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Lifestyle in People Living With HIV: A Study of Patients in Kermanshah, Iran

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Alireza Zanganeh, Msc[1], Nahid Khademi, PhD[2], Arash Ziapour, Msc, PhD[3], Naser Farahmandmoghadam, Msc[4], Neda Izadi, PhD[5], Shahram Saeidi, Msc[1], Amirreza Aghayani, PhD[6], Raziyeh Teimouri, PhD[7], Shahrzad Moghadam, PhD[8], Ali Khodaey, Msc[8], Seyed Ramin Ghasemi, PhD[9], and Reza Pourmirza Kalhori, PhD[10]

Abstract

There is limited research on the role of lifestyle in people living with HIV (PLWH). This study investigated the health-promoting lifestyle among PLWH in Kermanshah-Iran. This cross-sectional study was conducted in 321 PLWH patients referred to the Kermanshah Behavioral Diseases counseling Center between 2017 and 2018. Patients were selected using the convenience sampling method. Data was collected using a standard health promotion lifestyle profile (HPLP-II) questionnaire. Regression and *T*-tests were used in SPSS 21 and Stata software to analyze the data. The mean age of patients was 41.07 ± 9.14 years. The mean HPLP score of patients in stress management had the lowest mean score (19.44 ± 4.22), and health responsibility had the highest mean score (22.22 ± 4.57). Comparisons between women and men also showed that women had a lower mean score than men in stress management. In addition, significant differences in their HPLP were observed only in the area of physical activity. The final model had significant influence on the PLWH ($P < .001$), in which the main predictors were housing status, family members, and feelings of happiness. These variables had a negative effect on HPLP in PLWH's. An appropriate education and training has improved the PLWH health-oriented lifestyle. Given that the housing situation affected health responsibility, nutrition, spiritual growth, interpersonal relationships, and stress management, may have caused severe anxiety and confusion in PLWH. Addiction also had a negative effect on patients' spiritual growth. Relatively simple lifestyle changes such as nutrition and stress management can significantly improve PLWH.

Keywords

healthy lifestyle, lifestyles, health behavior, health promotion, people living, HIV, AIDS

What do we already know about this topic?
There is limited research on the role of lifestyle in people living with HIV (PLWH). Iran is one of the countries where few studies have been conducted this disease.

How does your research contribute to the field?
Increasing awareness of HIV allows infected people to live long, healthy lives.
Lifestyle plays an essential role in the exacerbation or persistence of disease. It has other consequences, such as feelings of emptiness and dissatisfaction with life, lower life expectancy, poorer quality of life, and higher health care burden.
Healthy lifestyle is a helpful source for reducing stressors and significantly reduces health care costs, increases life expectancy, and improving quality of life.

What are your research's implications toward theory, practice, or policy?
The research's implications can be used to extend theories and to design interventions that can enhance these programs' ability to change behavior rather than treat.
Relatively simple lifestyle changes such as nutrition and stress management can significantly improve PLWH.
Appropriate level of education and training has improved the PLWH health-oriented lifestyle.

Background

Human immunodeficiency virus HIV/AIDS (Acquired immune deficiency syndrome) is one of the major health problems and one of the main obstacles to the development of societies in the world, especially in developing countries.[1] There is no cure for this disease, and to date, 36.3 million people have died from this disease.[2] However, with increasing awareness of methods of prevention, diagnosis, treatment, and patient care, HIV has become a chronic controllable disease that allows infected people to live long, healthy lives.[3]

Maintaining a healthy lifestyle through treatment, safe sexual practices, and using sterile needles is essential to prolonging the lives of people living with HIV (PLWH) and reducing the spread of the virus. Identifying people at risk for unhealthy behaviors, recognizing specific barriers to living safely with HIV, and understanding the psychological, social, and lifestyle factors that lead to treatment are key to preventing mortality and improving the overall health of people with HIV.[4]

Inappropriate lifestyle is one of the most influential factors in the occurrence of disease and many health problems. Thus, lifestyle plays an important role in the exacerbation or persistence of disease and has other consequences such as feelings of emptiness and dissatisfaction with life, lower life expectancy, poorer quality of life, and higher health care burden.[5] The results of other studies suggest that health-promoting behaviors and, of course, a healthy lifestyle contribute significantly to prolonging life and life expectancy.[2] In addition, a healthy lifestyle is a useful source for reducing stressors. It significantly reducing health care costs, increasing life expectancy and improving quality of life.[6,7] The results of other studies on health-promoting lifestyle profiles (HPLP) have also shown that a healthy lifestyle prevented mother-to-child transmission of the disease in pregnant women.[8]

The results of other studies have highlighted the need for further studies on the PLWH, as few studies have been conducted to investigate all aspects of a health-promoting lifestyle in PLWH.[4] Iran as one of the countries few studies have been conducted on the lifestyle of patients despite their exposure to HIV.[9] Kermanshah is one of the centers of HIV disease in Iran, which is associated with social problems such as poverty, unemployment, and social inequalities that lead to inappropriate lifestyles.[2,10] Considering that few studies have been conducted on health-promoting lifestyles among PLWH in Iran and considering the importance of recognizing health-promoting behaviors in the implemented prevention programs, this study aimed to investigating health-promoting behaviors among people living with HIV in Kermanshah.

Methods

Data Extraction

This cross-sectional study was conducted on 321 HIV-infected patients referred to the Kermanshah Behavioral Diseases Counseling Center between 2017 and 2018 (Kermanshah University of Medical Sciences and Health Services, Department of Health, Group of Prevention and Control of Diseases). Patients were selected using the convenience sampling method. Convenience sampling was used for the following reasons: (1) The addresses and personal information of patients registered at the first admission were incorrect or incomplete. (2) Due to financial problems, some patients have to move and change their residence frequently, so it was difficult to track them. (3) Some patients were imprisoned, and it was difficult to find them after their release. (4) Some came from other provinces and could not be reached.

The patients who met the inclusion criteria were invited to participate in the research. The inclusion criteria confirmed the diagnosis of HIV, patient preparedness, voluntary participation and informed consent, having medical records at the counseling center, and the physical ability to answer the questionnaire. We considered patient preparedness as a criterion for entering the research because: (a) some patients were unable to respond to the survey questionnaire due to distinct medical and psychological conditions, therefore had to be postponed the answering questionnaire until the next time; (b) some patients were not prepared for participate in the research because they used drugs, so their response was not reliable. Thus, a counselor first assessed the patients to be provided with a questionnaire if they had preparedness; oth-

[1]Social Development & Health Promotion Research Center, Health Institute, Kermanshah University of Medical Sciences, Kermanshah, Iran
[2]Department of Medical Ethics, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
[3]Cardiovascular Research Center, Health Institute, Imam-Ali hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran.
[4]Clinical Research Development Center, Imam Khomeini and Mohammad Kermanshahi Hospitals, Kermanshah University of Medical Sciences, Kermanshah, Iran
[5]Department of Epidemiology, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[6]Student in bellerbyscollege –brighton, England
[7]UniSA Creative, University of South Australia, Adelaide, Australia
[8]Geography and Urban Planning, University of Zanjan, Zanjan, Iran
[9]Research Center for Environmental Determinants of Health (RCEDH), Health Institute, Kermanshah University of Medical Sciences, Kermanshah, Iran.
[10]Department of Medical Emergencies, School of Paramedical, Kermanshah University of Medical Sciences, Kermanshah, Iran

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Corresponding Author:
Nahid Khademi, Department of Medical Ethics, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
Email: nahidkhademi2003@yahoo.com

Table 1. Demographic Characteristics of Patients With PLWH by Gender in Kermanshah.

Variables	Female N (%)	Male N (%)	Total N (%)
Gender	157 (48.91)	164 (51.09)	321
Age in years			
Mean ± SD	38.77 ± 8.99	43.77 ± 8.77	41.07 ± 9.14
Education level n (%)			
Illiterate	33 (21)	10 (6.1)	43 (13.4)
Primary education	43 (27.4)	40 (24.4)	83 (25.9)
Secondary education	73 (46.5)	1040 (63.4)	117 (55.1)
Academic	8 (5.1)	10 (6.1)	18 (5.6)
Marital status n (%)			
Single	16 (10.2)	66 (40.2)	82 (25.5)
Married	80 (51)	84 (51.2)	164 (51.1)
Divorced	12 (7.6)	12 (7.3)	24 (7.5)
Widow	49 (31.2)	2 (1.2)	51 (15.9)
HIV status n (%)			
Asymptomatic	43 (27.4)	36(22)	79 (24.6)
Symptomatic	74 (47.1)	49 (29.9)	123 (38.3)
AIDS	40 (25.5)	79 (48.2)	119 (37.1)
Infection period n (%)			
>5 years	64 (40.8)	86 (52.4)	150 (46.7)
≤5 years	80 (51)	71 (43.3)	151 (47)
HIV transmission route n (%)			
Sex with a male or female	126 (80.3)	36 (22)	162 (50.5)
Injecting drugs	2 (1.3)	93 (56.7)	95 (29.6)
Other	29 (18.5)	35 (21.3)	64 (19.9)

erwise, completing the questionnaire would have been postponed. As a result, they were rescheduled for a later visit.

Data Analysis

Data were collected using a standard health promoting lifestyle questionnaire questionnaire-II. The HPLP-II is a measurement tool used to describe a healthy lifestyle.[11,12] Health-promoting lifestyle is measured by focusing on the individual's innovative actions and perceptions to maintain or increase levels of health, self-fulfillment, and personal satisfaction.[13] This questionnaire includes 52 questions with 6 dimensions of responsibility towards health (9 questions), physical activity (8 questions), nutrition (9 questions), spiritual growth (9 questions), interpersonal relationships (9 questions), and stress management (8 questions). The score range for each phrase is 1 to 4. Phrases are scored in 4 options (never, sometimes, often, and usually). In general, the health-promoting lifestyle score and the behavioral dimension score are calculated using the average of the responses for the total 52 questions and each sub-category. Walker et al[14] reported a Cronbach's alpha of .94 for this questionnaire, which ranged from .79 to .94 for 6 sub-indices. This tool has been used in several studies, and its validity and reliability have been demonstrated in diverse populations.[11,15].The validity and reliability of the Persian version of the questionnaire were confirmed in the study by Mohammadi Zeidi et al. with an alpha of .82.[16] Regression and *T*-tests were used for data analysis in STATA software.

Results

Table 1 shows the demographic data of our sample of patients with PLWH by according to gender.

The results showed that the mean HPLP score of patients had the lowest value in the stress management domain (19.44 ± 4.22) and the highest mean value in the health responsibility domain (22.22 ± 4.57). The comparison between women and men also showed that women had a lower mean score than men in the stress management domain (Table 2). In addition, significant differences in their HPLP were found only in physical activity (Table 2).

Regression Analysis for Health-Promoting Lifestyle in PLWH

The results showed: The first model was statistically significant for the health responsibility variable ($P < .001$). People living in the council house, family members, health status, and happiness were the main predictors of this model ($P < .001$; Table 3). The second model was significant for the physical activity variable ($P < .001$). The main predictors in this model were job and happiness (Table 3).

Table 2. Health-Promoting Lifestyle Score in PLWH by Sex in Kermanshah.

Variables	Female mean ± SD	Male mean ± SD	Total mean ± SD	*P*-value
Health responsibility	22.66 ± 4.33	21.78 ± 4.77	22.22 ± 4.57	0.317
Physical activity	20.68 ± 3.80	20.15 ± 4.57	20.41 ± 4.21	0.049
Nutrition	21.17 ± 3.95	20.28 ± 4.52	20.72 ± 4.26	0.153
Spiritual growth	22.60 ± 3.90	21.60 ± 4.44	22.09 ± 4.21	0.086
Interpersonal relations	21.76 ± 4.25	19.87 ± 4.29	20.80 ± 4.37	0.574
Stress management	19.36 ± 3.70	19.52 ± 4.65	19.44 ± 4.22	0.066
Lifestyle	129.01 ± 21.47	121.33 ± 22.76	125.19 ± 22.40	0.679

Note. *P*-value reported by *T*-test.

In the third model, the education, housing status, weight, health, and feeling of happiness were the main predictors in the regression model ($P < .001$; Table 3). The main predictors for the spiritual growth domain in the fourth model were education status, housing status, disease, and weight ($P < .001$; Table 3).

The fifth model was statistically significant for interpersonal relationships with the main predictors of housing status, family members, weight, and feeling of happiness ($P < .001$; Table 3). In the sixth model, the stress management was statistically significant ($P < .001$). The main predictors of secondary education were housing status, antibodies, and health (Table 3). The final model was significant for HPLP predictors in PLWH ($P < .001$), with the main predictors being housing status, family members, and happiness. (Table 3).

In the sixth model, the stress management was statistically significant ($P < .001$). The main predictors of secondary education were housing status, antibodies, and health (Table 3). The final model was important for HPLP predictors in PLWH ($P < .001$), with the main predictors being housing status, family members, and feelings of happiness. (Table 3).

Discussion

This study investigated HPLP in PLWH in the Kermanshah metropolis. Our research showed that health responsibility had the highest mean score (22.22 ± 4.57) among PLWH. These results are consistent with other studies.[17-19] health responsibility based on trust in others (eg, health professionals and training programs) may emphasize health improvement. This conceptually differs from other areas of HPLP that focus on self-initiative and management. Another explanation is that health responsibility has a different meaning and impact for PLWH than for people living with other chronic diseases. They likely take responsibility for protecting their health and the health of others under the influence of educational programs.[20,21]

The study's results show a significant difference between men and women in physical activity. As mentioned in other studies, this difference might have been influenced by economic, social, and cultural conditions.[22,23] Considering that physical activity is an important factor in increasing the well-being of HPLP.[24,25] The difference in physical activity between men and women may require intensive and targeted interventions.[25] Improving this aspect of HPLP's life has improved self-management skills and interpersonal relationships.[26] Participation in physical activity of people with HPLP is associated with various complex factors that should be considered in rehabilitation programs. Healthcare professionals should consider the physical pain and depressive feelings associated with HIV when helping people with HIV begin and maintain an active lifestyle. Interventions to improve self-efficacy and motivation, and to promote HIV-infected individuals' understanding of the benefits of exercise, may also encourage greater participation.[25,27] On the other hand, studies have suggested that HPLPs with high viral loads should have moderate physical activity rather than increased activity.[25] Because moderate-intensity physical activity improves immune function in people with HPLP, however, high-intensity exercise in HPLP has a suppressive effect on the immune system.[28,29]

In our study, educational level influenced nutrition, spiritual growth, and stress management in HPLP. The results of other studies have shown that education can help improve the daily decisions of patients and their families.[30] The level of education and adequate training have improved patients' health-oriented lifestyle and improved the quality of life and prevention of other diseases in this population.[31,32] The results of other studies emphasize the need for PLWH counseling and awareness of the benefits of health-promoting behaviors in dealing with stressful life events. In addition, as noted in the training programs, emphasizing self-care strategies, improving coping, and cognitive behaviors that reduce stress have been shown to be practical and cost-effective mechanisms for empowering PLWH.[33]

In this study, housing status affected health responsibility, nutrition, spiritual growth, interpersonal relationships, and stress management. As noted in other studies, lack of access to appropriate housing likely led to severe anxiety and confusion among PLWH. Unstable housing has been associated with non-compliance among American adolescents.[34] Inappropriate and dependent housing have been associated with poor outcomes in PLWH.[35] The results of other studies

Table 3. Analysis of Health-Promoting Lifestyle Linear Regression Coefficients in PLWH in Kermanshah.

Models	Variables	Categories	Coefficient	SE	*P*-value	Adjusted R^2	*P*-value
Health responsibility (1)	House	Private house	–	–	–	0.19	<0.001
		Rented house	0.06	0.64	0.92		
		Council house	−12.50	4.45	<0.001		
		Parents' house	−0.60	0.92	0.51		
		Other	−1.45	1.35	0.28		
	Family members	–	0.50	0.17	<0.001		
	Health	–	1.05	0.36	<0.001		
	Feeling of happiness	–	−0.58	0.42	<0.001		
Physical activity (2)	Job	–	−0.60	0.62	0.01	0.20	<0.001
	Feeling of happiness	–	−1.36	0.38	<0.001		
Nutrition (3)	Education level	Illiterate	–	–	–	0.27	<0.001
		Primary education	1.00	0.78	0.19		
		Secondary education	1.61	0.75	0.03		
		University	–0.01	1.33	0.99		
	House	Private house	–	–	–		
		Rented house	−0.42	0.58	0.46		
		Council house	−9.98	2.97	<0.001		
		Parents' house	−1.49	0.79	0.07		
		Other	−2.15	1.31	0.10		
	Weight	–	0.46	0.02	0.02		
	Health	–	1.16	0.31	<0.001		
	Feeling of happiness	–	−1.32	0.38	<0.001		
Spiritual growth (4)	Education level	Illiterate	–	–	–	0.13	<0.001
		Primary education	1.27	0.80	0.11		
		Secondary education	1.69	0.78	0.03		
		University	0.47	1.34	0.72		
	House	Private house	–	–	–		
		Rented house	−0.37	0.62	0.55		
		Council house	−7.36	3.14	0.02		
		Parents' house	−0.98	0.83	0.24		
		Other	−2.02	1.35	0.13		
	HIV transmission	Sex with a male or female	–	–	–		
		Injecting drugs	−2.72	1.26	0.03		
		Other	−1.17	1.00	0.24		
	Weight	–	0.04	0.02	0.02		
Interpersonal relations (5)	House	Private house	–	–	–	0.22	<0.001
		Rented house	−0.77	0.62	0.21		
		Council house	−7.21	3.13	0.02		
		Parents' house	−0.55	0.84	0.51		
		Other	−1.99	1.34	0.13		
	Family members	–	0.32	0.15	0.03		
	Weight	–	0.04	0.02	0.02		
	Feeling of happiness	–	−1.22	0.40	<0.001		
Stress management (6)	Education level	Illiterate	–	–	–	0.15	<0.001
		Primary education	1.37	0.83	0.10		
		Secondary education	1.66	0.80	<0.001		
		University	−0.43	1.36	0.75		
	House	Private house	–	–	–		
		Rented house	−0.43	0.63	0.49		
		Council house	−8.57	3.16	<0.001		
		Parents' house	−2.35	0.87	<0.001		
		Other	−1.89	1.31	0.15		

(continued)

Table 3. (continued)

Models	Variables	Categories	Coefficient	SE	*P*-value	Adjusted R^2	*P*-value
	HIV status	Asymptomatic	–	–	–		
		Symptomatic	−1.54	0.68	0.02		
		AIDS	−0.86	0.66	0.19		
	Health	–	0.77	0.33	0.02		
Lifestyle (7)	House	Private house	–	–	–	0.24	<0.001
		Rented house	−3.56	3.66	0.33		
		Council house	−55.04	22.59	0.01		
		Parents' house	−8.60	5.09	0.09		
		Other	−12.21	7.69	0.11		
	Family members	–	2.11	0.94	0.02		
	Feeling of happiness	–	−7.28	2.48	<0.001		

conducted in Iran have shown that housing costs are the highest for households in Iran.[36] The high cost of housing may have resulted in households not having the money to buy food, which affected the study results. As other studies emphasized, intervention to strengthen social support for this population and programs to improve their living standards are needed.[37] No study was found that investigated these conditions in other provinces of Iran, so we do not have adequate data for comparison. However, considering the characteristics of this disease and the socio-economic aspects of these patients, this condition may have been replicated in other parts of Iran for PLWH. As emphasized in a study in Brazil, studies should be conducted in different countries to determine whether this problem has been repeated or not.[37] The results of this study showed that family members had a positive impact on health responsibility and interpersonal relationships. However, the results of other studies have shown that interpersonal relationships in PLWH may discourage others from genuinely supporting PLWH due to HIV-related stigma.[38] As other studies have noted, interpersonal support and resources are particular importance to people's well-being because interpersonal relationships are so valuable in a collectivist culture; good interpersonal relationships reduce patients' stress and increase their sense of happiness. Family is an important source of emotional support and a tool that can facilitate PLWH living conditions. Positive interactions, sharing, love, and trust can enhance positive emotions and perceived motor support, enabling PLWH to cope effectively with negative illness and stigma and improve their well-being. Therefore, such interpersonal resources may reduce mental health problems and bring about positive changes in PLWH.[39] The results of our study indicated that addiction negatively affects had a patients' spiritual growth. Researchers have found a positive relationship between spirituality and coping with HIV. However, the results of some studies also indicated that no relationship had been observed between spirituality and PLWH lifestyle.[40] Drug use can sometimes increase HPLP, especially in the short term. For example, smoking can meet an urgent need, lead to pleasant emotions, and serve as a coping mechanism. The short-term benefits of smoking may offset the negative effects of long-term smoking.[20]

Strengths and Weaknesses of Research

The participants were individuals people who were referred to the Behavioral Disease Center. Therefore, they may have a healthier lifestyle than people who did not seek regular health care. The questionnaires were completed according to the information provided by the participants. It is important to note that participants may provide socially desirable answers because of poor recall. In addition, due to the cross-sectional design, it was not possible to draw causal. The patients were selected by convenience sampling methods, which can lead to a sampling bias. The convenience sampling method might pose bias in the external validity of the findings.

Conclusion

PLWH had the highest mean score in health responsibility and physical activity, with a significant difference between men and women, probably influencing by economic, social, and cultural conditions. Also, Education level influenced HPLP nutrition, spiritual growth, and stress management. An adequate education and training level improved patients' health-oriented lifestyle. Because that housing status affected health responsibility, nutrition, spiritual growth, interpersonal relationships, and stress management, may have caused severe anxiety and confusion in PLWH. Also, had a negative impact on patients' spiritual growth. Relatively simple lifestyle changes such as nutrition and stress management can significantly improve PLWH. Health policymakers focus on improving outcomes rather than just monitoring CD4+ Tcell results and viral load. They should also incorporate individual counseling, patient education, and cognitive therapy into their management or care programs to improve patients' lifestyle.

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Author Contributions

AZ and NK conceived and designed the study, was responsible for study coordination and drafted the main content of the manuscript. AZ, SS, and SRG contributed to drafting the manuscript and analyzing the data. NI, AA, RPK, and RT assisted in reviewing protocol, study coordination in the field, and reviewing the manuscript. AZ, SM, and AK critically reviewed the manuscript for important intellectual content and made the main revisions.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical Approval

All procedures performed in the study were approved by the ethical committee of the Kermanshah University of Medical Sciences (approval ID=IR.KUMS.REC.1396.483). Also informed consent was obtained from all participants. All methods were carried out in accordance with relevant guidelines and regulations.

ORCID iDs

Alireza Zanganeh https://orcid.org/0000-0001-9692-9655
Arash Ziapour https://orcid.org/0000-0001-8687-7484

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