

# Health-Promoting Behaviors Among Hospital Employees and Their Implications for Workplace Health Education: A Cross-Sectional Study

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## Abstract

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**Background:** Health-promoting behaviors are essential for maintaining well-being and preventing chronic diseases, particularly among healthcare professionals. However, hospital employees are frequently exposed to occupational stressors that may negatively affect their personal health behaviors. This study aimed to assess health-promoting behaviors among hospital employees and examine the influence of demographic and occupational factors. **Methods:** This cross-sectional study was conducted among 293 employees at a private hospital using convenience sampling. Of approximately 320 eligible employees, 293 participated (response rate: 91.5%). Data were collected using the Walker Health-Promoting Lifestyle Profile (HPLP), which demonstrated good internal consistency in the present study (Cronbach's alpha = 0.89). Independent t-tests, one-way ANOVA, Pearson correlation, and multiple linear regression analyses were performed using SPSS version 25. **Results:** The overall health-promoting behavior score was moderate ( $M = 2.61$ ,  $SD = 0.48$ ). Spiritual growth and stress management had the highest mean score, while nutrition had the lowest. Most demographic variables were not significantly associated with health-promoting behaviors. A weak negative correlation was observed between work experience and health responsibility ( $r = -0.116$ ,  $p = 0.049$ ). The regression model explained only 1.6% of the variance and was not statistically significant. **Conclusion:** Demographic variables showed limited influence on health-promoting behaviors among hospital employees. The findings suggest that broader organizational and environmental factors may play a more important role in promoting healthy behaviors in workplace settings.

**Keywords:** Health-promoting behaviors; Hospital employees; Workplace health education; Occupational health; Health promotion

## Introduction

Lifestyle behaviors encompass physical, social, and psychological dimensions that directly influence an individual's health status and overall well-being (Moghimi et al., 2024). Health-promoting behaviors, including physical activity, balanced nutrition, stress management, and positive interpersonal relationships, are consistently associated with a reduced risk of chronic diseases and improved quality of life (Kurnat-Thoma et al., 2017). Healthcare workers, particularly hospital employees, play a central role in promoting health; however, they are frequently exposed to occupational stressors, demanding workloads, and complex work environments that may negatively influence their own health behaviors (Chiou et al., 2014). Previous studies have reported that hospital staff often demonstrate moderate to low levels of engagement in health-promoting behaviors, suggesting a gap between knowledge and personal practice (Al-Qahtani, 2015). These findings highlight the need to support healthcare employees in translating health-related knowledge into consistent and sustainable healthy behaviors.

Although demographic characteristics such as age, education level, and work experience have been examined as potential predictors of health-promoting behaviors, findings have been inconsistent across studies (Chiou ShuTi et al., 2014). This inconsistency indicates that individual-level factors alone may not sufficiently explain variations in health behaviors among healthcare professionals. Increasing evidence highlights the importance of organizational determinants—including workplace culture, access to health promotion activities, and

institutional support—in shaping employees' lifestyle behaviors (Zeng et al., 2021). Taken together, these findings suggest that understanding health-promoting behaviors among healthcare employees requires consideration of both individual characteristics and the broader organizational context in which they work.

Furthermore, hospital-based health promotion programs have been shown to significantly improve dietary behaviors, physical activity, and overall lifestyle practices among healthcare staff (Chen et al., 2023). A recent systematic review also confirmed that workplace interventions targeting nutrition and physical activity in hospital settings are associated with measurable improvements in employees' health behaviors and engagement in preventive practices (Worley et al., 2022). In addition, participation in structured health promotion activities has been linked to better overall health practices and increased engagement in preventive behaviors (Kurnat-Thoma et al., 2017). Overall, these findings support the potential value of structured workplace health promotion programs in fostering healthier behaviors among hospital employees.

Despite growing attention to workplace health promotion, limited research has explicitly examined how observed behavioral patterns among hospital employees can inform the development of structured workplace health education programs. Most existing studies have primarily focused on describing behavior levels rather than translating these findings into practical educational strategies. Therefore, this study aimed to assess health-promoting behaviors among hospital employees and examine the influence of demographic and occupational factors, with a particular focus on their implications for workplace health education.

## Methods

This cross-sectional study was conducted to assess health-promoting behaviors among hospital employees in a healthcare setting. The study evaluated six dimensions of health-promoting behaviors: interpersonal relationships, physical activity, nutrition, health responsibility, stress management, and spiritual growth. A total of 293 employees from various departments at a private hospital participated in this study using convenience sampling. Of approximately 320 eligible employees, 293 agreed to participate, resulting in a response rate of 91.5%. A total of 27 employees declined participation, primarily due to time constraints or lack of interest. Inclusion criteria were employment at the hospital for at least six months and willingness to participate. Employees on extended leave or with severe health conditions were excluded.

Data were collected using the Health-Promoting Lifestyle Profile II (HPLP-II), developed by Walker, Sechrist, and Pender, a validated self-administered instrument assessing six dimensions of health-promoting behaviors: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management (Walker et al., 1995; Pinar et al., 2009). Participants were asked to report their recent health behaviors and perceptions across these domains. The internal consistency of the HPLP was assessed in the present study. Cronbach's alpha coefficient for the total scale was 0.89, indicating good reliability. The alpha values for the six subscales ranged from 0.72 to 0.85, demonstrating acceptable to good internal consistency.

Descriptive statistics (frequencies, means, and standard deviations) were used to summarize demographic characteristics and health-promoting behavior scores. Group differences were analyzed using independent t-tests (for two-group comparisons) and one-way analysis of variance (ANOVA) for comparisons across more than two groups. Tukey post hoc tests were applied for pairwise comparisons when appropriate.

**Table 1. Demographics and Descriptive Statistics**

| Variable                           | Value                                                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Mean Age (years $\pm$ SD)          | 33.5 $\pm$ 8.60                                                                                                                    |
| Female, n (%)                      | 203 (69.3%)                                                                                                                        |
| Married, n (%)                     | 178 (60.8%)                                                                                                                        |
| Clinical Staff, n (%)              | 183 (62.5%)                                                                                                                        |
| Education $\geq$ Bachelor's, n (%) | 289 (98.7%)                                                                                                                        |
| Lifestyle Scores (Mean $\pm$ SD)   | Stress management: 2.71 $\pm$ 0.50<br>Physical Activity: 2.69 $\pm$ 0.53<br>Nutrition: 2.53 $\pm$ 0.51<br>Overall: 2.61 $\pm$ 0.48 |

Pearson correlation analysis was used to examine associations between continuous variables, such as age and work experience, and health-promoting behavior scores. Multiple linear regression analysis was conducted to assess the predictive role of demographic variables on overall health-promoting behavior scores. Categorical variables were coded using dummy variables (e.g., gender: male = 0, female = 1; marital status: single = 0, married = 1; job category: support staff = 0, clinical staff = 1). Prior to regression analysis, key assumptions, including normality, linearity, homoscedasticity, and absence of multicollinearity, were assessed and confirmed. All statistical analyses were performed using SPSS version 25, and statistical significance was set at  $p < 0.05$ . Missing data were minimal (<5%) and were handled using pairwise deletion.

The study received ethical approval from the Ethics Committee of Kerman University of Medical Sciences (Approval Code: IR.KMU.REC.1404.095, dated May 18, 2025). Participation was voluntary, and informed consent was obtained from all participants. All data were collected anonymously, and confidentiality of participants' information was strictly maintained.

## Results

Participants' demographic characteristics are presented in Table 1. The mean age of participants was 33.5 years (SD = 8.60). The majority were female (69.3%), married (60.8%), and employed in clinical roles (62.5%). Nearly all participants (98.7%) held at least a bachelor's degree. Demographic characteristics and lifestyle scores are presented separately to improve clarity.

**Table 2. Mean Scores of Health-Promoting Behaviors**

| Dimension               | Mean $\pm$ SD   |
|-------------------------|-----------------|
| Spiritual Growth        | 2.60 $\pm$ 0.52 |
| Physical Activity       | 2.69 $\pm$ 0.53 |
| Nutrition               | 2.53 $\pm$ 0.51 |
| Health Responsibility   | 2.55 $\pm$ 0.54 |
| Stress Management       | 2.71 $\pm$ 0.50 |
| Interpersonal Relations | 2.64 $\pm$ 0.57 |
| Overall                 | 2.61 $\pm$ 0.48 |

### Health-Promoting Behaviors

Mean scores for the six dimensions of health-promoting behaviors are presented in Table 2. Stress management had the highest mean score (M = 2.71, SD = 0.50), followed by physical activity (M = 2.69, SD = 0.53) and interpersonal relationships (M = 2.64, SD = 0.57). Spiritual growth showed a moderate level (M = 2.60, SD = 0.52), while health responsibility (M = 2.55, SD = 0.54) and nutrition (M = 2.53, SD = 0.51) had relatively lower mean scores. The overall health-promoting behavior score was moderate (M = 2.61, SD = 0.48).

A multiple linear regression analysis was conducted to examine whether demographic and occupational variables predicted overall health-promoting behavior scores. The model explained only 1.6% of the variance ( $R^2 = 0.016$ , Adjusted  $R^2 = -0.002$ ) and was not statistically significant ( $F(5,275) = 0.911$ ,  $p = 0.474$ ), indicating limited explanatory power of the included variables. None of the predictors, including age, work experience, marital status, education, or job category, showed statistically significant associations with overall health-promoting behavior scores (all  $p > 0.05$ ). Detailed regression coefficients (B, SE, standardized  $\beta$ , and p-values) are presented in Table 3.

**Table 3. Multiple Linear Regression Summary**

| Predictor       | B      | SE    | $\beta$ | p-value |
|-----------------|--------|-------|---------|---------|
| Work experience | -0.001 | 0.001 | -0.077  | 0.202   |
| Age             | -0.003 | 0.003 | -0.055  | 0.364   |
| Marital status  | -0.016 | 0.061 | -0.016  | 0.797   |
| Education       | -0.009 | 0.028 | -0.021  | 0.733   |
| Job category    | -0.048 | 0.041 | -0.074  | 0.235   |

*Model statistics:  $R^2 = 0.016$ , Adjusted  $R^2 = -0.002$ ,  $F(5,275) = 0.911$ ,  $p = 0.474$ .*

### Group Differences by Job Category

One-way ANOVA showed a statistically significant difference in spiritual growth scores across job categories ( $F = 3.47$ ,  $p = 0.032$ ). However, given the absence of overall strong explanatory patterns and the small magnitude of differences, this finding should be interpreted with caution. Health responsibility approached statistical significance ( $F = 2.93$ ,  $p = 0.055$ ). Although post hoc analysis suggested a difference between clinical and support staff ( $p = 0.047$ ), post hoc findings were interpreted cautiously due to the marginal significance of the overall model. Effect size estimates ( $\eta^2$ ) for ANOVA analyses were small, indicating limited practical significance. No significant differences were observed for other lifestyle dimensions (all  $p > 0.05$ ). Full results are reported in Table 4.

### Correlations with Work Experience and Age

Pearson correlation analysis revealed a small but statistically significant negative correlation between work experience and health responsibility ( $r = -0.116$ ,  $p = 0.049$ ), indicating that increased work experience was associated with slightly lower health responsibility scores. However, the magnitude of this association was

weak. No significant correlations were found between age and overall health-promoting behavior scores ( $r = -0.056$ ,  $p = 0.347$ ).

**Table 4. Job Category Comparison (ANOVA)**

| Dimension             | F    | p     | $\eta^2$ | Interpretation |
|-----------------------|------|-------|----------|----------------|
| Spiritual Growth      | 3.47 | 0.032 | 0.023    | Small effect   |
| Health Responsibility | 2.93 | 0.055 | 0.020    | Small effect   |
| Other dimensions      | —    | >0.05 | —        | No significant |

Detailed statistical comparisons for lifestyle dimensions across demographic variables are presented in Supplementary Table A1. Pearson correlation analyses between demographic variables and lifestyle scores are provided in Supplementary Table A2. In addition, Figure S1 illustrates the age distribution of participants, and Figure S2 presents the distribution of total HPLP scores.

## Discussion

This study examined health-promoting behaviors among hospital employees and found that the overall level of health-promoting behaviors was moderate. Among the HPLP dimensions, spiritual growth demonstrated the highest mean score, whereas nutrition showed the lowest. These findings are generally consistent with previous studies conducted among nurses and healthcare workers in different healthcare settings, where moderate levels of health-promoting behaviors have commonly been reported (Ważna et al., 2025, Kurnat-Thoma et al., 2017). Overall, the moderate level of health-promoting behaviors observed in this study suggests that there remains considerable potential for strengthening healthy lifestyle practices among hospital employees.

The relatively higher scores in spiritual growth may reflect the important role of psychological coping strategies and personal belief systems in managing occupational stress among healthcare professionals. Similar findings have been reported in studies showing that spiritual well-being and interpersonal support may function as protective factors against burnout and emotional exhaustion in nursing staff (Celano et al., 2022). In contrast, lower nutrition scores may be associated with irregular work schedules, shift work, time constraints, and workplace stress, all of which can negatively affect dietary behaviors among hospital employees (Monnaatsie et al., 2021). Taken together, these findings suggest that both personal coping resources and workplace conditions may influence different dimensions of health-promoting behaviors among hospital employees.

The present study found that demographic variables had limited explanatory value for overall health-promoting behaviors. The regression model explained only a very small proportion of variance and none of the included predictors showed statistically significant associations. These findings are consistent with recent evidence suggesting that individual demographic characteristics alone may be insufficient to explain variations in lifestyle behaviors among healthcare workers (Choi et al., 2024). Similarly, a recent cross-sectional study in Poland reported that although some occupational and demographic factors influenced selected behavioral domains, the overall effect sizes were relatively small (Ważna et al., 2025). Thus, demographic characteristics alone may provide limited insight into variations in health-promoting behaviors among hospital employees.

A weak negative association was observed between work experience and health responsibility. Although the effect size was small, this finding may suggest that employees with longer professional experience could experience cumulative occupational fatigue, reduced self-care prioritization, or adaptation to demanding workplace conditions over time. Previous qualitative evidence has similarly identified workload, institutional culture, and insufficient organizational support as barriers to maintaining healthy behaviors among nurses (Chong and Shorey, 2022). Overall, the observed association suggests that longer work experience may be accompanied by challenges in maintaining personal health responsibility, although the small effect size warrants cautious interpretation.

The findings of the present study should be interpreted cautiously because organizational variables were not directly measured. Nevertheless, existing evidence increasingly emphasizes the role of workplace environment, leadership, and institutional support in shaping health behaviors among healthcare professionals. Studies have shown that workplace health promotion programs, supportive leadership, and organizational wellness interventions can improve employees' physical activity, stress management, and psychological well-being (Esmaeilbeigi et al., 2025, Schaller et al., 2022). These considerations underscore the importance of organizational support and workplace conditions as potentially important influences on health-promoting behaviors among hospital employees.

Furthermore, occupational stressors in hospital settings—including workload pressure, digital stress, shift schedules, and emotional demands—may negatively affect self-care behaviors and long-term well-being among nurses and clinical staff (Kräft et al., 2024). Recent mixed-method evidence also suggests that inadequate organizational support and poor work–life integration are major barriers preventing nurses from engaging in healthy lifestyle behaviors (Navarro et al., 2026). Therefore, addressing occupational stressors and strengthening organizational support may be important components of workplace strategies aimed at improving health-promoting behaviors among hospital employees.

These findings support the need for structured workplace health education programs tailored to healthcare employees. Educational interventions focusing on nutrition, physical activity, stress management, and psychological resilience may help improve employees' engagement in health-promoting behaviors. Recent workplace wellness initiatives have also emphasized the importance of dedicated psychological recovery spaces and mindfulness-based programs for improving employee well-being and resilience in healthcare environments (Naone et al., 2024). Previous intervention studies have demonstrated that holistic and workplace-based wellness programs can significantly improve HPLP scores, particularly in domains such as nutrition, interpersonal relationships, and spiritual growth (McElligott et al., 2010). Overall, the findings of this study contribute to the growing evidence that promoting healthy lifestyles among hospital employees requires not only individual motivation but also supportive organizational environments and sustainable workplace health strategies.

## Conclusion

This study found that health-promoting behaviors among hospital employees were at a moderate level, with spiritual growth scoring the highest and nutrition the lowest. Overall, demographic variables such as gender, marital status, education level, and job category showed minimal influence on health-promoting behaviors. A weak negative association was observed between work experience and health responsibility; however, this relationship was small and should be interpreted with caution.

The study is limited by its cross-sectional design, which does not allow causal inferences. In addition, the use of convenience sampling from a single hospital may limit the generalizability of the findings. Self-reported data may also be subject to recall or social desirability bias. Despite these limitations, the findings suggest that individual demographic characteristics alone are insufficient to explain variations in health-promoting behaviors among hospital employees. Future research should consider broader organizational and environmental determinants, including workplace culture, leadership support, and access to health promotion resources.

From a practical perspective, hospital administrators and policymakers should prioritize the development of structured workplace health education programs that address multiple dimensions of health behavior, including stress management, nutrition, physical activity, and spiritual well-being. Such interventions may contribute to improving employee well-being and enhancing the overall quality of care delivery.

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**Data availability:** The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request, subject to applicable ethical and institutional restrictions.

**Conflicts of interest:** The authors declare that they have no conflicts of interest.

**CRedit role of authors:** All authors contributed to this work according to the CRediT (Contributor Roles Taxonomy) system as follows: Zahra Sarabandi: Responsible for conceptualization of the study, designing the

methodology. Mehdi Sheikh Mozafari: Conducted data collection and curation. Nazanin Nakhaei: Contributed to reviewing and editing the manuscript. Moein Eilaghi: performed the formal statistical analyses, and providing essential research resources. Negar Aghaei: developing visual representations of data. Fateme Ahmadi: writing the original draft of the manuscript, Oversaw the project as supervisor, managed project administration tasks. All authors reviewed and approved the final version of the manuscript.

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