



# Perceived Behavioral Etiology of Cardiovascular Diseases Is Able to Predict a Health-Promoting Lifestyle in Men Under Methadone Therapy in Kermanshah City, 2017

Behzad Heydarpour<sup>1</sup>, Ali Soroush<sup>2</sup>, Mohammad Mahdi Amiri<sup>2</sup> and Saeid Komasi<sup>3,\*</sup>

<sup>1</sup>Cardiac Rehabilitation Center, Imam Ali Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

<sup>2</sup>Lifestyle Modification Research Center, Imam Reza Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

<sup>3</sup>Clinical Research Development Center, Imam Reza Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

\*Corresponding author: Clinical Research Development Center, Imam Reza Hospital, Kermanshah University of Medical Sciences, Zakarya Razi Boulevard, Kermanshah, Iran. Tel: +98-8334276299, Fax: +98-8334276299, Email: s\_komasi63@yahoo.com

Received 2018 September 26; Revised 2018 November 13; Accepted 2018 December 20.

## Abstract

**Objectives:** The present study was conducted to examine the relationship between the perceived behavioral risk factors of cardiovascular diseases (CVDs) and health-promoting lifestyle in men under methadone therapy.

**Methods:** In this cross-sectional study, 68 patients who referred to methadone-maintenance treatment (MMT) centers in Kermanshah city were assessed during September 2017. Perceived heart risk factors scale (PHRFS) and health promoting lifestyle profile (HPLP-II) were used for data collection. The data were analyzed using multivariate linear regression analysis.

**Results:** The mean age of the patients was  $39.4 \pm 13.3$  years. The results of correlation and regression analysis showed that there was a significant direct relationship between perceived behavioral risk factors and all subscales of HPLP-II ( $P < 0.001$ ). The model generally could explain the variance of 14.9% to 35.8% related to healthy lifestyle components.

**Conclusions:** It can be concluded that understanding harmful heart behavior patterns by drug addicts under methadone therapy may lead to adopting a comprehensive healthy lifestyle. Training must be focused on improved knowledge and perception of the drug addicts about behavioral risk factors of CVDs.

**Keywords:** Cardiovascular Disease, Drug Addiction, Lifestyle, Risk Factors, Perception.

## 1. Background

Drug addiction, defined as a chronic, progressive, and destructive illness, is common throughout the world (1), although there is plenty of studies on heart risk factors among smokers (2), there is a shortage of studies on cardiovascular diseases (CVDs) risk factors among drug addicts (3). A new report shows that after controlling all the cardiac risk factors, drug addiction increases the risk of CVDs up to 38 times (3). In addition, drug addiction is often accompanied by a long-term harmful lifestyle (4). Many health models noted that how the incorrect and dysfunctional understanding of people about cardiovascular risk factors affects their healthy behaviors (5). In other words, the perception of heart risk and prevention of CVDs requires an appropriate understanding of the disease risk factors (5). Perceived heart risk factors (PHRFs) include five classes of biological (gender, age, and family history), environmental (smoke and toxic substances, water and air pollution, and war), physiological (diabetes, high blood pres-

sure, high cholesterol, and obesity), behavioral (nutrition, smoking and drug abuse, sedentary lifestyle, and physical work pressure), and psychological risk factors (anger and hostility, stress, anxiety, and depression) (6). In the primary prevention phase, identification of the cognitive factors associated with adopting a healthy lifestyle can be effective in controlling the fatal cardiac problems. Thus it is necessary to study the relationship between all or some of the PHRF components and the health-promoting lifestyle.

## 2. Objectives

According to these considerations, the present study was conducted to examine the relationship between the perceived behavioral risk factors of CVDs and a health-promoting lifestyle.

### 3. Methods

This was a cross-sectional study. In September 2017, 68 patients who referred to methadone maintenance treatment (MMT) centers in Kermanshah city were studied. After obtaining written informed consent, the participants were randomly selected and answered to the questionnaires to participate in the study. Subscale of behavioral risk factors from the PHRFs scale with Iranian validation and standardization (6) and health promoting lifestyle profile (HPLP-II) (7) as valid instruments were provided for the patients by an expert clinical psychologist. The PHRFs was a 25-item-self-report scale that includes five subscales. The scale evaluated biological (3 items), environmental (5 items), behavioral (6 items), psychological (7 items), and physiological risk factors (4 items). Each item was rated on a 5-point Likert-type scale (0: never - 4: very great); higher scores indicated higher perceived risk factors. In the Iranian population, Cronbach's alpha of the total scale and behavioral components are 0.93 and 0.82, respectively. The scale has a good content and constructs validity (6). HPLP-II is a 52-item-questionnaire with 6 subscales, including health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The scoring is based on the Likert scale (never = 1, sometimes = 2, often = 3, always = 4). In the Iranian population, Cronbach's alpha of the total scale is 0.78 (7). The participants completed the forms after receiving the necessary explanations. After confirming no violations of statistical assumptions, data were analyzed using the Pearson correlation coefficient. A multivariate linear regression analysis was used to determine the role of the perceived behavioral risk factors in prediction of the health-promoting lifestyle. All statistical analyses were performed using the SPSS software version 21.

### 4. Results

According to the findings, the participants (100% male) aged between 18-67 years (with the mean and standard deviation of  $39.4 \pm 13.3$  years). Demographic data showed 52.9% of the samples were married, 51.5% under diploma and 48.5% diploma or higher education, and 72.1% employed. History of hyperlipidemia (30.9%), overweight (17.6%), hypertension (13.2%), myocardial infarction (8.8%), and diabetes (4.4%) were the most common risk factors, respectively. In relation to the main analysis, the correlation between the perceived behavioral risk factors and subscales of the health-promoting lifestyle was shown in Table 1. There is a significant relationship between perceived behavioral risk factors and all subscales of health-promoting lifestyle ( $P < 0.001$ ).

Multivariate regression model for prediction of the components related to the health-promoting lifestyle was shown in Table 2. In the regression model, the perceived behavioral risk factors significantly are able to predict all the components of a health-promoting lifestyle ( $P < 0.001$ ). The model summary showed that the predictive variable can explain the variance of 14.9% to 35.8% related to the lifestyle components.

### 5. Discussion

Our results showed that perceived behavioral risk factors are effective in the prediction of a health-promoting lifestyle. In other words, those who have a better understanding of behavioral risk factors equally adopt a healthier lifestyle. According to the current findings, it can be concluded that understanding harmful heart behavior patterns by drug addicts leads to adopting a comprehensive healthy lifestyle. In agreement with our results, previous studies also showed that appropriate recognition and understanding of harmful behaviors are effective in following a healthy lifestyle (8, 9). The results of a new report indicated that awareness of heart disease and its risk factors leads to adopting a healthy lifestyle (9). Obviously, behavioral risk factors of CVDs can be controlled by the person. This issue is generally associated with internal locus of control. Subsequently, internal locus of control can result in a healthy lifestyle in high-risk populations (10).

Generally, it seems that screening and scanning of drug addicts' behavioral perceptions during methadone therapy has a significant impact on adopting a healthy lifestyle. Subsequently, training must be focused on improved knowledge and perception of the drug addicts about behavioral risk factors of CVDs. It is necessary to highlight the importance of the behavioral risk factors of CVDs by health professionals.

The small sample size and single-sex examination (only men) were the main limitations of this study. Larger sample size and a simultaneous study of men and women in future studies can reduce potential bias and provide more accurate results.

### Acknowledgments

We appreciate the Clinical Research Development Center of Imam Reza Hospital, Kermanshah University of Medical Sciences.

### Footnotes

**Authors' Contribution:** All authors participated in designing the study, writing the manuscript. They all read and approved the final manuscript.

**Table 1.** The Pearson Correlation Between the Perceived Behavioral Risk Factors and Subscales of Health-Promoting Lifestyle

Subscales of Health-Promoting Lifestyle	Mean ± SD	Perceived Behavioral Risk Factors	
		r	P Value
Health responsibility	21.8 ± 5.2	0.422	0.001
Physical activity	14.7 ± 5.7	0.388	0.001
Nutrition	23.9 ± 5.5	0.599	0.001
Spiritual growth	23.1 ± 4.6	0.589	0.001
Interpersonal relations	22.5 ± 4.5	0.550	0.001
Stress management	17.8 ± 5.3	0.386	0.001
Perceived behavioral risk factors	18.0 ± 3.7	-	-

**Table 2.** The Multivariate Regression Model for Prediction of the Components Related to the Health-Promoting Lifestyle

Predictive Factor	Criterion Variables (Lifestyle Subscales)	B	$\beta$	t	P Value
Perceived Behavioral risk factors	Health responsibility <sup>a</sup>	0.581	0.422	3.786	0.001
	Physical activity <sup>b</sup>	0.587	0.388	3.415	0.001
	Nutrition <sup>c</sup>	0.885	0.599	6.073	0.001
	Spiritual growth <sup>d</sup>	0.721	0.589	5.919	0.001
	Interpersonal relations <sup>e</sup>	0.667	0.550	5.353	0.001
	Stress management <sup>f</sup>	0.547	0.386	3.403	0.001

<sup>a</sup>Summary of the model for health responsibility: R = 0.422, R<sup>2</sup> = 0.178, F = 14.330, P < 0.001.

<sup>b</sup>Summary of the model for physical activity: R = 0.388, R<sup>2</sup> = 0.150, F = 11.663, P < 0.001.

<sup>c</sup>Summary of the model for nutrition: R = 0.599, R<sup>2</sup> = 0.358, F = 36.880, P < 0.001.

<sup>d</sup>Summary of the model for spiritual growth: R = 0.589, R<sup>2</sup> = 0.347, F = 35.033, P < 0.001.

<sup>e</sup>Summary of the model for interpersonal relations: R = 0.550, R<sup>2</sup> = 0.303, F = 28.656, P < 0.001.

<sup>f</sup>Summary of the model for stress management: R = 0.386, R<sup>2</sup> = 0.149, F = 11.583, P < 0.001.

**Conflict of Interests:** None of the authors have reported conflict of interests.

**Funding/Support:** None.

**Patient Consent:** After obtaining written informed consent, the participants were randomly selected and answered to the questionnaires to participate in the study.

## References

- Komasi S, Saeidi M, Zakiie A, Amiri MM, Soltani B. Cognitive restructuring based on metaphor therapy to challenge the irrational beliefs of drug addicts undergoing buprenorphine treatment. *Int J High Risk Behav Addict.* 2017;6(1). doi: [10.5812/ijhrba.31450](https://doi.org/10.5812/ijhrba.31450).
- Hackshaw A, Morris JK, Boniface S, Tang JL, Milenkovic D. Low cigarette consumption and risk of coronary heart disease and stroke: Meta-analysis of 141 cohort studies in 55 study reports. *BMJ.* 2018;360:j5855. doi: [10.1136/bmj.j5855](https://doi.org/10.1136/bmj.j5855). [PubMed: [29367388](https://pubmed.ncbi.nlm.nih.gov/29367388/)]. [PubMed Central: [PMC5781309](https://pubmed.ncbi.nlm.nih.gov/PMC5781309/)].
- Masoomi M, Ramezani MA, Karimzadeh H. The relationship of opium addiction with coronary artery disease. *Int J Prev Med.* 2010;1(3):182-6. [PubMed: [21566789](https://pubmed.ncbi.nlm.nih.gov/21566789/)]. [PubMed Central: [PMC3075529](https://pubmed.ncbi.nlm.nih.gov/PMC3075529/)].
- Davies G, Elison S, Ward J, Laudet A. The role of lifestyle in perpetuating substance use disorder: The Lifestyle Balance Model. *Subst Abuse Treat Prev Policy.* 2015;10:2. doi: [10.1186/1747-597X-10-2](https://doi.org/10.1186/1747-597X-10-2). [PubMed: [25595205](https://pubmed.ncbi.nlm.nih.gov/25595205/)]. [PubMed Central: [PMC4326198](https://pubmed.ncbi.nlm.nih.gov/PMC4326198/)].
- Soroush A, Komasi S, Saeidi M, Heydarpour B, Carrozzino D, Fulcheri M, et al. Coronary artery bypass graft patients' perception about the risk factors of illness: Educational necessities of second prevention. *Ann Card Anaesth.* 2017;20(3):303-8. doi: [10.4103/aca.ACA\\_19\\_17](https://doi.org/10.4103/aca.ACA_19_17). [PubMed: [28701594](https://pubmed.ncbi.nlm.nih.gov/28701594/)]. [PubMed Central: [PMC5535570](https://pubmed.ncbi.nlm.nih.gov/PMC5535570/)].
- Saeidi M, Komasi S. Reliability and validity of perceived heart risk factors scale. *Ann Card Anaesth.* 2017;20(1):114-6. doi: [10.4103/0971-9784.197851](https://doi.org/10.4103/0971-9784.197851). [PubMed: [28074811](https://pubmed.ncbi.nlm.nih.gov/28074811/)]. [PubMed Central: [PMC5290683](https://pubmed.ncbi.nlm.nih.gov/PMC5290683/)].
- Tanjani PT, Azadbakht M, Garmaroudi G, Sahaf R, Fekrizadeh Z. Validity and reliability of health promoting lifestyle profile ii in the Iranian elderly. *Int J Prev Med.* 2016;7:74. doi: [10.4103/2008-7802.182731](https://doi.org/10.4103/2008-7802.182731). [PubMed: [27280010](https://pubmed.ncbi.nlm.nih.gov/27280010/)]. [PubMed Central: [PMC4882969](https://pubmed.ncbi.nlm.nih.gov/PMC4882969/)].
- Kucuk E. Health perception and healthy lifestyle behaviors of female factory workers. *Arch Environ Occup Health.* 2016;71(4):216-21. doi: [10.1080/19338244.2015.1058237](https://doi.org/10.1080/19338244.2015.1058237). [PubMed: [26067209](https://pubmed.ncbi.nlm.nih.gov/26067209/)].
- Ramachandran HJ, Wu VX, Kowitlawakul Y, Wang W. Awareness, knowledge and healthy lifestyle behaviors related to coronary heart disease among women: An integrative review. *Heart Lung.* 2016;45(3):173-85. doi: [10.1016/j.hrtlng.2016.02.004](https://doi.org/10.1016/j.hrtlng.2016.02.004). [PubMed: [26961078](https://pubmed.ncbi.nlm.nih.gov/26961078/)].
- Shabaraya G, Romate J, Bhogle S. Relationship between Adolescents' Health Beliefs and Health Behavior. *Int J Med Public Health.* 2011;1(3). doi: [10.5530/ijmedph.3.2011.9](https://doi.org/10.5530/ijmedph.3.2011.9).