



Does Physical Activity Could Moderate Perceived Wellness of Health Providers?

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Abstract

Background: Sufficient levels of physical activity are an issue for health, quality of life, and more importantly for healthcare providers. This study aimed to determine the status of physical activity and its relationship with perceived wellness in healthcare workers.

Methods: This study included about 254 health personnel who work in urban health centers in Shiraz. The IPAQ and PWS self-administered questionnaires were used to collect information. This study was approved by the ethic and council committee of the Shiraz University of Medical Sciences. Additionally, moral considerations (confidentiality and informed consent) was observed, and data were analyzed with SPSS V.19.IBM.

Results: About 46% of the participants had moderated to severe physical activity. The results indicated a strong relationship between physical activity, perceived health and all its dimensions, except for social health and mental health. Furthermore, perceived health was significantly associated with age ($\rho = 0.039$, $\beta = 0.61$) and gender ($\rho = 0.002$, $\beta = 9.33$).

Conclusions: Regarding the staff's insufficient physical activity, the strong relationship between physical activity and health. Their impact on the organization's direct and indirect costs, health promotion programs and policies have to be designed focusing on the staff's physical activity.

Keywords: Physical Activity, Health, Perception

1. Background

Background: Nowadays, obesity and being overweight are among the most important health problems in developing and developed countries (1). On the other hand, physical activity has protective effects against chronic disorders, depression, and anxiety. Thus, getting used to an active lifestyle is essential for ones health (2) and decreases the risk of early death and cardiovascular diseases (3). In the U.S., physical activity programs reduced absence from work from 32% to 6%, decreased healthcare costs from 55% to 20%, and increased production from 2% to 52%. In Canada, these programs also resulted in saving 513 dollars per staff (4). On the other hand, sedentary occupations are followed by fatigue and physical problems over time. Therefore, not only physical activity improves staff's health

and performance, but it also increases production, social function, cooperation spirit, communication, job satisfaction, order, leadership, and self-control and decreases damages (5).

Frank et al. conducted a study entitled "Physical activity levels and counseling practices of U.S. medical students" and stated that physicians and other health specialists were among the major sources of information about health and exercise. They also revealed the role of consultation by primary care specialists in enhancing patients' cooperation in physical activities. Additionally, their study results showed a positive correlation between medical students' physical activity and their exercise advices (6).

2. Objectives

Such individuals' health, in turn, plays a key role in these organizations' productivity. However, no studies have assessed the level of physical activity and its relationship with health as well as its dimensions among the staff of universities of medical sciences in Iran to design plans for promotion of their health at least at the organizational level. Thus, the present study aims to investigate the physical activity status and its relationship with perceived health and its dimensions among the staff.

3. Methods

This descriptive-analytical study aimed to assess perceived health and its relationship with physical activity level among the health personnel who work in urban health centers in Shiraz University of Medical Sciences. The study was conducted on 254 health personnel who work in urban health centers in Shiraz University of Medical Sciences selected through convenience sampling. It should be noted that the sample size was calculated using below formula and prevalence of 0.28%.

$$n = \frac{Z_{1-\frac{\alpha}{2}} p (1 - p)}{d^2} \quad (1)$$

After referring to the colleges, the researcher introduced herself to the staff and explained the study objectives. Considering ethical issues, the participants were reassured regarding the confidentiality of their information and their oral informed consents for taking part in the study were obtained. Then, the study questionnaires were given to the participants. It should be mentioned that the questionnaires were answered anonymously. The inclusion criteria of the study included individuals willing to take part in the study, working in the Shiraz University of Medical Sciences. On the other hand, the exclusion criteria included filling out the questionnaires incompletely and not being willing to take part in the study.

The study data were collected using a questionnaire including 3 parts, the first of which contained demographic information. The second part was the short form of the international physical activity questionnaire (IPAQ) used to assess the level of activity in the study population. Finally, the third part included the perceived wellness scale (PWS).

In this study, the staff's activity level was computed based on the amount of energy consumed per week (met/cal/week) and was compared to the IPAQ scores. In addition, the physical activity level was classified into mild, moderate, and severe categories based on the world health organization's (WHO) recommendations (7). Accordingly, low physical activity involved not reporting any activity or

consuming less than 600 met/cal/week energy. Moderate physical activity referred to consumption of 600 - 3000 met/cal/week energy. Finally, severe physical activity was defined as consumption of more than 3000 met/cal/week energy (8).

IPAQ has been used in 90 countries and its reliability and validity have been confirmed (9). The reliability and validity of this questionnaire have also been approved in various studies in Iran (3, 10, 11).

In the current study, perceived health was evaluated using the 36-item PWS designed by Adams et al. (12, 13). PWS is a salutogenically oriented, multidimensional measure of perceived wellness perceptions in physical, spiritual, psychological, social, emotional, and intellectual dimensions. Each dimension is represented by 6 items. The dimensional scores are integrated by combining the magnitude or mean of each dimension with the balance of or standard deviation among the dimensions into a composite wellness score. This questionnaire includes 21 positive and 9 negative questions randomly placed on the scale. The items are responded through a 6-point Likert scale, with 6, 5, 4, 3, 2, and 1 scores being allocated to completely agree, agree, almost agree, almost disagree, disagree, and completely disagree, respectively. However, negative questions are scored reversely. The total score of the questionnaire could range from 36 to 216, with higher scores representing better perceived health. It should be noted that the total score of each dimensions is calculated by dividing the score of that dimension by the number of its questions (12-14).

The reliability and validity of PWS were not assessed in Iran. Therefore, the researcher conducted a pilot study on 180 samples. The results indicated Cronbach's alpha of 0.87 for the whole questionnaire. Additionally, the reliability of the scale was approved by Spearman-Brown correlation coefficient using split-half method (0.85) (15).

After all, the data were entered into the SPSS statistical software (version 17) and were analyzed using descriptive and inferential statistics. At first, univariate analysis was done to assess the effects of demographic features and physical activity on the staff's health. Then, the variables with $P < 0.2$ were selected for the regression model and multivariate regression analysis was performed.

4. Results

This study was conducted on 254 staff of Shiraz University of Medical Sciences with the mean age of 34.29 ± 7.97 years. The staffs' mean of working experience was 9.78 ± 7.14 years and their Body Mass Index (BMI) was 23.84 ± 4.14 . Moreover, the mean score of their perceived health was 142.94 ± 18.36 .

According to Table 1, most of the study participants were female (83.90%) and married (56.30%). Additionally, half of the participants had above bachelor's degrees, while nearly 10% did not have an academic education. Furthermore, BMI of almost two thirds of the participants was normal. Moreover, 37% of the participants had moderate to severe physical activity (8.7%), ($P < 0.05$).

Table 1. Frequency Distribution of Sex, Marital Status, Education Level, Occupation, and BMI Among the Study Participants^a

Variables	Variable Levels	No. (%)
Sex	Male	41 (16.10)
	Female	213 (83.90)
Marital status	Single	111 (43.70)
	Married	143 (56.30)
Education level	Diploma and below	26 (10.20)
	Bachelor's degree	121 (39.80)
	Master's degree and above	127 (50.00)
BMI	Underweight	8 (3.30)
	Normal	154 (63.40)
	Overweight	70 (28.80)
	Obese	11 (4.50)
Physical activity	Mild	138 (54.3)
	Moderate	94 (37)
	Severe	22 (8.7)

^a $P < 0.05$.

The results of univariate regression analysis presented in Table 2 indicated a strong relationship between physical activity, perceived health, and all its dimensions, except for social health ($P < 0.05$).

Table 2. Univariate Linear Regression Analysis for the Relationship Between Physical Activity and Perceived Health and Its Dimensions

Dependent Variable	Independent Variable		
	β	95% Confidence Interval	P Value
Mental	0.705	19.22 - 74.36	0.077
Emotional	0.989	19.22 - 74.79	0.034
Social	0.227	23.25 - 45.88	0.54
Physical	1.173	21.23 - 17.75	0.003
Spiritual	1.096	23.25 - 06.51	0.003
Intellectual	1.09	19.22 - 91.2	0.002
Perceived health	5.28	129.140 - 03.55	0.003

The results of multivariate linear regression analysis

showed the relationship between physical activity and perceived health dimensions (physical, intellectual, social, emotional, spiritual, and mental health) as well as demographic variables (Table 3). Accordingly, no significant relationship was found between physical activity, social health ($P = 0.79$, $\beta = 0.095$), and mental health ($P = 0.128$, $\beta = 0.58$). However, perceived health was significantly associated with age ($P = 0.039$, $\beta = 0.61$), sex ($P = 0.002$, $\beta = 9.33$), and physical activity ($P = 0.002$, $\beta = 5.00$). Significant positive relationships were also observed between mental health and working experience ($P = 0.014$, $\beta = 0.19$), intellectual health and age ($P = 0.000$, $\beta = 0.12$), and intellectual health and physical activity ($P = 0.006$, $\beta = 0.93$). Besides, physical health was positively associated with age ($P = 0.057$, $\beta = 0.13$) and physical activity ($P = 0.012$, $\beta = 0.95$). Additionally, a significant positive association was observed between spiritual health and sex ($P = 0.031$, $\beta = 1.45$) as well as physical activity ($P = 0.004$, $\beta = 1.07$). Finally, emotional health was positively related to sex ($P = 0.000$, $\beta = 3.03$) and physical activity ($P = 0.023$, $\beta = 0.99$). No significant reverse relationships were observed among the study variables.

5. Discussion

The study results indicated that more than half of the staff had mild physical activity, which is in line with the findings of the studies performed by Sadeghpour et al. Verloigne et al. and Caban-Martinez et al. (16-18). Besides, most of the staff under the present investigation had a normal BMI. In contrast, almost half of the participants of the study by Hojjati and Alipour were overweight and obese (19). Hojjati and Alipour also reported that more than half of their participants were overweight and obese (19).

Based on the results presented in Table 3, physical activity was associated with all dimensions of perceived health, except for social health, which is on the contrary to the results of the study performed by Kim et al. (2012) on Chinese students (20). However, Song and Zhang (2011) assessed the effect of exercise on reduction of behavioral problems among adolescents and came to similar results to those of the present study (21). On the other hand, Sebire et al. evaluated the relationship between exercise self-efficacy and perceived health and came to the conclusion that exercise self-efficacy was not related to social health (22). Of course, social health has to be evaluated with respect to social support dimensions, which is supported by the results obtained by Wallace et al. (23, 24).

Considering the relationship between physical activity and mental health, Lee and Russell performed 2 long-term and cross-sectional studies on Australian women. In the long-term research, a weak relationship was observed in

Table 3. Multivariate Linear Regression Analysis for Perceived Health Dimensions, Demographic Variables, and Physical Activity

Studies Main Vari- ables	Dimension's of Perceived Health																				
	Emotional Health			Spiritual Health			Physical Health			Intellectual Health			Mental Health			Social Health			Perceived Health		
	Variables	β	SE	T	β	SE	t	β	SE	t	β	SE	T	β	SE	t	β	SE	t	β	SE
Age	0.07	0.08	0.92	0.06	0.06	0.95	0.13	0.06	1.91 ^a	0.12	0.03	4.12 ^b	-	0.06	0.06	0.10	0.06	1.58	0.61	0.29	2.07 ^c
Gender	3.03	0.81	3.71 ^b	1.45	0.67	2.16 ^c	-	-	-	-	-	-	-	-	-	-	-	-	9.33	3.02	3.09 ^b
Marital status	0.27	0.61	0.44	0.73	0.51	1.43	0.39	0.53	0.74	0.48	0.47	1.02	-0.19	0.54	-0.36	-0.14	0.50	-0.29	2.28	2.27	1.00
Educational level	-0.23	0.49	0.46	-	-	-	0.23	0.41	0.57	-0.13	0.36	-0.36	-0.04	0.42	-0.11	0.03	0.39	-0.09	-1.08	1.80	-0.59
Field of occupation	0.50	0.37	-1.32	-0.38	0.31	-1.21	-	-	-	0.26	0.29	-0.89	-	-	-	-	-	-	1.92	1.40	-1.37
Work Experience	0.14	0.09	1.53	0.02	0.07	0.39	0.01	0.07	0.17	-	-	-	0.19	0.07	2.47 ^c	0.06	0.07	0.84	0.33	0.33	0.99
BMI	0.03	0.07	0.50	-	-	-	-	-	-	0.02	0.05	0.36	-0.01	0.06	-0.19	-	-	-	-0.12	0.26	-0.48
Physical activity	0.99	0.43	2.28 ^a	1.07	0.36	2.93 ^c	0.95	0.37	2.52 ^c	0.93	0.33	2.78 ^b	0.56	0.38	1.52	0.09	0.35	0.26	5.00	1.91	3.1 ^b

^ap < 0.01.

^bp < 0.0.

^cp < 0.05.

this regard. Indeed, the women who had changed from an active to inactive status showed more negative changes in mental health compared to those who had always been inactive (25). However, these results were not in agreement with those of other investigations (26-28).

The findings of our study revealed a strong positive relationship between perceived health and physical activity, which is consistent with the results of the study by Mohammadzadeh et al. (29). Similar results were also obtained by Mohammadzadeh and Hasanzadeh (2003), who believed that taking part in physical activities and exercises was effective in positive perception of actual health or health image (30).

Based on the current study results, physical activity was associated with emotional, intellectual, and physical health. Similarly, Brach et al. reported that the old individuals who did mild to moderate physical activities for 20 - 30 minutes on most days of the week had better physical function compared to the inactive individuals (31). The findings of the study by Sidman were also consistent with those of our investigation (22). Previous studies also showed a relationship between exercise and some dimensions of health. For instance, Bezner, Adams, and Whistler indicated that high physical activity levels were associated with high scores of mental and physical health in PWS (32).

A notable point in this study was that, we used the questionnaires that had been valid on the Iranian population.

Furthermore, the relationship between perceived wellness and physical activity were considered that has not been reported in Iran yet.

One of the limitations of this study was that no studies were previously conducted simultaneously on perceived health, physical activity, and demographic variables; therefore, we did not have a reference for comparison. Another study limitation was dispersion of the colleges of Shiraz University of Medical Sciences, which led to the inability to select the participants through random sampling. Additionally, most of the study participants were female, which might be due to the fact that either the number of female staff was higher compared to the males or the female staff cooperated more in filling out the questionnaires. Thus, the study results could only be generalized to the female staff. Finally, this study was a cross-sectional and could only identify the relationship between the variables at a particular point of time. Hence, further longitudinal studies are recommended to evaluate the changes in these variables over time.

5.1. Conclusion and Suggestions

Considering the staff's insufficient physical activity, the strong relationship between physical activity and health as well as its impact on the organization's direct and indirect costs, health promotion programs and policies have to be designed focusing on the staff's physical ac-

tivity. Furthermore, future longitudinal studies are suggested to be conducted on perceived health and physical activity in various populations considering other beliefs, such as exercise self-efficacy, motivation for exercising, and other health-based measures.

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