



# Predictors of Health Promoting Lifestyle Among Midwives Employed in Hospitals and Health Centres of Qazvin, Iran

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## Abstract

**Background and aims:** Midwives experience a high level of stress due to heavy workloads, which has been shown to have adverse effects on well-being. Accordingly, the main goal of this study was to assess the predictors associated with a healthy lifestyle in a sample of midwives working in hospitals and health centers of Qazvin, Iran.

**Methods:** A total of 200 midwives were recruited using convenience sampling method. Each subject completed a demographic questionnaire, the Farsi version of the Health Promoting Lifestyle Profile Questionnaire, and Perceived Social Support Questionnaire. A multivariate linear regression model was used to assess the predictors of health promoting lifestyle (HPL).

**Results:** Spiritual growth ( $2.78 \pm 0.53$ ) and nutrition ( $2.79 \pm 0.45$ ) had the highest scores among HPL subscales. Conversely, subjects had the lowest score in physical activity ( $2.02 \pm 0.64$ ). Multivariate regression analyses showed that workplace ( $\beta = -0.19$ ,  $P = 0.03$ ), involving in professional sports ( $\beta = 0.2$ ,  $P = 0.01$ ), and perception of an adequate social support network ( $\beta = 0.47$ ,  $P < 0.001$ ) were the strongest predictors of HPL. These predictors accounted for 27% of the variance in the model.

**Conclusion:** Considering the predictive role of three variables including workplace, involving in professional sport, and having adequate social support, HPL interventions can be designed and implemented. Improving working conditions, strengthening social support networks, and increasing physical activity might be beneficial measures to improve midwives' HPL.

**Keywords:** Midwife, Lifestyle, Health promotion, Social support

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## Introduction

Maintaining a healthy lifestyle can reduce the prevalence of health problems<sup>1</sup> and improve overall well-being.<sup>2</sup> Walker defined a health promoting lifestyle (HPL) as actions and perceptions initiated by one's own motivation to help maintain and enhance the level of health and self-development.<sup>3,4</sup> This includes engaging in self-actualization, promoting physical health, exercising actively, consuming healthy food products, maintaining an adequate social support network, and having adequate stress management skills.<sup>4</sup>

HPL has been shown to impact multiple aspects of an individual's life such as individual and societal well-being.<sup>5</sup> Similarly, engaging in an HPL has been shown to improve family and community health and cohesion.<sup>6</sup> In addition, adopting a healthy lifestyle can prevent the development of disease and improve the well-being of

society as a whole.<sup>3</sup> Studies have demonstrated that many individual characteristics, such as biological, psychological, sociocultural factors, and situational/interpersonal factors can all play a role in maintaining a healthy lifestyle.<sup>7,8</sup>

An HPL is associated with individual and social characteristics such as gender, age, marital status, educational level, family income, and socioeconomic status.<sup>7,9</sup> Moreover, perceived self-efficacy and social support influence adherence to an HPL.<sup>10</sup> In addition, personal beliefs have been shown to affect perceived control and ability to maintain an HPL.<sup>11</sup> Research has demonstrated that workplace and dietary habits, access to healthy food, and the amount of income spent on healthy products influence the maintenance of an HPL.<sup>12</sup> Health promoting behaviors have been shown to reflect an individual's desire to achieve excellence, which affects an individual's overall well-being, individual

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and societal growth, and creativity.<sup>13</sup> Besides, health promoting behaviors have been shown to develop a sense of responsibility towards others, spiritual growth, stress management, interpersonal relationships, nutrition, and physical activity, which have been established as the six most important components of HPL.<sup>5,12</sup>

In the workplace, various studies have demonstrated positive benefits of encouraging healthy behaviors among employees.<sup>14</sup> This movement is beneficial given that an individual's overall well-being benefits from adhering to an HPL.<sup>10,14</sup> Results of a recent systematic review showed that poor health and wellbeing of health care staff are associated with poor patient safety outcomes such as medical errors.<sup>15</sup> Midwives are among health care providers who provide maternal and neonatal health care for mothers and their newborn children<sup>16,17</sup> in various settings (i.e., specialized hospitals, public hospitals, comprehensive health care centers).<sup>18</sup> Midwifery is associated with many physical and psychological stress factors due to the duties and responsibilities. Midwives experience a high level of stress due to heavy workloads, which has been shown to have adverse effects on well-being.<sup>18,19</sup> The high level of occupational stress experienced in the midwifery profession can have an impact on job performance, leading to the loss of work and early retirement.<sup>18</sup> Furthermore, this occupation requires a long-time commitment, which may influence the individuals' ability to adequately meet their own needs and the needs of their loved ones outside of work. In addition, the long-time commitment may prevent the individual from engaging in other health promoting behaviors such as exercising.

Maintaining an HPL has a positive impact on workplace performance,<sup>20</sup> well-being in the workplace, and family and social relationships.<sup>3</sup> Accordingly, finding ways to improve the well-being of midwives can also have a positive impact on family relationships and workplace performance.<sup>19</sup> There is a current gap in the literature regarding the impact of healthy lifestyle behaviors on the well-being of midwives. The stressful nature of midwifery due to the responsibility of taking care of the mother and fetus simultaneously compared to other health-related fields makes it necessary to assess the factors affecting the HPL. Consequently, our study aimed to assess the predictors of HPL in midwives working in Qazvin, Iran.

## Materials and Methods

### Subjects

The factors affecting HPL among midwives were assessed using a cross-sectional design. A total of 200 subjects were included in the study. Subjects were all midwives working in labor/delivery wards (n=83), prenatal and postpartum wards (n=59), and comprehensive healthcare centers (n=58) in Qazvin, Iran. Data were collected during the period from December 2017 to March 2018.

With a confidence level of 95%, a minimum Pearson

correlation of 0.20 between HPL and social support, and 80% power, the minimum sample size required was 194 subjects.

Convenience sampling method was conducted in this study. To be included in the study, subjects should (a) be employed as a midwife in a hospital or healthcare centers, (b) have at least six months post-graduate work experience as a midwife, (c) not have physical conditions that prevent exercise, (d) not have any psychological illness, and (e) not be on medication associated with a physical or mental illness. Subjects were also excluded if they were currently undergoing stressful situations (i.e., death of a loved one, physical injury, etc). Once consent was obtained, the subjects were given two days to respond.

### Measures

*Demographic questionnaire:* This questionnaire assessed individual, family, and social characteristics. The questionnaire was designed by the researcher and consisted of items assessing the subject's age, the marital status, spouse's age, education level, spouse's education, income, spouse's income, number of children, rotating work shift, social support, and daily commute to the workplace. The face and qualitative content validity of this questionnaire was approved by ten faculty members of the university.

*Health Promoting Lifestyle Profile (HPLP II; Walker, 1987):* The 52-item HPLP II is composed of a total scale and six subscales to measure behaviors in the theorized dimensions of health-promoting lifestyle: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. A score is obtained for overall health-promoting lifestyle by calculating the mean of the individual's responses to all 52 items; 6 subscale scores are obtained similarly by calculating the mean of the responses to subscale items. The use of mean scores rather than sums of scale items retains the 1 to 4 measurement of item responses and allows meaningful comparisons of scores across subscales. The items were rated using a 4-point Likert scale (never = 1, sometimes = 2, often = 3, and routinely = 4). Higher scores indicated that subjects had higher levels of an HPL.<sup>4</sup> The validity of Persian version of HPLP II has been assessed in the literature.<sup>6,21</sup>

*Perceived Social Support (PSS; Zimet et al, 1988):* This questionnaire included items to assess perceived social support across three domains: 1) family, 2) friends, and 3) other significant individuals. This questionnaire consisted of 12 items that were rated on a five-point Likert scale with 1 indicating complete agreement with the item and a score of 5 indicating complete disagreement with the item. In a recent study, Cronbach alpha coefficients varied from 0.86 to 0.90 across the three domains and an average Cronbach's alpha coefficient of 0.86 was obtained for the entire instrument.<sup>22</sup> Furthermore, the Persian version of this measure has demonstrated adequate psychometric

### Statistical Analysis

Descriptive statistics (e.g., frequency and percentages for qualitative data; mean and standard deviation for quantitative data) were used for data analysis. The assumption of normality was assessed using the Kolmogorov-Smirnov test. Using the enter mode, a linear regression model was conducted to examine the strength of the various predictors of HPL. A univariate regression analysis was performed for all independent variables and those that significantly predicted HPL (e.g., spouse's education level, spouse job, workplace, working department and distance to the workplace by car, being a professional athlete, and perceived social support) were included in the multivariate regression model. In the regression analyses, nominal independent variables with more than two categories were coded as dummy variables. None of the variables showed evidence for multicollinearity. All tests were analyzed using SPSS software version 25.0. A *P* value of less than 0.05 was considered statistically significant.

### Results

The results of this survey on 200 midwives showed that their mean age was  $34.49 \pm 7.21$  years and the mean age of their spouses was 39 years. Their mean work experience was 9.68 years and they worked overtime (50 hours per month). Additionally, 73% of them were married. Most of them had a bachelor's degree (87%). The monthly income of 88% of the midwives was less than 30 million Rials (Iranian currency). The education level of 51.4% of their spouses was a bachelor's degree and 57.5% of them were employees. The monthly income of 54.7% of the midwives' spouses was less than 30 million Rials (Iranian currency). Moreover, 74% of the midwives were working in the hospital and 26% in the healthcare centers. Additionally, 69.5% of the subjects had rotational shift work and 30% had constant morning shift work. Distance from home to work was less than 15 km. Of all midwives, 96% used internet on a daily basis and 8.5% performed exercise professionally. The mean nightly sleep duration was 7.43 hours and the mean body mass index was 24.57. The level of perceived social support by friends, family, and others had a mean of 45.36. The demographic characteristics of the subjects were presented in Table 1.

The total score of HPL in subjects was  $2.53 \pm 0.42$ . The subjects were most likely to report engaging in spiritual growth ( $2.78 \pm 0.53$ ) and nutrition ( $2.79 \pm 0.45$ ) to promote a healthy lifestyle. In contrast, subjects were least likely to report engaging in physical activity ( $2.02 \pm 0.64$ ) to improve well-being. These results are summarized in Table 2.

The results of the multivariate regression demonstrated that HPL scores were lower among subjects working in a social welfare hospital than other health care centers ( $\beta =$

$0.19$ ; 95% CI:  $-0.44$  to  $-0.02$ ). Furthermore, engaging in professional exercise ( $\beta = 0.2$ ; 95% CI:  $0.09$  to  $0.66$ ) and receiving adequate social support ( $\beta = 0.47$ ; 95% CI:  $0.01$  to  $0.03$ ) predicted higher HPL scores (Table 3). Workplace, professional exercise, and perceived social support explained 27% of the variability in predicting HPL among subjects.

### Discussion

External encouragement that promotes a healthy lifestyle has been demonstrated as a useful strategy to improve an individual's well-being.<sup>24</sup> The present study is the first cross-sectional study conducted to assess the predictive factors of HPL among midwives. The results of the present study showed that midwives had moderate levels of HPL ( $2.53 \pm 0.42$ ). Moreover, these findings were similar to the earlier studies which assessed HPL among the staff of the healthcare centers in Iran,<sup>25</sup> American nurses,<sup>26</sup> Malaysian nursing students,<sup>27</sup> and undergraduate medical students from Nepal.<sup>28</sup> The similar scores for individuals in medical fields across various cultures suggest that certain health behaviors seem to have a positive impact regardless of the context of the individual.

The results of this study showed that the highest scores of HPL belonged to the areas of spiritual growth and nutrition. The lowest HPL score was obtained for the domain of physical activity. Consistently, nursing students in Jordan,<sup>29</sup> Malaysia,<sup>27</sup> India,<sup>30</sup> and undergraduate medical students from Nepal<sup>28</sup> also had the highest HPL scores in the domain of spiritual growth and the lowest scores for physical activity. Similarly, undergraduate students from Hong Kong also obtained the lowest HPL scores for the domain of physical activity.<sup>31</sup> Similar trends were also discovered among a sample of Iranian women.<sup>21</sup> Despite the importance of physical activity as an independent risk factor for many health problems (i.e., osteoporosis, heart disease, and diabetes),<sup>31-33</sup> the lowest HPL scores were consistently obtained in the domain of physical activity. Meanwhile, the problem seems to be a long-standing public health issue.<sup>33,34</sup> Consequently, the well-being of individuals in the medical fields could be promoted by increasing the amount of physical exercise.

This study showed that employment in the social welfare hospital compared to other healthcare centers, public and private hospitals was associated with a reduced HPL score. Another result of this study was related to the impact of midwives' employment in the social welfare hospital on the HPL. This finding was not comparable with previous studies due to differences in the studied groups (e.g., medical group students, adolescents, females of reproductive age, medical staff) and the different duties of midwives in various hospital levels. In Iran, there are three types of hospitals including educational (affiliated to medical universities), private and social welfare. Given that social welfare hospitals provide more expanded insurance

Table 1. The Demographic Characteristics of the Midwives

Categorical variables		No. (%)
Marital status	Married	146 (73)
	Single	53 (26.5)
	Divorced	1 (0.5)
Education level	Associate degree	6 (3)
	Bachelor's degree	174 (87)
	Master's degree	20 (10)
Midwives' salary (Rial, Iranian currency)	10-30 million	176 (88)
	30-50 million	22 (11)
	> 50 million	2 (1)
Workplace	Health center	52 (26)
	Public hospital	86 (43)
	Private hospital	39 (19.5)
Occupation	Social Welfare Hospital	23 (11.5)
	Healthcare provider	19 (9.5)
	Midwife in the healthcare center	39 (19.5)
	Labor	67 (33.5)
	Postpartum	41 (20.5)
Work shift status	Prenatal	18 (9)
	Emergency	16 (8)
	Fixed morning	60 (30)
Social network access	Fixed night	1 (0.5)
	Rotational	139 (69.5)
	Yes	192 (96)
Living status	No	8 (4)
	Independent	107 (53.5)
	With own family	85 (42.5)
Spouse's education level	With the husband family	8 (4)
	Under diploma	7 (3.5)
	Associate degree	23 (11.5)
	Bachelor's degree	75 (37.5)
Spouse's salary (Rial, Iranian currency)	Master's and doctoral degree	41 (20.5)
	Total	146 (73)
	< 10 million	10 (5)
	10-30 million	70 (35)
Spouse job	30-50 million	45 (22.5)
	> 50 million	21 (10.5)
	Total	146 (73)
	Unemployed	3 (1.5)
Employment status	Worker	6 (3)
	Private sector	46 (23)
	Employee	84 (42)
	Retired	7 (3.5)
	Total	146 (73)
Employment status	Private sector	16 (8)
	Contract	75 (37.5)
	Formal	77 (38.5)

Distance to the work place by car	< 15 minutes	89 (44.5)
	15-30 minutes	79 (39.5)
	> 30 minutes	32 (16)
Professional athlete	Yes	17 (8.5)
	No	183 (91.5)
Continuous Variables		Mean (SD)
Age of midwife (y)		34.49 (7.21)
Work experience (y)		9.68 (7.19)
Number of children		0.90 (0.95)
Body mass index		24.57 (3.46)
Perceived social support		45.36 (9.32)
Spouse's age		39.01 (7.35)
Overtime work hours		50.09 (31.54)
Hours of network use within 24 hours		2.22 (2.13)
Sleep hours		7.43 (1.33)

services and are not affiliated to medical universities, people tend to refer to them more than two other types. Therefore, these hospitals have more workloads for their personnel including midwives. Midwives working at this hospital are faced with a large number of clients such as midwifery students, educators, and residents and they lack supportive services for patients. Therefore, the workload might be the cause of the negative association between HPL and employment in the social welfare hospital.

Furthermore, various studies have demonstrated that factors such as age,<sup>29,30</sup> gender,<sup>29</sup> occupation,<sup>21,31</sup> number of children, educational level, education, and occupation of spouse<sup>21</sup> can affect the individual's HPL score. Yet, none of the aforementioned factors was significantly related to the HPL among midwives in our sample. Similar work conditions and education levels among our subjects might be the potential reason for such inconsistency. These results indicate that health promoting behaviors are affected by cultural, social, and economic factors. Therefore, it is necessary to further examine these behaviors and related factors among different groups.

Additionally, social interaction and social support are known to be important domains within an individual's life<sup>35</sup> and have been established as a crucial element that maintains well-being.<sup>36</sup> The results of the present study confirm the positive effect of midwives' perceived social support on HPL. Consistently, several studies showed a significant positive relationship between the overall score of the HPL and social support.<sup>10,34,37,38</sup> Regarding the positive and significant relationship between perceived social support (by family, friends, and others) and HPL, it seems that having social support can improve the health of midwives. The nature of the midwives' job, especially

Table 2. Health Promoting Lifestyle Profile-II (HPLP-II) and its Domains

	Minimum*	Maximum	Mean (SD)
HPLP	1.52	3.74	2.53 (0.42)
Health responsibility	1.67	3.89	2.67 (0.49)
Stress management	1.25	3.75	2.23 (0.50)
Interpersonal relationships	1.56	3.89	2.7 (0.46)
Spiritual growth	1.33	4.00	2.78 (0.53)
Nutrition	1.33	4.00	2.79 (0.45)
Physical activity	1.00	4.00	2.02 (0.64)

HPLP: Health Promoting Lifestyle Profile.

\*Range of acquirable scores for all subscales and total scale is 1-4.

the midwives working in the hospital, and having multiple shifts may necessitate receiving support from others.

Another significant factor explaining the concept of HPL was being a professional athlete. Engaging in professional sports increased the individual's regular exercise and physical activity. Consistently, Bang et al reported that the level of physical activity and HPL had a significant positive relationship with the health status of students.<sup>39</sup> Moreover, Aliabadi et al reported that regular exercise and physical

activity had the greatest impact on the HPL of female students.<sup>40</sup> This finding was consistent with the results of the present study indicating that doing professional exercise could promote a healthy lifestyle.

### Limitations

One of the main limitations of the present study was data collection using the self-report method by the midwives. Given that non-random sampling method was used in this study, the generalizability of our findings may be limited.

### Conclusion

This study demonstrated that a social support network, professional growth experiences, and place of employment all play a major role in predicting HPL scores. The lowest scores on the HPL measure were attained in the physical activity subscale. This identifies that there could be potential barriers that prevent midwives from engaging in physical activity. Identifying barriers can help design and implement health promotion interventions in this group. Overall, the place of work, professional exercise, and perceived social support accounted for 27% of the variance of the study concept. Therefore, the adoption of measures to provide midwives with opportunities for

Table 3. Multivariate Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients		P Value	95% CI for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
Spouse's education level	Bachelor's degree			RG*			
	Under diploma	-0.12	0.17	-0.06	0.47	-0.45	0.21
	Associate degree	-0.05	0.10	-0.04	0.63	-0.25	0.15
	Master and doctoral degree	0.02	0.07	0.02	0.81	-0.13	0.17
Spouse's job	Employee			RG			
	Unemployed	0.13	0.23	0.04	0.53	-0.33	0.59
	Worker	-0.18	0.19	-0.09	0.33	-0.55	0.18
	Private sector	0.00	0.08	0.00	0.96	-0.15	0.16
	Retired	0.06	0.15	0.03	0.68	-0.23	0.35
Work Place	Public hospital			RG			
	Healthcare center	0.03	0.18	0.04	0.19	0.85	-0.32
	Private Hospital	-0.15	0.10	-0.14	0.15	-0.35	0.05
	Social welfare Hospital	-0.23	0.11	-0.19	0.03	-0.44	-0.02
Working department	Delivery room			RG			
	Healthcare provider	-0.09	0.12	-0.07	0.45	-0.33	0.15
	Midwife in the healthcare center	-0.07	0.10	-0.07	0.49	-0.26	0.13
	Postpartum	-0.11	0.09	-0.10	0.24	-0.30	0.07
	Prenatal	-0.01	0.13	-0.01	0.95	-0.27	0.25
	Emergency	-0.15	0.14	-0.09	0.30	-0.42	0.13
Distance to the work place by car	Distance < 15 minutes			RG			
	15-30 minutes	-0.13	0.07	-0.15	0.07	-0.26	0.01
	> 30 minutes	-0.07	0.11	-0.05	0.56	-0.29	0.16
Professional athlete	No			RG			
	Yes	0.37	0.14	0.20	0.01	0.09	0.66
Perceived social support		0.02	0.00	0.47	0.00	0.01	0.03

\*RG=Reference Group, R=0.60, R<sup>2</sup>=0.36, Adjusted R<sup>2</sup>=0.27.

physical activity and the creation of additional support networks can help them improve their lifestyle.

### Ethical Approval

The appropriate permissions from the Research Deputy of Qazvin University of Medical Sciences, hospitals, and health care centers were achieved before conducting the study. All midwives who were eligible and willing to participate in the study signed a written consent form. The research project was approved by the Ethics Committee of Qazvin University of Medical Sciences (Ethical Approval Code: IR.QUMS.ERC.1396.332).

### Conflict of Interest Disclosures

No conflict of interests was declared by the authors.

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