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Original article

Organizational executions and policies on workplace health promotion: A cross-sectional study in Thailand

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Abstract

Background: The workplace exerts a profound effect on the health and well-being of the workforce, thereby assuming a pivotal role in both economic prosperity and societal advancement. Within organizational contexts, the human resources (HR) department assumes a pivotal role in the holistic care and administration of the workforce, encompassing multifaceted dimensions of health and well-being. However, studies on the executions and policies on workplace health promotion among HR executives and personnel in Thailand are limited.

Objectives: This study aimed to investigate the execution and potential of health promotion policies in Thailand's workplaces.

Methods: A cross-sectional study was undertaken among the HR executives and personnel across 814 listed enterprises located in Rayong province and Chonburi province, Thailand between January and March 2023. All subjects completed a questionnaire covering information on general characteristics; and executions and policies on workplace health promotion. Bivariate, multiple linear regression and binary logistic regression analyses were used to identify the associated factors.

Results: The response rate was 32.3%. Workplace health promotion executions demonstrated a statistically significant association with longer business operations (ß = 4.3; 95%CI 1.7 to 6.8), large-scale enterprises (ß = 4.9; 95%CI 1.7 - 8.2), and budget allocation (ß = 14.1; 95%CI 11.5 - 16.6). The workplace health promotion policies showed statistically significant associations with budget allocation for health promotion, including policies on employee involvement (OR = 4.2; 95%CI 2.4 - 7.3), physical environment (OR=5.7; 95%CI 3.2 - 9.9), psychological support (OR = 2.1; 95%CI 1.2 - 3.9), engagement and trust (OR = 3.8; 95%CI 2.2 - 6.5), management and leadership (OR = 5.2; 95%CI 2.9 - 9.0), work design (OR = 2.9; 95%CI 1.7 - 5.0), and monitoring and evaluation (OR = 3.7; 95%CI 2.0 - 6.6).

Conclusion: The duration of organizational operations, organization size, and the allocation of budgetary resources for health promotion play crucial roles in determining the successful execution and feasibility of workplace health promotion policies within organizations.

Keywords: Health promotion, human resources, workplace.

The working-age population, constituting a substantial proportion and exerting a pivotal influence on a nation's economic and societal progress, predominantly occupies diverse organizational settings and workplaces. As work occupies a substantial portion of their lives, it exerts a pervasive influence that significantly affects their overall health and well-being. [1] According to recent data from the World Health Organization, the working-age population faces a significant annual burden, with up to 17 million deaths attributed to noncommunicable diseases (NCDs). This statistic is particularly alarming in low- and middle-income countries, where NCDs account for three-quarters of all deaths. [2] These figures highlight the pressing need to prioritize interventions that promote the health and well-being of individuals in this crucial demographic group. In Thailand, the escalating prevalence of NCDs has emerged as a substantive public health concern. Consequent implications encompass wide-ranging effects, including economic ramifications, healthcare expenditures, and reduced work efficacy. These factors ultimately affects a nation's comprehensive economy. [3]

Thus, workplaces assume pivotal roles in safeguarding the well-being of the workforce.

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Workplaces serve as influential establishments that can shape behaviors and health promotion. [4] A comprehensive literature review elucidated that employees in corporate entities who were overweight or obese encounter escalated instances of sick leave and workplace injuries, consequently engendering harmful repercussions on job performance and augmented healthcare expenditures. [5] Conversely, the adoption of self-care practices, particularly through regular physical exercise, exerts a beneficial influence on individuals' health profiles and contributes to a reduction in sick leave instances. [6] Notably, the primary impetus behind employee absenteeism often stems from health-related concerns, culminating in productivity losses within the professional sphere. This phenomenon extends beyond physical health and encompasses the detrimental impacts of psychological distress, sedentary behaviors, and tobacco consumption. [7]

Within a given workplace, the human resources (HR) department assumes a pivotal role in the holistic care and administration of the workforce, encompassing multifaceted dimensions of well-being. It fosters comprehensive well-being, and encompasses physical and mental health, occupational environment, and safety considerations. [8] This consistent with the notion of health promotion, which endeavors to optimize individuals' physical, mental, and social well-being by facilitating personal behaviors, social determinants, and environmental factors. [9] However, studies on the executions and policies on workplace health promotion among HR executives and personnel in Thailand are limited. Moreover, research on workplace health promotion, particularly in the private sector, is lacking.

This study aimed to investigate the execution and potential of workplace health promotion policies, while also understanding multifaceted factors linked to the implementation and policy formulation of health promotion initiatives in Thai workplaces, specifically within the realm of HR management.

Materials and methods

This cross-sectional descriptive study was approved by the Institutional Review Board, Faculty of Medicine, Chulalongkorn University (IRB no. 0879/65).

Study setting and population

Data acquisition was conducted among executives and personnel in the HR department at different hierarchical levels, acting as representatives of enterprises situated in the industrial estate located in the Eastern region, Thailand. The overall count of enterprises amounted to was 814 (252 in Rayong province and 562 in Chonburi province). The questionnaires were disseminated to all listed enterprises, yielding 814 respondents.

Data collection

A questionnaire was used as the research tool in this study. It was constructed from a review of the literature and adapted from the Center for disease control and prevention (CDC) Worksite health scorecard manual published by (CDC) in the United States [10], the Workplace Health: management practices guideline issued by the National Institute for Health and care excellence [11] and the Workplace Health Needs Assessment developed by the Public Health of England in the United Kingdom. [12] The questionnaire consisted of three sections, comprising a set of questions, as shown below:

Section 1: General characteristics of the workplace

This section consists of 11 items, including the location of the enterprises, industry sectors, respondent positions, sex predominance of employees, business operation duration, size of the enterprises, average employee age, education levels of most employees and budget allocation for health promotion initiatives in addition to the requirements under the laws.

Section 2: Workplace health promotion executions

This section presents a comprehensive survey of health promotion implementation and activities, encompassing 10 distinct topics, including 1) management and administration (7 subtopics); 2) organizational leadership (2 subtopics); 3) internal support (9 subtopics); 4) mental well-being (10 subtopics); 5) smoking, alcohol and substance abuse cessation (4 subtopics); 6) NCD prevention in the workplace (3 subtopics); 7) physical activity (7 subtopics); 8) nutrition and diet (6 subtopics); 9) relaxation and sleep (3 subtopics); and 10) pregnancy and infant feeding (4 subtopics).

Section 3: Workplace health promotion policies

This section focuses on assessing the feasibility of health promotion policies using a questionnaire. This section comprises seven topics: 1) employee involvement (6 subtopics); 2) physical environment (4 subtopics); 3) psychosocial support (2 subtopics); 4) engagement and trust (4 subtopics); 5) management and supervision (8 subtopics); 6) work design (3 subtopics); and 7) monitoring and evaluation (4 subtopics).

The validity and reliability of the questionnaire were assessed by three highly qualified professionals including an occupational physician, a health promotion professor, and an executive from the Thai health promotion foundation. Furthermore, a pilot study was conducted with a sample of 20 individuals working in HR within diverse workplaces in Bangkok, Thailand.

Data collection was accomplished through the distribution of questionnaires using an internal memorandum system within the industrial estate, supplemented by repeated reminders sent via e-mail. Subsequently, we gathered the completed questionnaires between January and March 2023 were collected.

Statistical analysis

The data analysis employed descriptive statistics. Quantitative data that exhibited a normal distribution, it was elucidated using the mean and standard deviation (SD). Qualitative data, were conveyed using frequencies and proportions.

Univariate analyses were conducted as part of Section 2 on workplace health promotion executions. Scores were assigned to responses as follows: "yes" (1 point) and "no" (0 points), encompassing 55 items across the 10 topics (total score of 55 points). In Section 3, the feasibility level of workplace health promotion policies is presented using a Likert scale with four levels: "less" (1 point), "fairly" (2 points), "feasible" (3 points), and "very" (4 points). The scores were analyzed individually for each question to assess the potential policy strategies within each topic. Specifically, topic 1, "employee involvement" had a total score range of 6 - 24 points, topic 2, "physical environment" had 16 points, topic 3, "psychosocial support " had 8 points, topic 4, "engagement and trust" had 16 points, topic 5, "management and supervision" had a total score range of 8 - 24 points, topic 6, "work design" had 12 points, and topic 7, "monitoring and evaluation" had 16 points. Each item was assumed to carry equal weight and that the intervals between the score levels were equal. The subitem scores within each topic were summed to obtain the topic scores, and then the scores were divided based on the median value.

Inferential statistics were used to examine the relationship between workplace characteristics and Section 2 using bivariate analyses. The statistical tests employed were Student's *t* - test and one-way analysis of variance. Subsequently, the factors that were analyzed in the bivariate analyses, with a $P < 0.25$ [13], were further analyzed using multiple linear regression. This analysis identified factors significantly associated with the scores of workplace health promotion executions, using the forward stepwise selection method. Factors with a $P < 0.05$ were included as selection criteria, whereas factors with a $P < 0.1$ were excluded. For Section 3, which pertains to policy implementation, the relationship between general workplace data was examined using binary logistic regression.

All data analyses were performed using STATA version 16.0 (Stata Corporation, TX, USA), with a statistical significance level set at $P < 0.05$.

Results

A total of 263 responses (32.3%) were received. These responses were obtained from businesses located in two provinces, Rayong (66 workplaces, 25.1%) and Chonburi (197 workplaces, 74.9%). Most of these workplaces were involved in industrial product manufacturing **(Table 1)**. In terms of gender distribution, the workplace was predominantly male. Regarding the size, the majority were large-scale enterprises (39.5%). The average duration of operation for all workplaces was 18.8 years (SD = 11.5), and the average age of the employees in these workplaces in the industrial estate was 33.5 years (SD = 3.8). Most employees in these workplaces had completed their education at the high school or vocational diploma level **(Table 1)**. Moreover, 65.4% of the workplaces allocated budgets for health promotion activities. All data were obtained from respondents in executive, manager, and operational positions, with similar proportions **(Table 1).**

Table 1. General characteristics of the workplaces (n = 263).

Variables	n (%)
Location	
Rayong	66 (25.1)
Chonburi	197 (74.9)
Industry sector	
Non-industrial products	80 (30.4)
Industrial products	183 (69.6)
Position of the respondent	
Executive	100 (38.0)
Manager	83 (31.6)
Operation	80 (30.4)
Gender predominance	
Female	125 (47.5)
Male	138 (52.5)
Business operation duration	
≤ 19 years	150 (57.0)
> 19 years	113 (43.0)
Size of the enterprise	
Small (≤ 50 employees)	67 (25.5)
Medium (51 - 200 employees)	92 (35.0)
Large (> 200 employees)	104 (39.5)
Average employee age	
≤ 33 years	117 (44.5)
> 33 years	146 (55.5)
Employee education level	
Primary to secondary school	38 (14.5)
High school/associate degree	170 (64.6)
University	55 (20.9)
Budget allocation for health promotion	
No	91 (34.6)
Yes	172 (65.4)

Workplace health promotion executions

Workplace health promotion executions exhibited a normal distribution of total scores. The mean score was 27.9 (SD = 12.5), with the highest score being 55 and the lowest score being 4 **(Table 2).** Bivariate analysis revealed five variables that were significantly associated with workplace health promotion executions, with a $P < 0.25$. These variables included location ($P = 0.21$), business operation duration ($P < 0.001$), size of the enterprises ($P < 0.001$), respondent position ($P = 0.21$), and budget allocation for health promotion ($P < 0.001$).

Multiple linear regression analysis was performed using the five variables to determine their relationship with the total score of workplace health promotion executions, while controlling for the influence of other variables. The analysis yielded that workplaces with an operational duration of 19 years had a score increase compared with workplaces with an operational duration of 19 years. Large-scale establishments had a score increase compared with small-scale establishments, and workplaces with allocated budgets for health promotion had a score increase of 14.1 points (95%CI 11.5 - 16.6) **(Table 3).**

Table 2. Executions of workplace health promotion (n = 263).

Implementation and activities		Yes n (%)
Topic 1	**Management and administration**	
1.1	There are activities and initiatives carried out to promote health within the workplace.	184 (69.9)
1.2	The integration of health promotion for the employees is one of the business objectives.	119 (45.3)
1.3	There is a budget allocation specifically dedicated to supporting health promotion initiatives.	131 (49.8)
1.4	There are knowledge-sharing activities provided to employees regarding health promotion.	185 (70.3)
1.5	There are health and well-being policies incorporated into the orientation and training program for new employees.	146 (55.5)
1.6	There is monitoring and evaluation of activities, policies, and recommendations related to employee health.	141 (53.6)
1.7	There is an annual health check-up or health screening based on employees' risk factors conducted annually.	260 (98.9)
Topic 2	**Organizational leaders**	
2.1	The leaders of the organization exhibit unwavering dedication to fostering optimal well-being and serving as exemplars for the workforce.	201 (76.4)
2.2	There are established criteria for the selection of managers/supervisors who exhibit qualities associated with employee health and well-being.	110 (41.8)
Topic 3	**Internal support within the organization**	
3.1	Surveying employees' needs and interests to plan health promotion activities	122 (46.4)
3.2	Supporting flexible work schedules for employees	153 (58.2)
3.3	Ensuring that all work equipment is clean, safe, well-maintained and meets quality standards	252 (95.8)
3.4	Installing appropriate office equipment to prevent work-related injuries	256 (97.3)
3.5	Providing incentives to increase employee participation in health promotion (e.g., rewarding weight loss achievements)	78 (29.7)
3.6	Organizing competitions or challenges to promote positive changes in health behaviors	85 (32.3)
3.7	Facilitating employee involvement in designing their roles to create job satisfaction	96 (36.5)
3.8	Arranging educational media, seminars or classes to enhance health promotion	120 (45.6)
3.9	Implementing training programs on health promotion to meet employee needs, learning styles and capabilities	87 (33.1)
Topic 4	**Mental well-being**	
4.1	Providing quiet and tranquil spaces within the workplace to help employees relax	194 (73.8)
4.2	Organizing activities to reduce stress and foster interpersonal relationships among employees (e.g., group outings or sports activities)	232 (88.2)
4.3	Encouraging employee involvement in problem-solving related to work-related stressors, such as work processes, work environment, and work schedules	199 (75.7)
4.4	Promoting employees to step away from their desks or work areas and engage in conversations with colleagues instead of relying solely on messaging or emails	163 (61.9)
4.5	Conducting regular evaluations and taking corrective actions if employees feel unfairly treated	244 (92.8)
4.6	Offering religious spaces, such as prayer rooms or meditation areas, for employees	52 (19.8)
4.7	Offering activities that develop the mind regarding emotions, and feelings, meditation training, (e.g., organizing knowledge-sharing seminars or meditation retreats)	49 (18.6)
4.8	Engaging in community service and social support activities	179 (68.1)
4.9	Conducting assessments for stress or depression within the workplace	54 (20.5)
4.10	Providing training for managers/supervisors to enhance their ability to perceive and assess employee stress or depression levels.	46 (17.5)

Table 2. (Cont.) Executions of workplace health promotion (n = 263).

Implementation and activities	Yes n (%)
Topic 5 Smoking, alcohol and substance abuse cessation	
5.1 Implementing a strictly enforced and written policy that prohibits smoking, consuming alcohol, and using other addictive substances	200 (76.1)
5.2 Prohibiting the sale of cigarettes, alcoholic beverages, and other addictive substances within the workplace	240 (91.3)
5.3 Providing incentives for individuals who quit smoking, abstain from alcohol consumption, and refrain from using other addictive substances	75 (28.5)
5.4 Offering counseling services by expert professionals specializing in smoking cessation, alcohol cessation, and substance abuse cessation	51 (19.4)
Topic 6 Non-communicable diseases (NCDs) prevention in the workplace	
6.1 Promoting knowledge and awareness about the prevention and control of NCDs among employees	154 (58.6)
6.2 Providing equipment for measuring blood pressure within the workplace	138 (52.5)
6.3 Considering granting employees appropriate time off to seek consultation or treatment for NCDs without loss of wages	152 (57.8)
Topic 7 Physical activity	
7.1 Providing educational materials that highlight the benefits of exercise for employees	122 (46.4)
7.2 Creating spaces within the workplace for physical exercise	180 (68.4)
7.3 Offering facilities and amenities to support physical activity (e.g., storage lockers, shower rooms or changing rooms)	163 (61.9)
7.4 Implementing a policy to reimburse employees for exercise-related expenses both within and outside the workplace	56 (21.3)
7.5 Encouraging the use of stairs instead of elevators within the workplace	150 (57.0)
7.6 Organizing employee fitness programs (e.g., walking/running groups, muscle stretching sessions, aerobic activities, and various recreational activities)	83 (31.6)
7.7 Supporting the use of fitness devices (e.g., step counters or fitness apps on mobile phones)	66 (25.1)
Topic 8 Nutrition and diet	
8.1 Measuring body composition factors such as weight and body mass index (BMI)	124 (47.2)
8.2 Providing access to healthy food and beverage options	106 (40.3)
8.3 Offering a variety of healthy menu choices with an emphasis on fruits and vegetables in the cafeteria	99 (37.6)
8.4 Providing visible nutritional information for food and beverage options available to employees	72 (27.4)
8.5 Offering discounts on healthy food and beverage alternatives	35 (13.3)
8.6 Promoting hydration by encouraging water consumption	148 (56.3)
Topic 9 Rest and sleep	
9.1 Designing work schedules that help reduce employee fatigue	88 (33.5)
9.2 Providing educational resources on sleep behavior and addressing sleep disorders	44 (16.7)
9.3 Shift work policy - prohibiting shift swapping	179 (68.1)
Topic 10 Pregnant women and breastfeeding	
10.1 Employee breastfeeding is promoted.	130 (49.4)
10.2 In addition to the restroom, a private space is provided for the mother's staff to pump breast milk.	115 (43.7)
10.3 Flexible schedules are provided to enable mothers in the workplace to take breaks for breast pumping.	115 (43.7)
10.4 Paid paternity leave is promoted separately from sick, annual or vacation leave.	123 (46.8)

Table 3. The relationship between the level of workplace health promotion executions and associated factors (n = 263).

Variables		ß	95%CI	ß†	95%CI
Location	Rayong	reference		reference	
	Chonburi	2.2	- 1.2 to 5.7	0.4	- 2.4 to 3.1
Business operation duration	≤ 19 years	reference		reference	
	> 19 years	5.8*	2.9 to 8.9	4.3*	1.7 to 6.8
Size of the enterprise	Small	reference		reference	
	Medium	4.5*	0.9 to 8.2	1.1	- 2.0 to 4.1
	Large	11.8*	8.3 to 15.4	4.9*	1.7 to 8.2
Position of the respondent	Executive	reference		reference	
	Manager	2.4	- 1.4 to 6.3	0.4	- 4.9 to 0.8
	Operation	-1.4	- 5.1 to 2.2	-2.1	- 2.6 to 3.3
Budget allocation for health promotion	No	reference		reference	
	yes	15.5*	12.9 to 18.1	14.1*	11.5 to 16.6

ß, coefficient; CI, confidence interval; *$P < 0.05$

†Adjusted for other variables including location, business operation duration, size of the enterprise, positions of the respondents, and budget allocation for health promotion.

Workplace health promotion policies

Workplace health promotion policies were assessed using a questionnaire consisting of seven questions. The findings are shown in **Table 4**. When the total scores were aggregated for each topic, the scores did not follow a normal distribution across all seven topics. Therefore, the levels of the likelihood of implementing workplace health promotion policies were categorized based on the median values, representing the feasibility as presented in **Table 5**.

The duration of running a business for 19 years was associated with policies on employee involvement, physical environment, and psychosocial support **(Table 6)**. A larger workplace was associated with policies on employee involvement and the physical environment. Workplaces, where most of employees had higher education, showed a relationship with the employee involvement policies those at the university level, and those with high school/associate degrees **(Table 6)**. Finally, the allocation of budgets for health promotion was related to the implementation of workplace health promotion policies in all areas. This included policies on employee involvement, physical environment, psychological support, engagement and trust, management and leadership, work design, and monitoring and evaluation **(Table 6)**.

Discussion

The health of employees has a significant effect on productivity in the workplace and contributes to the overall success of an organization. It also leads to economic prosperity at the national level and contributes to the well-being of individuals and the wealth of workers. [1] The results indicate that the aforementioned factors include the duration of business operations (operating for 19 years), size of the organization (large-scale enterprises) and the allocation of budgets for health promotion within the workplace.

Organizations with a longer operational history have higher scores in workplace health promotion executions and are more likely to have policies promoting shared decision-making in the workplace, physical environmental policies, psychosocial policies, and policies that foster inclusiveness and trust. These findings align with the results of Rojatz D, *et al.*'s study, who concluded that experiences in workplace health promotion are significant factors contributing to the successful implementation of such initiatives.[14] Several case studies of private sector companies in the United States, such as Johnson and Johnson, a healthcare products company, have undergone structural transformations from a single entity to a diverse organization. They have implemented workplace health promotion programs for ≥ 30 years, eventually making them a core value of the or ganization. Citi, a group of financial products companies, took at least 6 years to establish awareness and effective health promotion activities within their organization. [15] The duration of operation may imply experiences in employee care and the knowledge gained from those experiences, which are correlated with management decision-making that affects health promotion efforts. [16]

Table 4. The feasibility level of implementing workplace health promotion policies (n = 263).

Policy framework	The level of feasibility, n (%)			
	Less feasible (1 point)	**Fairly feasible** (2 points)	**Feasible** (3 points)	**Very feasible** (4 points)
Topic 1 Policies on employee involvement				
1.1 Making employee well-being a primary focus in organizational management	40 (15.2)	88 (33.5)	114 (43.4)	21 (7.9)
1.2 Developing individualized activity plans to promote employee health	52 (19.8)	115 (43.7)	86 (32.7)	10 (3.8)
1.3 Developing workplace health promotion activity plans for employee well-being	50 (19.0)	101 (38.4)	97 (36.9)	15 (5.7)
1.4 Establishing a policy for promoting well-being in internal organizational communications	44 (16.7)	97 (36.9)	100 (38.0)	22 (8.4)
1.5 Policies for new employees on enhancing well-being	49 (18.6)	107 (40.7)	95 (36.1)	12 (4.6)
1.6 Policies on promoting health-related learning activities	42 (16.0)	105 (39.9)	101 (38.4)	15 (5.7)
Topic 2 Policies on physical environment				
2.1 Policies on health-promoting work environment and equipment	16 (6.0)	61 (23.3)	137 (52.1)	49 (18.6)
2.2 Policies on the provision of workplace facilities and amenities for promoting good health	21 (8.0)	70 (26.6)	134 (50.9)	38 (14.5)
2.3 Policies on providing exercise equipment in the workplace	85 (32.3)	80 (30.4)	73 (27.8)	25 (9.5)
2.4 Providing additional/flexible time for exercise at the workplace	100 (38.0)	106 (40.3)	44 (16.7)	13 (4.9)
Topic 3 Policies on psychosocial support				
3.1 Policies to establish an environment that promotes mental health/mindfulness	48 (18.3)	102 (38.8)	93 (35.4)	20 (7.6)
3.2 Policies to support work-life balance	51 (19.4)	98 (37.3)	94 (35.7)	20 (7.6)
Topic 4 Policies on engagement and trust				
4.1 Policies that encourage employees to feel valued and gain trust in the workplace	23 (8.8)	78 (29.7)	137 (52.1)	25 (9.5)
4.2 Policies that facilitate employee participation in workplace decision-making and problem-solving	18 (6.8)	62 (23.6)	156 (59.3)	27 (10.3)
4.3 Rewarding employees who are good models of being healthy	62 (23.6)	111 (42.2)	70 (26.6)	20 (7.6)
4.4 Policies on organizing health activities that meet the needs of employees	59 (22.4)	95 (36.1)	89 (33.8)	20 (7.6)
Topic 5 Management and leadership				
5.1 Establishing all executives at all levels to have proactive management support for employees' well-being	50 (19.0)	117 (44.5)	77 (29.3)	19 (7.2)
5.2 Supporting employee access to various health services	37 (14.1)	94 (35.7)	108 (41.1)	24 (9.1)
5.3 Establishing managers/executives/supervisors as role models for health	47 (17.9)	113 (43.0)	87 (33.1)	16 (6.1)
5.4 Setting criteria for selecting managers with leadership qualities and a health-promoting orientation	57 (21.7)	127 (48.3)	71 (27.0)	8 (3.0)

Table 4. (Cont.) The feasibility level of implementing workplace health promotion policies (n = 263).

Policy framework		The level of feasibility, n (%)			
		Less feasible (1 point)	**Fairly feasible** (2 points)	**Feasible** (3 points)	**Very feasible** (4 points)
5.5	Establishing the role of supervisors in facilitating communication between management and employees regarding workplace health promotion	54 (20.5)	118 (44.9)	80 (30.4)	11 (4.2)
5.6.	Defining the key role of supervisors in protecting and promoting employee health and well-being	49 (18.6)	114 (43.4)	90 (34.2)	10 (3.8)
5.7	Policies on training and development for health promotion skills of supervisors	53 (20.2)	129 (49.1)	70 (26.6)	11 (4.2)
5.8	Establishing supervisor performance indicators for health promotion knowledge and skills	60 (22.8)	131 (49.8)	66 (25.1)	6 (2.3)
Topic 6	**Policies on work design**				
6.1	Policies on designing the work and life balances	45 (17.1)	108 (41.1)	96 (36.5)	14 (5.3)
6.2	Policies on supporting flexible working schedules for employees	49 (18.6)	106 (40.3)	94 (35.7)	14 (5.3)
6.3	Policies of task allocation based on the individual characteristics/talents of individual employees	44 (16.7)	91 (34.6)	115 (43.7)	13 (4.9)
Topic 7	**Monitoring and evaluation**				
7.1	Having a systematic monitoring and evaluation process in place to assess the outcomes and effectiveness of health-related activities and policies	57 (21.7)	118 (44.9)	77 (29.3)	11 (4.2)
7.2	Establishing a framework for supervisors to conduct regular progress reviews regarding the implementation of workplace health promotion activities	63 (24.0)	119 (45.3)	70 (26.6)	11 (4.2)
7.3	Implementing appropriate monitoring tools to assess the outcomes of health-related initiatives effectively	64 (24.3)	121 (46.0)	73 (27.8)	5 (1.9)
7.4	Defining the role of supervisors in monitoring employee and organizational changes following health promotion initiatives	64 (24.3)	125 (47.5)	68 (25.9)	6 (2.3)

Table 5. The level of feasibility of implementing workplace health promotion policies stratified by median values (n = 263).

Topics	Policy framework	Median (IQR)	The level of feasibility	
			Low n (%)	**High** n (%)
1	Employee involvement	8 (6)	143 (54.4)	120 (45.6)
2	Physical environment	6 (4)	168 (63.9)	95 (36.1)
3	Psychological support	2 (2)	135 (51.3)	128 (48.7)
4	Engagement and trust	6 (4)	154 (58.6)	109 (41.4)
5	Management and leadership	9 (7)	145 (55.1)	118 (44.9)
6	Work design	4 (3)	149 (56.7)	114 (43.3)
7	Monitoring and evaluation	4 (5)	163 (62.0)	100 (38.0)

Table 6. The relationships between implementing workplace health promotion policies and associated factors (n = 263).

Variables		n (%)	Employee involvement	Physical environment	Psychosocial support	Engagement and trust	Management and leadership	Work design	Monitoring and evaluation
			OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Location	Rayong	66 (25.1)	reference	reference	reference	reference	reference	reference	reference
	Chonburi	197 (74.9)	1.6 (0.9 - 2.8)	1.1 (0.6 - 1.9)	1.4 (0.7 - 2.7)	1.2 (0.7 - 2.0)	1.4 (0.8 - 2.4)	1.3 (0.7 - 2.2)	0.9 (0.5 - 1.8)
Industrial sector	Non-industrial	80 (30.4)	reference	reference	reference	reference	reference	reference	reference
	Industrial	183 (69.6)	1.2 (0.7 - 2.1)	1.4 (0.8 - 2.3)	0.9 (0.5 - 1.9)	1.2 (0.7 - 2.0)	0.9 (0.6 - 1.6)	1.2 (0.7 - 2.1)	0.6 (0.3 - 1.1)
Position of the respondent	Executive	100 (38.0)	reference	reference	reference	reference	reference	reference	reference
	Manager	83 (31.6)	1.1 (0.6 - 2.1)	1.1 (0.6 - 1.9)	1.6 (0.7 - 3.8)	0.8 (0.4 - 1.5)	0.8 (0.4 - 1.5)	0.7 (0.4 - 1.3)	1.0 (0.5 - 2.2)
	Operation	80 (30.4)	0.5* (0.3 - 0.9)	0.8 (0.4 - 1.4)	0.7 (0.4 - 1.4)	0.6 (0.3 - 1.1)	0.6 (0.3 - 1.0)	0.4* (0.2 - 0.07)	0.6 (0.3 - 1.1)
Gender predominance	Female	125 (47.5)	reference	reference	reference	reference	reference	Reference	reference
	Male	138 (52.5)	1.1 (0.7 - 1.8)	1.1 (0.7 - 1.8)	1.3 (0.7 - 2.4)	1.5 (0.9 - 2.4)	1.1 (0.7 - 1.8)	0.9 (0.6 - 1.5)	0.9 (0.6 - 1.7)
Business operation duration	≤ 19 years	150 (57.0)	reference	reference	reference	reference	reference	reference	reference
	> 19 years	113 (43.0)	2.2* (1.3 - 3.6)	2.2* (1.3 - 3.6)	2.2* (1.1 - 4.3)	1.6 (0.9 - 2.6)	1.4 (0.9 - 2.3)	1.4 (0.8 - 2.2)	1.6 (0.9 - 2.8)
Size of the enterprise	Small	67 (25.5)	Reference	reference	reference	reference	reference	reference	reference
	Medium	92 (35.0)	1.1 (0.6 - 2.0)	1.3 (0.7 - 2.5)	0.9 (0.4 - 2.0)	1.1 (0.6 - 2.0)	0.7 (0.4 - 1.2)	1.0 (0.5 - 1.9)	1.2 (0.6 - 2.4)
	Large	104 (39.5)	2.0* (1.1 - 3.8)	2.9* (1.6 - 5.7)	1.2 (0.5 - 2.6)	1.2 (0.7 - 2.3)	1.3 (0.7 - 2.5)	1.2 (0.6 - 2.2)	1.6 (0.8 - 3.2)
Average employee age	≤ 33 years	117 (44.5)	reference	reference	reference	reference	reference	reference	reference
	> 33 years	146 (55.5)	1.2 (0.7 - 1.9)	1.2 (0.7 - 1.9)	1.1 (0.6 - 2.1)	0.9 (0.6 - 1.5)	0.9 (0.6 - 1.5)	1.1 (0.7 - 1.8)	1.1 (0.6 - 1.8)
Employee education level	Primary to secondary	38 (14.5)	reference	reference	reference	reference	reference	reference	reference
	High school/ associate degree	170 (64.6)	2.1* (1.0 - 4.4)	0.9 (0.5 - 2.0)	0.8 (0.4 - 2.1)	1.5 (0.7 - 2.9)	1.3 (0.6 - 2.6)	1.0 (0.5 - 2.2)	0.9 (0.4 - 2.0)
	University	55 (20.9)	2.7* (1.1 - 6.3)	0.9 (0.4 - 2.0)	0.9 (0.3 - 2.6)	1.7 (0.7 - 3.8)	2.1 (0.9 - 5.0)	1.7 (0.7 - 3.8)	0.9 (0.3 - 2.4)
Budget allocation for health promotion	Yes	91 (34.6)	reference	reference	reference	reference	reference	reference	reference
	No	172 (65.4)	4.2* (2.4 - 7.3)	5.7* (3.2 - 9.9)	2.1* (1.2 - 3.9)	3.8* (2.2 - 6.5)	5.2* (2.9 - 9.0)	2.9* (1.7 - 5.0)	3.7* (2.0 - 6.6)

OR, odds ratio; *$P < 0.05$.

Medium-sized and large enterprises are significantly associated with health promotion implementation and activities. In addition, larger organizations showed a relationship with the establishment of health promotion policies within the workplace. Glasgow RE, *et al.*'s indicated that small and medium-sized enterprises tend to have lower tendencies for health promotion initiatives than larger organizations. [17] This aligns with the findings of McCoy K, *et al.*'s, who found that small businesses have a lower utilization of health promotion strategies than larger organizations. [18] Furthermore, Linnan LA, *et al.*'s investigated workplace health promotion in the United States and revealed that larger organizations are more inclined to offer several health promotion programs than smaller ones. [19] This could be ascribed to the challenges, perceptions, and myriad impediments that small businesses encounter in relation to health promotion. Frequently, small-scale enterprises view health promotion initiatives as secondary and accord them lower priority. [20]

Budget allocation for health promotion was associated with health promotion implementation and activities, as evidenced by increased scores in workplace health promotion executions. Furthermore, it is associated with the formulation of health promotion policies across various domains within the workplace. Thus, allocation of budgetary resources is thus a crucial component and a driving factor for fostering health promotion initiatives within organizations. A systematic literature review on factors influencing workplace health promotion elucidates that financial status and budget allocation are significant determinants in facilitating effective health promotion efforts within the workplace. [14] However, this is contingent upon the economic condition of the enterprise [21], and the positive effect of internal health promotion initiatives on employers and organizations, which may lead to cost reductions associated with both direct and indirect healthcare expenses. [22, 23]

This study is the first of its kind in Thailand to comprehensively investigate industrial estates, specifically honing in on the domains of safety, health, and environment, focus on HR management (HRM) encompassing both managerial personnel and employees across diverse sectors, emphasizing on employee well-being. Despite being one of the key competencies and important responsibilities of HRM, Studies on health promotion initiatives within the field are limited. The questionnaire used in this study was developed based on standardized questionnaires from various policy-level agencies. It has undergone rigorous testing and validation by experts in workplace health promotion and has been pilot-tested with a sample group specifically suited for surveying HRM practices within future industrial settings.

The study is mainly limited by its cross-sectional design, which hinders the ability to establish causal relationships. In addition, the overall response rates were not high which may have affected the representativeness of the subjects. This agrees with the result of the study conducted by Mattke S, *et al.* which explored analogous topics and yielded similar response rates. [24] We had conducted extensive outreach through multifarious channels; however, the nature of the survey response could be borne by the high workload burden experienced by HR professionals or reflect the importance placed on collaboration in health promotion efforts. Moreover, the study may be susceptible to selection bias because it was conducted within a specific population residing in a single industrial estate, which may not fully represent the overall population of industrial establishments, such as those at the national level, thereby creating challenges to generalize the findings to a larger population.

This study provides empirical substantiation and study provides evidence regarding workplace health promotion. The findings serve as a reference for HR executives and personnel to enhance health promotion within the workplace. The tools developed from this study can be used for surveys across various organizational settings or as a foundation for furture studies. Moreover, at an organizational policy level, they can serve as preliminary survey data to guide the development of efficient and effective health promotion activities within the workplace through HRM practices. These findings can be used as benchmark criteria for both unit and organizational-level standards and can serve as a reference for the development of measures and policies related to workplace health promotion.

Conclusion

This study identified factors that are concomitant with higher scores of workplace health promotion executions scores. These factors include the longevity of the establishment, large-scale organizations, and allocation of the budget for health promotion.

Regarding policy feasibility, the number of years in operation is associated with policy-related topics on employee involvement, physical environment, and psychosocial support within the workplace. Larger organizations also exhibited higher scores on these policy-related topics. Furthermore, a significant relationship was observed between the allocation of financial resources for health promotion and the feasibility of implementing comprehensive workplace health promotion policies across all aspects.

Consequently, this study accentuates the importance of organizations prioritizing employee health and well-being, notably in terms of budget allocation for health promotion. This allocation is related to the implementation and feasibility of workplace health promotion policies in all dimensions.

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Conflict of interest statement

Each authors has completed an ICMJE disclosure form. None of the authors declare any potential or actual relationship, activity, or interest related to the content of this article.

Data sharing statement

All data generated or analyzed during the present study are included in this published article and the citations herein. Further details, opinions, and interpretations are available from the corresponding author on reasonable request.

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