated with health behavior in Chinese workers. Other studies demonstrated that social support affects health behaviors.[15] Having a positive family life was consistent with health behavior, as noted in previous studies.[31] Family relationships and support are vital in Korean culture. Koreans value traditional Confucian principles of family structure. Workers have both an obligation to care for their family members and benefit from being supported by the family.[31] Thus, family support was found to have a strong influence on health behavior in Korean blue-collar workers.

Decision latitude was a significant predictor of health behavior. Low decision latitude is associated with CVD risk in the demand-control model. A study showed independent predictive effects for having CHD according to the demand/control model (eg, low decision latitude) in a longitudinal study for white-collar workers. Another study has identified a relationship between job stress and health behaviors.[15] Whereas decision latitude was relatively low for Korean blue-collar workers, increased decision latitude was associated with more healthy behavior.

This study also identified that non–shift work was related to high levels of health behavior. This finding is similar to an earlier study, which reported that shift workers do not engage in health behavior,[30] even though shift work is well known to be an important risk factor for CVD. This finding suggests that shift workers need encouragement to participate in health behavior and strategies to continue their commitment to change. Thus, the role of occupational health professionals is pivotal in motivating and empowering blue-collar workers with the knowledge and skills to participate in health behavior to prevent CVD. Interestingly, this study did not find a relationship between knowledge of CVD risk factors and health behavior. Greater knowledge of CVD risk factors was not associated with workers engaging in health behaviors. This insignificant relationship of knowledge with health behavior was consistent with findings from other studies.[27]

Overall, health behavior was influenced by psychosocial factors such as perceived general health, social support, and family function and work-related factors such as decision latitude and shift work.[15,16] The findings also support the observation that psychosocial and work-related factors (social support combined with coworker and supervisor support in the workplace, shift work, and decision latitude related to work conditions) are more important than individual factors (age, gender, education, knowledge of CVD risk) in predicting health behavior in Korean blue-collar workers. In the CVD risk and health behavior study, work-related factors were not considered or involved significantly.[27] However, it is important to consider work-related factors for future CVD risk and prevention research or intervention programs for blue-collar workers.

This is the first study examining the relationships among CVD actual risk, psychosocial work-related factors, and health behavior in Korean blue-collar workers. Specifically, the findings of this study can suggest a baseline for further studies of the variance in health behavior in this population. By increasing the collective understanding of psychosocial and work-related factors as well as the traditional individual factors that contribute to health behavior in blue-collar workers, the findings from this study may, in combination with the results from other scientific inquiry, be useful for designing future effective CVD prevention programs targeting blue-collar workers.

This study has several limitations. First, because this study is cross-sectional, the causal relationship between the dependent and independent variables cannot be determined. Longitudinal research in experimental design is more likely to provide better insight into causal relationships than cross-sectional studies that identify descriptive data or associations. A prospective cohort study may provide great insights into the etiological effect of workers' actual risk of CVD and risk perception on health behavior over time.

Second, the potential selection bias, sampling only those blue-collar workers who participated in the annual physical checkup at the OHC and workplace, is a limitation. Because this sample may be healthier, it may not be reflective of those who may have left the workplace because of job stress, working conditions, or CVD events. Furthermore, the effect of monetary inducement on participant selection may result in differences in health-seeking behavior and possible health outcomes.

Third, the study's findings might have limited generalizability because it surveyed a convenience sample of participants working in small companies registered with the OHC. Participants from large companies and rural areas were not recruited. The characteristics of participants working in large companies may be different from that of blue-collar workers working in small companies in Korea. Health behavior and health promotion programs can vary between large and small companies. Thus, a future study with a larger and more representative sample of workers, including white-collar workers from large companies, is needed to increase generalizability. Finally, we have many variables in the model that may cause overfitting, such as having too many variables relative to the number of observations. This might reduce the predictive performance.

The blue-collar worker class comprises individuals who are usually less well educated and less affluent than those who are typically considered for wellness programs. Thus, further validation of these results and the actual risk for CVD and knowledge about CVD and health behaviors of blue-collar workers would support recommendations for health-promotion programs designed for these individuals at work sites and other appropriate settings.

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