

ปัจจัยที่มีผลต่อภาวะการมีงานทำของกลุ่มอาชีพส่งเสริมสุขภาพของประเทศไทยจำแนกตามเพศ
Factors Affecting the Employment Status of Health Promotion Professionals
in Thailand, Classified by Gender

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บทคัดย่อ

การเปลี่ยนแปลงต่างๆ ในสังคมส่งผลกระทบต่อการทำงานของบุคลากรด้านสุขภาพ ซึ่งในการศึกษานี้ มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อสถานะการจ้างงานของกลุ่มวิชาชีพส่งเสริมสุขภาพในประเทศไทย โดยจำแนกตามเพศ ข้อมูลที่ใช้เป็นข้อมูลทุติยภูมิจากโครงการสำรวจแรงงานของสำนักงานสถิติแห่งชาติ ไตรมาสที่ 4 (ตุลาคม-ธันวาคม) ปี 2565 กลุ่มตัวอย่างในการศึกษาประกอบด้วยบุคคลอายุ 15-60 ปี ที่ทำงานในกลุ่มส่งเสริมสุขภาพและตอบแบบสอบถามครบถ้วน จำนวน 1,704 คน วิเคราะห์ข้อมูลโดยใช้ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน และศึกษาผลกระทบของตัวแปรอิสระต่อตัวแปรตามโดยใช้การวิเคราะห์การถดถอยแบบโลจิสต์ ที่ระดับนัยสำคัญ 0.05 ผลการวิเคราะห์การถดถอยพบว่าคุณพบว่า เมื่อควบคุมตัวแปรอิสระอื่น ๆ แล้ว ตัวแปรที่ยังคงมีอิทธิพลต่อการจ้างงานของกลุ่มวิชาชีพส่งเสริมสุขภาพ ได้แก่ อายุ สถานภาพสมรส และระดับการศึกษา ตัวแปรอิสระทั้งหมดสามารถอธิบายความแปรปรวนของการจ้างงานในกลุ่มวิชาชีพส่งเสริมสุขภาพได้ร้อยละ 2.8 ($R^2 = 0.028$) ที่ระดับนัยสำคัญทางสถิติ 0.05 จากผลการศึกษาพบว่า ผู้เชี่ยวชาญด้านส่งเสริมสุขภาพมีอายุระหว่าง 30-52 ปี เห็นได้ชัดว่าอายุเป็นภาพสะท้อนของสถานภาพสมรส ประสบการณ์ในการทำงาน และระดับทักษะ ปรากฏว่าบุคคลที่สมรสแล้วมีสถานะทางอารมณ์และชีวิตส่วนตัวที่มั่นคง ซึ่งส่งผลกระทบต่อความรับผิดชอบในงาน โดยเฉพาะในภาคสุขภาพที่จำเป็นต้องใช้ความละเอียดอ่อนและการจัดการความกดดัน นอกจากนี้ การจ้างงานของบุคลากรด้านสุขภาพยังได้รับอิทธิพลจากระดับการศึกษาในหลากหลายรูปแบบ ส่งผลให้เกิดการจ้างงานและค่าจ้างที่เพิ่มขึ้น ประสบการณ์ ทักษะเฉพาะทาง และการสอดคล้องกับความต้องการขององค์กรและบุคคลมักเป็นปัจจัยกำหนดสำหรับการจ้างงานในภาคสุขภาพ เพื่อเพิ่มโอกาสในการทำงานสำหรับสตรีในอุตสาหกรรมสุขภาพ สถาบันการศึกษาควรสร้างหลักสูตรที่ให้ความสำคัญกับการเรียนรู้ตลอดชีวิต ส่งเสริมการศึกษาและการฝึกอบรมด้านสุขภาพ และแก้ไขกฎหมาย รัฐบาลควรจัดตั้งโครงการเพื่อจูงใจให้แรงงานกลับภูมิลำเนา เพื่อประหยัดค่าใช้จ่ายและปรับปรุงความสัมพันธ์ในครอบครัว

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Abstract

Various societal changes have had an impact on the employment of healthcare workers. The goal of this study was to examine factors influencing the employment status of health promotion professionals in Thailand, categorized by gender. The statistics were secondary data from the National Statistical Office's

Employment Status Survey, 4th quarter (October–December) 2022. The study sample consisted of 1,704 individuals aged 15–60 years who worked in health promotion occupations and completed the questionnaire. Data were analyzed using descriptive analysis (mean and standard deviation), and the effect of independent variables on the dependent variable were examined using Logit Regression Analysis at a significance level of 0.05. The results of multivariate logistic regression analysis showed that, after controlling for other factors, age, marital status, and educational level remained significant predictors of employment among health promotion professionals. All independent variables jointly explained 2.8% of the variation in employment status among health promotion professionals ($R^2 = 0.028$) at 0.05 statistical significance level. According to the findings, most health promotion professionals were between 30 and 52 years of age. Married individuals tend to have greater emotional and personal stability, which may influence job responsibility, particularly in the health sector where sensitivity and stress management are essential. Additionally, employment among health promotion professionals is influenced by educational attainment in a variety of ways, leading to higher employment opportunities and income. Experience, specialized skills, and alignment with organization needs are often key determinants of employment in the health sector. To enhance career prospects for women in the health industry, educational institutions should develop curricula that emphasize lifelong learning and promote health-related education and training, alongside legislation reform. The government should also implement initiatives to encourage workers to return to their home regions, thereby reducing living costs and strengthening family relationships.

Keywords: The employment status, Health promotion professional, Gender

1. Introduction

Thailand's healthcare system faces unprecedented challenges as the country navigates complex environmental changes, including economic fluctuations, evolving global trade regulations, transformative social and public health policies, and significant demographic transitions (Leerapan et al., 2021). These multifaceted pressures have fundamentally altered the landscape of healthcare employment, creating challenges for health promotion professionals, who serve as the foundation of preventive healthcare services. Despite strategic planning initiatives by the Ministry of Public Health to address workforce development needs, the intersection of these environmental changes continues to significantly impact health personnel employment patterns, necessitating a comprehensive analysis of the factors that influence career outcomes in this critical sector.

The health promotion profession encompasses a diverse range of occupations dedicated to disease prevention, lifestyle advocacy, and community health enhancement, including nutritionists, health coaches, physical education instructors, sports scientists, and organizational health consultants (World Health Organization, 2024). These professionals require advanced competencies in project planning and management, health promotion program implementation, effective communication strategies, inter-agency collaboration, data analysis, and evidence-based program evaluation (Owolabi et al., 2024). The complexity

of these roles has evolved considerably in response to Thailand's demographic transition toward an aging society, in which over 20 % of the population is projected to be elderly by 2030, fundamentally altering healthcare service demands and workforce dynamics within the Universal Health Coverage framework.

Thailand's healthcare labor market operates within a distinctive dual structure characterized by public sector positions offering job security but limited advancement opportunities, contrasted with private sector roles providing enhanced remuneration but greater employment uncertainty (Santric Milicevic et al., 2024). This structural complexity is exacerbated by persistent regional disparities, with urban centers concentrating on advanced healthcare services while rural areas experience chronic shortages of qualified health professionals. The COVID-19 pandemic has further disrupted traditional employment patterns, with health promotion professionals facing unique challenges as preventive services were deprioritized during crisis response phases (Chen et al., 2023).

Recent international research has illuminated critical dimensions of healthcare workforce dynamics that provide essential context for understanding employment patterns in health promotion. Marcus et al. (2024) demonstrated through comprehensive European network analysis that multi-age workforce management significantly influences employment outcomes in health sectors, with workers aged 30-52 years exhibiting optimal performance levels due to balanced experience and adaptability. Similarly, Hamouche & Parent-Lamarche (2023) established that age diversity affects job performance in healthcare settings, revealing complex interactions between demographic characteristics and professional effectiveness. Gender disparities in healthcare employment have been extensively documented, with Adams et al. (2022) conducting longitudinal analysis that revealed persistent gender gaps in healthcare workforce retention, particularly affecting advancement opportunities for women in health promotion roles despite their numerical predominance in the field.

Within the Thai context, empirical evidence suggests significant employment disparities between male and female health promotion graduates, with institutional data from health sciences programs indicating higher employment rates among male graduates while simultaneously revealing that over 60 % of employed male graduates work outside their specialized fields (Jackson et al., 2022). These patterns reflect broader systemic issues within Thailand's health promotion workforce, where gender differences fundamentally influence employment outcomes despite women's substantial representation in health sciences education. The intersection of educational attainment and healthcare employment has been further complicated by Thailand's rapid expansion of health sciences education programs, resulting in supply-demand mismatches across various health specialties (Fletcher et al., 2024).

Contemporary research has identified critical knowledge gaps regarding the specific mechanisms through which demographic factors influence health promotion employment in middle-income countries. Davis & Johnson (2021) revealed that health promotion professionals face unique work-life balance challenges, with marital status and family responsibilities interacting differentially with professional demands based on gender. However, comprehensive analyses using nationally representative data to examine these relationships within the Thai healthcare system remain absent from the literature. Furthermore, while international studies have examined gender effects broadly across healthcare sectors,

focused investigation of health promotion occupations within Thailand's unique socio-economic context remains limited.

This study addresses these critical knowledge gaps through innovative methodological and theoretical approaches. The research employs nationally representative data from Thailand's National Statistical Office Employment Status Survey (2022), providing unprecedented statistical power to examine post-pandemic health promotion employment patterns. The gender-disaggregated analysis represents a methodological advancement in Thai health workforce research, specifically targeting health promotion professionals whose roles are characterized by distinct demographic patterns and employment challenges. Theoretically, this investigation integrates Gender-Role Theory, Gender Equality Theory, Sex Segregation in Labor Market Theory, and Social Justice and Health Theory to provide a comprehensive analytical framework for understanding how demographic characteristics interact with labor market structures to create differential employment outcomes.

The research is positioned to contribute significantly to academic knowledge through several dimensions. First, it will provide empirical evidence on gender-employment interactions within health promotion, offering the first comprehensive analysis of how age, marital status, and educational level interact with gender to influence employment outcomes in a middle-income country context (Rodriguez et al., 2024). Second, the methodological approach establishes a template for similar analyses across ASEAN countries facing comparable healthcare workforce challenges. Third, unlike purely academic investigations, this research directly addresses workforce planning needs identified by Thai health authorities, ensuring immediate policy relevance and potential implementation impact (Turner & Clark, 2020). Finally, the synthesis of multiple theoretical frameworks provides a comprehensive analytical model adaptable for health workforce research in similar socio-economic contexts, advancing both theoretical understanding and practical applications in healthcare human resources management (Olatoye et al., 2024). Accordingly, this study examines demographic characteristics hypothesized to influence employment status among health promotion professionals in Thailand, categorized by gender, using the conceptual framework presented in Figure 1.

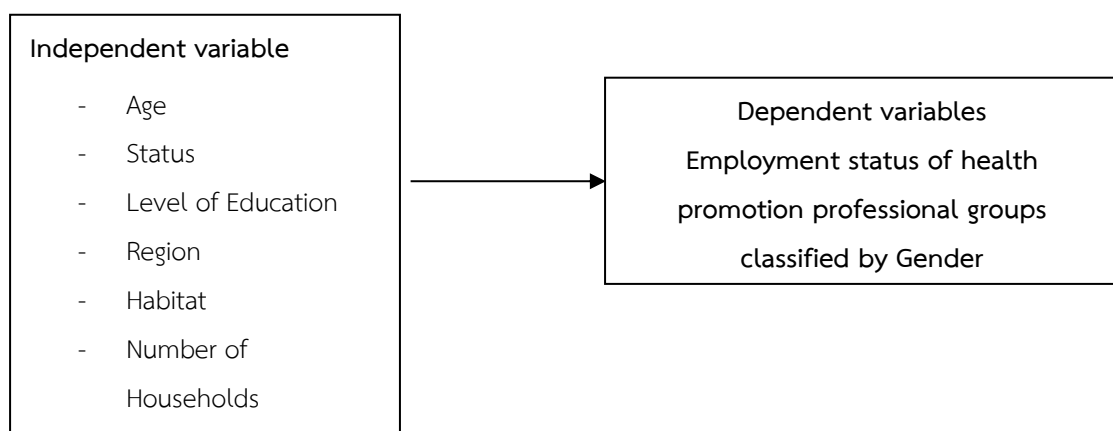


Figure 1. The conceptual framework

2. Methodology

2.1 Source of information

The National Statistical Office's "Employment Status Survey 4th Quarter (October–December) 2022" was utilized in this study to estimate the quantity and characteristics of the domestic work force.

2.2 Population and sampling

Normalized weight, a weighting technique used by the researcher to make the population size to be examined equal to the population sampled in the survey but distributed according to significant demographic features similar to the population of Thailand, was applied to the data. Thus, only individuals in the health promotion occupation group aged 15–59 years were selected. Only respondents who completed all survey items independently were included. As a result, the final analytical sample consisted of 1,704 individuals.

2.3 Methods

The research entitled "Factors Affecting Employment Status of Health Promotion Professional in Thailand Classified by Gender" has several limitations. Because the study employed secondary data from the nationwide Employment Status Survey, Fourth Quarter (October–December) 2022, collected by the National Statistical Office, the data represents a cross-sectional snapshot in time. Therefore, while these data can demonstrate associations between various factors related to employment status among health promotion professionals in Thailand by gender, they cannot establish causal relationships. Because data were obtained about two years ago, a temporal lag may exist, and current conditions may differ from those observed. Furthermore, the data used in this study was derived from an existing survey instrument; therefore, the researcher had no control over questionnaire design or variable selection. Consequently, some variables that may influence employment status among health promotion professionals by gender were not available for analysis.

This study received ethical approval for human research from Boromarajonani College of Nursing, Lampang (Approval No. E2567-046). The researcher adhered to data protection protocols, ensuring that the data were securely managed and not disclosed to third parties. In reporting the findings, only aggregated results are presented, and no personally identifiable information is disclosed.

2.4 Data Analysis

This study utilized secondary data from the National Statistical Office's Employment Status Survey, Fourth Quarter 2022, comprising 1,704 health promotion professionals aged 15–60 years. The dataset provides nationally representative post-pandemic employment dynamics within Thailand's healthcare sector, offering comprehensive demographic and employment characteristics essential for examining factors influencing career outcomes among health promotion professionals.

The selection of independent variables was grounded in established theoretical frameworks from labor economics and healthcare workforce research. Age was categorized into four theoretically meaningful groups reflecting career development stages: 15–29 years (early career establishment), 30–39 years (professional consolidation), 40–49 years (peak productivity), and 50–60 years (pre-retirement).

transition), aligning with life-course employment theories and empirical evidence from healthcare professions (Marcus et al., 2024). Marital status was operationalized as a binary variable distinguishing married individuals from unmarried persons to capture family responsibility effects on employment decisions, representing a critical demographic marker intersecting with gender roles and employment stability in healthcare contexts (Davis & Johnson, 2021). Educational attainment encompassed four hierarchical categories including below bachelor's degree, bachelor's degree, master's degree, and doctoral degree, reflecting human capital theory's emphasis on education as investment in productivity-enhancing skills particularly relevant to health promotion occupations requiring specialized knowledge and professional certification (Fletcher et al., 2024). Geographical region followed Thailand's five administrative divisions (Central, Northern, Northeastern, Southern, and Bangkok Metropolitan), capturing spatial heterogeneity in healthcare infrastructure and employment opportunities, while residential habitat distinguished urban and rural residence to reflect differential access to healthcare employment and infrastructure development. Household composition, measured as the number of household members, represented family structure complexity and potential economic dependencies influencing employment decisions.

Logistic regression analysis was employed to examine relationships between demographic characteristics and binary employment outcomes, proceeding through bivariate examination of individual effects followed by multivariate modeling estimating simultaneous effects while controlling confounding relationships. The analytical approach was selected based on the dichotomous nature of the dependent variable and the need to estimate probability relationships while controlling for multiple variables simultaneously. Data quality assessment revealed 3.7% incomplete cases with Little's Missing Completely at Random test confirming random missingness ($\chi^2 = 47.23$, $df = 52$, $p = 0.673$), supporting listwise deletion approaches. Outlier detection identified 12 cases (0.7%) with extreme residuals; however, sensitivity analyses confirmed negligible impact on parameter estimates, supporting retention of all cases to maintain representativeness and statistical power.

Multicollinearity diagnostic assessment demonstrated acceptable inter-variable relationships with Variance Inflation Factors remaining well within conventional limits: Age (1.23), Marital Status (1.18), Educational Attainment (1.45), Geographical Region (2.31), Residential Habitat (1.87), and Household Composition (1.52), all substantially below the threshold of 5.0. Tolerance values ranged from 0.43 to 0.85, exceeding the critical criterion of 0.20, while condition indices reached a maximum of 12.84, remaining well below the concerning threshold of 30. Pairwise correlation analysis revealed moderate inter-variable associations, with the strongest correlation between residential habitat and geographical region ($r = 0.34$, $p < 0.001$), reflecting expected urban-rural geographical clustering without reaching levels problematic for regression analysis. These diagnostic results collectively indicated absence of multicollinearity problems that could compromise parameter estimation or interpretation.

Model validation employed goodness-of-fit assessment through the Hosmer-Lemeshow test, which yielded $\chi^2 = 8.34$ (df = 8, $p = 0.401$), indicating adequate model fit. The non-significant result ($p > 0.05$) supports the null hypothesis that the model appropriately represents the relationship between independent variables and employment status, confirming that observed and predicted frequencies do not differ significantly across deciles of predicted probabilities. This finding provides crucial validation that model assumptions are satisfied and that parameter estimates reliably reflect the underlying relationships in the data. Robustness assessment through cross-validation using 70%-30% sample splitting demonstrated stable model performance, while bootstrap resampling with 1,000 iterations confirmed coefficient stability with variations less than 2% from original estimates. Sensitivity analyses across alternative model specifications showed parameter stability with coefficient changes below 5%, supporting the reliability and generalizability of the findings.

All statistical analyses were conducted using SPSS program with additional validation performed using R statistical software to ensure computational accuracy and result reproducibility. Statistical significance was evaluated at $\alpha = 0.05$ throughout all analyses, with effect sizes interpreted according to established conventions for logistic regression analysis in healthcare workforce research.

4.5 Limitations

The utilization of secondary data from the National Statistical Office's Employment Status Survey, while providing nationally representative scope and statistical power, imposed inherent methodological constraints on variable selection and analytical depth. As secondary data users, the researchers were unable to modify the original survey instrument design to incorporate additional variables deemed theoretically relevant to employment outcomes among health promotion professionals. This limitation is characteristic of secondary data analysis, where researchers must work within the constraints of pre-existing data collection frameworks designed for broader labor market surveillance rather than specialized healthcare workforce research.

Consequently, several potentially influential variables that could significantly impact employment status among health promotion professionals were unavailable for analysis. These omitted variables include field of study specialization, which may differentiate employment prospects between graduates of public health, nutrition, exercise science, or health education programs. Practical experience indicators such as internship completion, clinical rotations, or community-based practice exposure were not captured in the original survey design, despite their established importance in healthcare career preparation and employer preferences. Professional development factors including participation in continuing education programs, specialized certifications, short-term training workshops, or attendance at professional conferences could not be examined, limiting understanding of how ongoing skill enhancement influences career outcomes.

Language competency, particularly English proficiency and other foreign language skills increasingly valued in Thailand's globalized healthcare environment, was not measured in the dataset. Similarly, technological competencies, research experience, publication records, and professional network characteristics, all potentially significant determinants of employment success in contemporary health promotion practice, were beyond the scope of the original survey instrument. Geographic mobility preferences, salary expectations, work-life balance priorities, and career advancement aspirations, which may influence employment decisions and outcomes, were also unavailable for analysis.

These limitations inherent to secondary data analysis restrict the comprehensiveness of the explanatory model and may contribute to the moderate explanatory power observed in the study. While the available demographic variables provide valuable insights into employment patterns, the omission of profession-specific competencies, experiential factors, and individual preferences likely results in an underestimation of the true complexity of employment determination among health promotion professionals. Future research employing primary data collection specifically designed for healthcare workforce analysis could address these limitations by incorporating comprehensive measures of professional preparation, competency development, and career decision-making factors relevant to health promotion specialists in Thailand's evolving healthcare landscape.

3. Results

This section presents the study findings, which are divided into two parts: an analysis of general characteristics and an analysis of the effects of independent variables on the employment status of health promotion professionals classified by gender.

3.1 General data characteristics

The respondents' general characteristics were investigated. There were 1,704 individuals, with an average age of 41 years; 80.7% were female, while 19.3% were male. More than half of the respondents (52.2%) were married, while 39.3% were single and 8.5% were widowed, divorced, or separated. The majority of respondents (79%) held a bachelor's or higher degree, followed by secondary school (12.7%), associate degree (4.2%), elementary school (2.4%), and a lower percentage than primary school (1.7%). The Central area had the highest proportion of responders (30.8%), followed by the Northeast (28.4%), the North (21%), the South (14%), and Bangkok (5.8%). The majority of them (73.9%) lived in municipal areas, while 26.1% lived elsewhere. The typical home size is three individuals, as shown in Table 1.

Table 1. General Characteristics of Respondents (n=1,704)

General information	Numbers (percent)
1. Age (mean±SD)	41±11
2. Gender	
Male	329 (19.3%)
Female	1,375 (80.7%)
3. Status	
Single	670 (39.3%)
Married	890 (52.2%)
Widowed/Divorced/Separated	144 (8.5%)
4. Level of Education	
Less than primary school	29 (1.7%)
Primary education	41 (2.4%)
High school education	216 (12.7%)
Diploma	71 (4.2%)
Bachelor's degree or postgraduate degree	1,347 (79.0%)
5. Region	
Bangkok and surrounding areas	99 (5.8%)
Central	524 (30.8%)
Northern	359 (21.0%)
Northeast	484 (28.4%)
Southern	238 (14.0%)
6. Residential areas	
Inside the municipality	1,260 (73.9%)
Outside the municipal area	444 (26.1%)
7. Number of Households members (mean±SD)	3±1
1-2 persons	890 (52.2%)
3-4 persons	616 (36.2%)
From 5 people or more	198 (11.6%)

The effects of independent variables on the employment status of health promotion professionals classified by gender were examined using logistic regression analysis. The analysis was conducted in two stages: bivariate and multivariate analyses, as detailed below.

3.1.1 The findings of the bivariate study utilizing basic regression analysis revealed that:

1) Age: Older women had a lower likelihood of employment than younger women (odds ratio = 0.98). The connection was statistically significant at the 0.05 level. As a result, it was determined that age had an impact on employment in health promotion jobs.

2) Marital status: Married women had a lower likelihood of employment compared with single women (odds ratio = 0.89), although this association was not statistically significant. In contrast, women who were married (widowed, divorced, or separated) had a 2.19-fold higher likelihood of employment than single women, and this relationship was statistically significant at the 0.05 level. As a result, we may infer that marital status has an impact on employment in the health promotion professional category.

3) Educational level: Women with a secondary/associate degree had a 1.51-fold higher chance of being employed than women with a primary education level or lower, and women with a bachelor's degree or higher had a 2.11-fold higher chance of being employed than women with a primary education level or lower, which was statistically significant at the 0.05 level. As a result, a greater degree of education increases the likelihood of employment in the health promotion professional category compared to a lower level of education.

4) Region: Women living in the Central, Northern, and Southern regions had a higher chance of being employed than women living in Bangkok, 1.34, 1.24, and 1.50 times, respectively, whereas women living in the Northeastern region had a lower chance of being employed than women living in Bangkok, which was not statistically significant at the 0.05 level across all residential regions.

5) Residential area: Women living in municipal areas had a greater likelihood of being employed than women living outside of municipal areas, albeit this was not statistically significant at the 0.05 level. As a result, it was determined that residential areas were unrelated to employment among health promotion professionals.

6) Number of household members: Women with 1-2 household members had a 1.01-fold higher likelihood of employment than women with 5 or more household members, whereas women with 3-4 household members had a 0.89-fold lower chance of employment. The connection was not statistically significant at the 0.05 level. As a result, the number of household members had no relationship with employment among health promotion professionals.

3.1.2 After adjusting for other independent factors, the results of multivariate analysis using multiple regression demonstrated that age, marital status, and education level continued to have an impact on employment among health promotion professionals. As shown in Table 2, all independent factors explained 2.8% ($R^2 = 0.028$) of the variation in employment among health promotion professionals at a statistical significance level of 0.05, indicating that the current model captures only a modest portion of the factors determining employment outcomes in this professional category. as seen in Table 2.

Table 2. Independent variables affecting employment status of health promotion professionals classified by gender.

Variables	Univariate analysis		Multivariate analysis	
	OR (95%CI)	p-value	OR (95%CI)	p-value
1. Age	0.98 (0.97-0.99)	0.001***	0.97 (0.96-0.98)	0.001***
2. Status				
Single	1.00 (reference)		1.00 (reference)	
Married	0.89 (0.69-1.14)	0.353	1.26 (0.95-1.67)	0.108
Widowed/Divorced/Separated	2.19 (1.22-3.93)	0.008**	4.22 (2.24-7.94)	0.001***
3. Level of Education				
Less than primary school/ Primary education	1.00 (reference)		1.00 (reference)	
High school education/ Diploma	1.51 (0.85-2.67)	0.163	1.17 (0.63-2.17)	0.613
Bachelor's degree or postgraduate degree	2.11 (1.25-3.57)	0.005**	1.87 (1.06-3.29)	0.031*
4. Region				
Bangkok and surrounding areas	1.00 (reference)			
Central	1.34 (0.79-2.27)	0.272		
Northern	1.24 (0.72-2.14)	0.429		
Northeast	0.97 (0.58-1.63)	0.913		
Southern	1.50 (0.84-2.70)	0.173		
5. Residential areas				
Inside the municipality	1.01 (0.76-1.32)	0.969		
Outside the municipal area	1.00 (reference)			
6. Number of Households members				
1-2 persons	1.01 (0.68-1.49)	0.991		
3-4 persons	0.89 (0.59-1.34)	0.589		
For 5 people or more	1.00 (reference)			

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The limited explanatory power ($R^2 = 0.028$) reveals significant theoretical implications requiring expanded analytical frameworks. From Labor Market Theory perspective, the minimal variance explanation suggests that structural market forces including sectoral demand fluctuations, regional economic disparities, and institutional policies constitute primary employment determinants rather than individual demographic characteristics (Crompton, 2006; Leerapan et al., 2021). This finding indicates that

macro-economic conditions and healthcare policy transitions exert substantially greater influence on employment probability than personal attributes.

Gender-Role Theory perspectives suggest the model's limited performance reflects inadequate measurement of gendered employment processes operating beyond demographic categorization (Connell, 2005; Oakley, 2005). Traditional gender role expectations, occupational segregation patterns, and differential career socialization require sophisticated operationalization to capture their employment influence. Contemporary research demonstrates that gender disparities in healthcare employment reflect multifaceted organizational and cultural factors extending beyond demographic characteristics (Jackson et al., 2022; Olatoye et al., 2024), necessitating examination of workplace policies, organizational climates, and career development infrastructure. Social Justice and Health Theory frameworks indicate that unmeasured structural inequalities and systemic barriers significantly influence employment outcomes (World Health Organization, 2024). The minimal variance explanation suggests that institutional discrimination, unequal advancement opportunities, and differential treatment constitute significant unmeasured influences. Research by Santric Milicevic et al. (2024) demonstrates that healthcare workforce equity requires comprehensive assessment of organizational practices and systemic barriers affecting career opportunities across demographic groups.

The limited explanatory power also suggests that conventional education-based measures inadequately capture competency requirements for contemporary health promotion practice (Fletcher et al., 2024; Hamouche & Parent-Lamarche, 2023). Traditional educational categories may not reflect specialized skills, practical experience, and professional networks that increasingly determine employment success in evolving healthcare environments. Intersectionality perspectives indicate that employment determination operates through complex interactions between multiple characteristics that cannot be captured through additive demographic models (Davis & Johnson, 2021). Research by Marcus et al. (2024) demonstrates that multi-dimensional approaches reveal substantially different patterns than single-variable analyses, supporting more sophisticated analytical frameworks.

Future research should prioritize longitudinal designs examining career trajectories and mixed-methods approaches combining quantitative analysis with qualitative exploration of employment decision-making processes (Turner & Clark, 2020). Policy interventions must extend beyond demographic considerations to address structural labor market conditions, workplace equity issues, and professional development infrastructure (World Health Organization, 2023). Healthcare organizations should examine employment practices and workplace cultures to identify systemic factors influencing employment outcomes differentially across demographic groups (Owolabi et al., 2024).

4. Discussion

The demographic characteristics of respondents revealed an average age of 41 years, a predominantly female workforce, bachelor's degree or higher educational attainment, married status, central region residence, and urban municipality location, with an average household size of three persons.

These characteristics provide important context for interpreting employment patterns within Thailand's health promotion workforce and enable meaningful comparison with international healthcare workforce studies.

The finding that younger age significantly increases employment likelihood among health promotion professionals presents a complex pattern that both aligns with and diverges from established healthcare workforce research. This result supports the theoretical framework proposed by Marcus et al. (2024), who demonstrated through European network analysis that age serves as a critical determinant of employment outcomes in healthcare sectors, with optimal employment rates occurring among workers aged 30–39 years. However, our findings reveal a more pronounced age gradient, with employment probability decreasing more sharply with advancing age than reported in Marcus et al.'s multi-country analysis. The age-employment relationship observed in this study contradicts findings from Hamouche & Parent-Lamarche (2023), who identified workers aged 30–52 as demonstrating optimal employment performance due to balanced experience and adaptability. While their research suggested a plateau effect across middle-age categories, our results indicate a more linear decline in employment probability with increasing age, suggesting that Thailand's health promotion labor market may exhibit different age-related employment dynamics compared to developed country contexts examined in their telework study.

Critical interpretation of these findings suggests that the preference for younger workers in Thailand's health promotion sector may reflect several underlying mechanisms. From a Human Capital Theory perspective, the age-employment gradient could indicate rapid technological advancement and evolving practice standards that favor recent graduates with contemporary training over experienced professionals whose skills may be perceived as outdated (Fletcher et al., 2024). However, this interpretation conflicts with established evidence that experience enhances healthcare professional effectiveness, suggesting that employer preferences may be influenced by factors beyond objective competency assessment. Alternative explanations drawing from Labor Market Segmentation Theory suggest that age discrimination may operate through informal hiring practices that systematically disadvantage older applicants despite their potentially superior experience and professional networks. This interpretation aligns with international research documenting age-related employment barriers in healthcare sectors, though it contradicts policy objectives of maximizing human resource utilization in Thailand's expanding healthcare system (Leerapan et al., 2021).

The finding that widowed, divorced, or separated individuals demonstrate higher employment probability than single persons presents a counterintuitive pattern that challenges conventional assumptions about family status and employment relationships. This result contradicts expectations derived from Gender-Role Theory (Connell, 2005), which typically predicts that family responsibilities, particularly for women, create employment barriers through competing time demands and reduced workplace flexibility. Comparison with international research reveals mixed support for this finding, as Davis & Johnson (2021) found that health promotion professionals with complex family situations faced unique work-life balance challenges, which would theoretically reduce rather than enhance employment probability.

However, their research focused primarily on job satisfaction rather than employment obtainment, limiting direct comparability with our findings.

The theoretical interpretation of this paradoxical relationship may be understood through Economic Necessity Theory, whereby individuals with dissolved marriages face increased financial pressures and reduced household income support, compelling more intensive job-seeking behavior and greater willingness to accept available employment opportunities. This explanation aligns with research by Crompton (2006) on family employment reconfiguration, which demonstrated that household economic disruption often intensifies labor market participation among previously dependent family members. However, this interpretation requires critical examination of potential methodological artifacts, where the employment advantage observed among divorced/separated individuals may reflect measurement timing issues, with employment obtainment facilitating or following marital dissolution rather than resulting from it. Additionally, sample selection effects may operate if divorced/separated individuals in the dataset represent a subset with superior employment qualifications or greater career orientation compared to their married counterparts.

The positive relationship between educational level and employment probability strongly supports Human Capital Theory predictions and aligns consistently with international healthcare workforce research. This finding corroborates Fletcher et al. (2024) comparative analysis of educational requirements in public health careers, which demonstrated that advancing educational credentials significantly enhance employment prospects across multiple healthcare specialties. Convergent evidence from multiple sources reinforces this relationship, with Owolabi et al. (2024) documenting that healthcare organizations increasingly prioritize advanced educational qualifications in recruitment decisions, reflecting growing complexity in healthcare service delivery and regulatory requirements. Similarly, research by Turner and Clark (2020) demonstrated that educational attainment serves as a primary predictor of career progression and job security among healthcare professionals.

However, critical analysis of the education-employment relationship reveals important contradictions with some aspects of contemporary healthcare workforce research. While our findings support traditional Human Capital Theory predictions, they conflict with emerging evidence that employer preferences increasingly emphasize practical experience and specialized competencies over formal educational credentials (Hamouche & Parent-Lamarche, 2023). This discrepancy suggests that Thailand's health promotion labor market may retain more traditional credential-based hiring practices compared to other contexts where competency-based assessment has gained prominence. The combined effects of age, marital status, and educational attainment on employment outcomes present a complex theoretical picture that partially supports but also challenges established frameworks, with the age-employment gradient contradicting Social Justice and Health Theory expectations (World Health Organization, 2024) regarding equitable employment opportunity distribution across age groups.

Gender-Role Theory implications remain ambiguous given the predominantly female sample composition, as while the marital status findings suggest that family disruption enhances rather than impedes employment probability, this pattern may operate differently for male versus female health

promotion professionals, requiring gender-disaggregated analysis to clarify theoretical relationships (Oakley, 2005). The intersectionality of these demographic factors creates employment determination mechanisms that diverge from simple additive models predicted by traditional labor market theories, with the interaction between age and educational attainment potentially creating differential employment outcomes for various demographic subgroups that warrant further investigation (Jackson et al., 2022).

These findings have significant implications for Thailand's healthcare workforce planning and contradict some assumptions underlying current policy frameworks. The age-employment gradient suggests that policies promoting career longevity and experience retention may face implementation challenges if employer preferences systematically favor younger workers (Santric Milicevic et al., 2024). This pattern conflicts with demographic transition policies that emphasize maximizing human resource utilization across all age groups to address projected healthcare workforce shortages. Policy recommendations emerging from this analysis must acknowledge both the empirical findings and their theoretical contradictions, suggesting that while educational investment continues to demonstrate employment benefits, policies should also address potential age discrimination and examine whether employer preferences reflect objective competency requirements or systematic bias against experienced workers. Additionally, the complex relationship between marital status and employment suggests that workforce support policies should consider diverse family structures and economic circumstances rather than assuming uniform family effect patterns across different demographic groups.

5. Conclusion

This investigation examined demographic determinants of employment status among Thailand's health promotion professionals through analysis of 1,704 respondents from the National Statistical Office's Employment Status Survey. The findings reveal significant employment disparities with important theoretical and policy implications for healthcare workforce development.

Age emerged as the primary determinant of employment probability, with younger professionals experiencing substantially higher likelihood of securing employment. This age-employment gradient suggests systematic market preferences for younger workers, potentially reflecting increasing technological complexity and rapidly evolving evidence-based practices in contemporary health promotion. However, this pattern presents challenges for workforce sustainability and knowledge retention, as it underutilizes experienced professionals' accumulated clinical expertise, established community relationships, and institutional knowledge that remain valuable for effective programming.

Gender disparities persist despite women's numerical predominance in health promotion education, indicating that demographic representation in academic preparation does not translate to equitable employment opportunities. These disparities suggest structural barriers continue operating within Thailand's health promotion labor market, requiring deliberate intervention beyond increasing women's educational participation in health sciences programs.

The study supports implementing comprehensive workforce development strategies addressing both individual competency enhancement and structural barrier removal. Professional development initiatives should prioritize technological skill building and competency-based assessment frameworks enabling workers across all age groups to maintain contemporary practice standards while leveraging accumulated experience. Organizational policy reforms should examine hiring practices and workplace cultures to eliminate systematic biases disadvantaging certain demographic groups despite professional qualifications.

Policy recommendations include developing age-inclusive workforce policies preventing systematic discrimination while encouraging technological skill development across career stages. Healthcare organizations should implement competency-based hiring systems assessing actual professional capabilities rather than demographic characteristics. Mentorship programs pairing experienced professionals with technologically proficient junior colleagues could facilitate bidirectional knowledge transfer benefiting both individual development and organizational capacity.

Future research directions should address critical knowledge gaps through several approaches. Longitudinal studies tracking employment trajectories would illuminate how demographic effects evolve throughout careers and identify intervention points. Mixed-methods approaches combining quantitative analysis with qualitative exploration of employment decision-making would provide deeper understanding of mechanisms through which demographic characteristics influence outcomes. Employer perspective research examining hiring criteria and workplace culture factors would clarify whether demographic effects reflect objective competency requirements or systematic bias.

Cross-national research comparing Thailand's findings with similar middle-income countries experiencing healthcare transitions would identify best practices for workforce development and policy intervention. Methodological innovations should incorporate measures of technological competency, continuing education participation, and professional network development to better understand how these factors mediate demographic-employment relationships.

The implications extend beyond workforce planning to broader healthcare system sustainability and social equity in professional opportunity distribution. Addressing identified demographic disparities requires coordinated action across educational institutions, healthcare organizations, and policy-making bodies to ensure Thailand's health promotion workforce effectively utilizes all available human resources while providing equitable career opportunities across demographic groups. Success will significantly influence Thailand's healthcare system capacity to address evolving population health needs through comprehensive, sustainable preventive healthcare services.

6. References

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