Asian Journal of Psychiatry 20 (2016) 55–60

Contents lists available at ScienceDirect

Asian Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ajp

Prevalence of anxiety and depression symptoms and their relationship with other coronary artery disease risk factors: A population-based study on 5900 residents in Southeast Iran

Hamid Najafipour [a], Ghodsiyeh Banivaheb [b], Abdolreza Sabahi [c,*], Nasrollah Naderi [d], Maryam Nasirian [e], Ali Mirzazadeh [f,g]

[a] Physiology Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
[b] Shahid Beheshti Hospital, Kerman University of Medical Sciences, Kerman, Iran
[c] Center for Religious Studies and Medicine, Kerman University of Medical Sciences, Kerman, Iran
[d] Shahid Beheshti Hospital, Kerman University of Medical Sciences, Kerman, Iran
[e] Epidemiology, Center for Modeling in Health, Kerman University of Medical Sciences, Kerman, Iran
[f] Cardiovascular Research Center, Institute of Basic and Clinical Physiology Sciences, Kerman University of Medical Sciences, Kerman, Iran
[g] Global Health Sciences, University of California, San Francisco, CA, USA

ARTICLE INFO

Article history:
Received 11 April 2015
Received in revised form 23 December 2015
Accepted 1 January 2016

Keywords:
Anxiety
Depression
Risk factors
Coronary artery disease

ABSTRACT

Introduction: Anxiety and depression are reported as the most prevalent psychiatric disorders worldwide. Here, we studied the prevalence of such disorders with co-morbidities of coronary artery disease (CAD) risk factors in an urban population in Iran.
Methods: 5900 people were selected from 15 to 75-years-olds through single-stage cluster sampling. In addition to examining them for CAD risk factors, Beck anxiety and depression inventories were used to measure anxiety and depression symptoms. The standardized population prevalence of such disorders is reported and the predictors of having anxiety or depression were assessed using Poisson regression model.
Results: Overall 25.4% had moderate and 22.7% had severe anxiety. Severe anxiety significantly and constantly increased by age groups ($p = 0.01$). The risk for anxiety was higher among females (Adjusted Risk Ratio, ARR 1.2), and those who were student/soldier (ARR 1.07). Those with high level of physical activity were at lower risk for anxiety (ARR 0.92). The risk of depression (any level) was higher among females (ARR 1.3), those holding high-school level of education (ARR 1.41), and those who used opium either occasionally (ARR 1.17) or frequently (ARR 1.3). Both anxiety and depression were significantly associated with two main CAD risk factors, low physical activity and opium use.
Conclusion: We found that the majority of residents in Kerman, particularly women, are suffering from mild to server depression and anxiety symptoms. Public health interventions to increase public awareness on such symptoms, screening and delivery of prevention and treatment services are required to prevent from the growing burden of such disorders and cardiovascular diseases.

1. Introduction

Anxiety disorders are the most common and depression is one of the most prevalent psychiatric disorders (Akiskal, 2009; Pine, 2009). It is predicted that by 2020 depression will be the second most prevalent disease after cardiovascular diseases (CVD) and will account for 15% of all diseases (Takeuchi et al., 1998. Unipolar depression was the fourth most common cause of burden of disease (DALY[1]) in 2001 and it is predicted to be the second most by 2020 (Christopher, 1994). Depression is the major contributor to burden of disease among women (Christopher, 1999). Generally 10 to 25% of women and 5 to 10% of men develop depression during some period of their life (Pine, 2009). Anxiety is a general term for a

* Corresponding author. Tel.: +98 3412264071; fax: +98 3412264097.
E-mail addresses: abdsaba@kmu.ac.ir, kerman.physiology@gmail.com (A. Sabahi).

[1] Disability adjusted life years.

http://dx.doi.org/10.1016/j.ajp.2016.01.004
1876-2018/

class of psychiatric disorders including generalized anxiety disorder, panic disorders, specific and social phobias and so on. Also, anxiety is considered as a symptom of other mental and somatic diseases.

In today's world, given the complexities of industrialized life, the rapid growth of population, urbanization and immigration, the contribution of anxiety and depression to different somatic and mental diseases is increasingly rising. Observational studies indicate that psychological factors strongly influence the course of coronary artery disease (CAD) and there is significant association between these risk factors and CAD (Rozanski et al., 2005). CVD is one of the significant diseases that result from anxiety and depression (Ghasemipoor and Ghorbani, 2010), and currently is the leading cause of death in most countries. The risk of CAD is 64% higher in people with depression than in people without depression (Rugulies, 2002; Glassman et al., 2011). The prevalence of CVD and the death rate are 2 to 4 times higher in people with depression (Glassman et al., 2011; Murray et al., 2001).

Given the importance of mental disorders, mental health has received particular attention in the recent years in Iran (Murray et al., 2001). Health centers and clinics have launched new initiatives to improve the diagnosis and treatment of depression (Sharifi, 2007, 2009). Furthermore the prevalence of mental disorders in adults in the general population of Iran has been studied. In the National Initiative of Health and Illness undertaken by Noorbala and colleagues in 1999 (Noorbala, 2002), the prevalence of mental disorders was estimated to be 21% (25.9% among women and 14.9% among men). The prevalence of depression and anxiety symptoms were 21% and 20%, respectively. Another national research conducted by Mohammadi et al. (2005) estimated the prevalence of psychiatric disorders to be 17.1% (23.4% among women and 10.8% among men). The prevalence of major depression, minor depression, dysthymia and anxiety disorders were estimated to be 3%, 33%, 6% and 31.8%, respectively (Mohammadi et al., 2005).

The studies on cardiovascular patients showed that in comparison with healthy people, these patients suffer from higher degrees of anxiety, depression and perceived stress (Ghasemipoor and Ghorbani, 2010; Rugulies, 2002). According to the national non-communicable diseases risk factors, the prevalence of main CVD risk factors among people living in Kerman were: overweight 42%, obesity 12%, hypertension 12.1%, and current cigarette smoking in men 18.6% (Asghari et al., 2009). About 41.9% of the inhabitants had at least one of the risk factors which put Kerman at the 12th rank among the 31 provinces in Iran. This high risk profile is translated into 37 incidence case (per day) of myocardial infarction. All of these studies draw attention to the susceptibility of Kerman population for cardiac events (Talebizadeh et al., 2009). In addition considering the crude mortality rate of addiction and drug-abuse related disorders, the province's rank moved up to the 3rd position in the country, and addiction and depression affected a considerable proportion of inhabitants in Kerman (Deputy of Research and Technology of Kerman University of Medical Sciences, 2011).

The psychological factors play an important role in the etiology of CVD. Therefore treatment of psychiatric disorders can be of great help in preventing these diseases (Ghasemipoor and Ghorbani, 2010; Rugulies, 2002). By providing appropriate mental health services throughout the country, the government can decrease the rate of depression and anxiety disorders and thus of other physical diseases resulting from these disorders, including CAD in particular. Careful planning for offering mental health services requires accurate information on the state of these disorders in the country. Ebrahimi et al. (2011) reviewed studies conducted on the status of CAD and related risk factors in Iran up to 2011. They concluded that there is shortage of information regarding relationship of less traditional risk factors such as mental disorders with CAD. Also most of the studies were hospital based and not on general population. Given that no comprehensive study had been carried out on the relationship of mental diseases with CAD in the Southeast of Iran, the present study examined the prevalence and intensity of anxiety and depression symptoms among the 15 to 75-years-olds and appraised the relationship of these with some of the risk factors for CAD in Kerman. Kerman is the biggest city in the southeast of Iran that according to the 2012 census, has a population of about 750 000.

2. Methods

The present research is a part of the population-based cohort study of coronary artery disease risk factors in Kerman (Kerman coronary artery disease risk factors study, KERCADRS) as a representative city in the Southeast of Iran. The ethics committee of the Kerman University of Medical Sciences, Iran approved the study protocol (Ethic code 88/110KA). A written informed consent was obtained from all participants in the study.

Among the households resident in Kerman for at least 1 year, 5900 people were selected from the 15 to 75-year-olds through single-stage cluster sampling. These subjects were selected from 250 postal codes randomly selected from the latest list of postal codes provided by the post office. Study interviewers attended the addresses and explained the aims of the initiative to the households and completed the informed consent forms. 24 individuals consisting of 12 males and 12 females were invited from each postal code to attend a central clinic at the date and time specified in the invitation card.

When the respondents attended the center at the date set, they were interviewed and a demographic questionnaire about their personal characteristics, education and occupation were filled out. Moreover, they were examined for some risk factors of CAD including diabetes, high blood pressure, physical activity level, smoking and opium use. Further details about the research methodology are given in a published paper by Najafipour et al. (2012). Trained survey interviewers completed depression and anxiety questionnaires for each of the participants by face to face interview. Beck Anxiety Inventory (BAI) is designed to quantify anxiety level and contains 21 phrases (that each phrase describes one of the symptoms of anxiety). The respondents heard the phrases and rated the intensity ranging from 0 to 3 for each symptom in the last week. The total score of the inventory is 63. The higher the total score, the higher the intensity of anxiety (Kaviani et al., 2001). For depression, the Beck Depression Inventory (BDI), designed by Beck and Steer (1993) and includes 21 groups of statements was used. Each statement has 4 responses ranging from 0 to 3. The total score of the inventory is 63. The higher the total score, the higher the intensity of depression (Kaviani et al., 2001). Both inventories have been translated and adapted for use in Iran. Validity and reliability of BDI in Iran were 77% and 70%, respectively. These measures were 83% and 72% for BAI, respectively. Based on the score on the inventories, anxiety and depression were divided into 3 levels: mild, moderate and severe. The score range for the different levels of depression was as following:

- 0–15, without symptom
- 16–30, mild depression
- 31–46, moderate depression
- 47–63, severe depression.

The score range for the different levels of anxiety was as follows: