Predicting the level of colds during the year according to multiple variables of stress, anxiety and depression in women

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ABSTRACT

Previous studies have confirmed that some diseases are influenced by stress. Such diseases are diseases in which inflammations are the main aspects of them. One of the most common diseases that can be affected by stress is cold. The purpose of this study was to investigate the relationship between stress, anxiety and depression and the peoples' cold over the years among women heads of households covered by Tehran Welfare. This study is a descriptive and correlational. The sample in this study included all female-headed family covered by Tehran Welfare, which is approximately 500 people according to the Welfare Organization statistics. According to Moran Table, 267 women heads of household were selected as research sample. The DASS-42 questionnaire was used to collect research data. The results showed that stress, depression and anxiety are positively associated with the common cold (P<0.01).Anxiety has also the ability to predict various colds. Results of the present study in line with foreign studies show that stress, depression and anxiety can lead to frequent colds and anxiety can predict recurrent colds in female-headed households covered by Tehran Welfare.

Keywords: stress, anxiety, depression, colds, heads of household women
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INTRODUCTION

Common cold, known as nasopharyngitis, rhinopharyngitis, and acute coryza,is contagious disease of the upper respiratory tract that is self-limiting and its symptoms is lost between seven to ten days (1).Cold is the most contagious infection disease with multiple complications, including acute otitis media (middle ear inflammation), rhinosinusitis (inflammation of one or several sinuses around the nose) and pneumonia (pneumonia / pneumonia).In the first three days disease, fever and purulent discharge is common. Other symptoms that occur include: inflammation of the throat, restlessness, trouble sleeping and decreased appetite. Physical symptoms is in specialized people, but it may be erythema (lesions become inflamed and red nose) and nasal mucosa swelling and cervical lymphadenopathy (swollen lymph nodes) (2 and 3).

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The economic impact of enormous cold is high. There is poor understanding of the economic impact of cold in most parts of the world. The greatest factor that people refers physicians or take time off from work or school absenteeism is the common cold. In America, cold results in an estimated cost of 100 million doctor visits with a cost of 7. 7 billion a year (1).In America, the cost spent on the treatment of colds in hospitals exceed one billion dollars a year, as well as more than four billion dollars annually spends on prescription drugs for colds and cough (4). Although there are no formal statistics in this regard in Iran, the economic loss of cold in the country is certainly impressive and vulnerable. At present there is no specific treatment for the common cold, but many studies on various protective measures to reduce the course of the disease and ways to prevent it was done (5-7).Incidence of upper respiratory tract infections (URTIs), including the common cold and influenza are wide spread. That's why psychologists have done several studies on these diseases. The first field the study conducted are psychosocial factors such as stress and susceptibility to infection and disease (8-11).In the second area of research, it has been investigated whether prenatal flu can be a risk factor for acute mental illness in children? (12).Over the past 5 to 6 years, experts have linked stress and depression to disease. Cohen and colleagues (13-18) during his studies confirms that some diseases are influenced by stress. Such diseases are diseases in which inflammation is one of the main aspects of them.

One possibility is that anxious people have unhealthier life style, in other words, they are more inclined towards cigarettes and alcohol and lack good sleep. Therefore, the main challenge is whether stress causes choosing anun healthy lifestyle and or choosing unhealthy patterns causes more stress. On the other hand, stress can be a factor that increase catching a cold, because it weaken body's immune systems and increase the probability for disease. More than 200 viruses have been known for cold. During a year, the body repeatedly exposed to these pathogens and destroy them, but when a person is suffering from a cold that the immune system is not able to eliminate the virus (15).Another possibility is that those body hormones that respond against stress play a role in occurring disease. In a new experiment, specialists exposed people who lived under different stressful conditions to cold viruses.They found that the body of people who had higher levels of stress and psychological pressure is weaker to deal with inflammation and suppress it. The experts say it seems that stress causes the body's immune system cells against the hormone that arrests inflammation becomes less sensitive. This study provides reliable medical evidence indicating that chronic stress and its effect on the immune system can be serious and play a significant role in our daily lives (19-23).

During the study, researchers evaluated 276 healthy adult volunteers which showed that people with long-term exposure to stress cold are less resistance against cold viruses (10).In one study, cold in the mood, mental performance, memory speed and meaning processing were studied. In this study, 200 men and women aged 18 to 30years (once on a cold and once in the time of health) were evaluated twice. The results showed that the subjects when catching a cold reported lower alertness, more negative mood and less mental health. They were also slower in encoding new information, verbal reasoning and meaning processing tasks. The mood changes was associated with disease severity (12).

Another group of researchers showed that chronic stress increases susceptibility to infections and holistic interventions such as stress management, lifestyle changes and professional management can be considered as lower susceptibility to infection (24, 25).In another study to investigate the relationship between depressive symptoms and colds among workers, researchers found that there was a positive and significant relationship between depression and cold in both men and women. Also, by controlling for age, marital status, education, smoking, alcohol consumption, exercise, sleep duration and type of work, chances for both sexes remained significant (26).The results also showed that stress reduces body immunity against infections such as the common cold by reducing sleep quality (27, 28).The present study also investigated the relationship between stress, anxiety and depression and the cold throughout the year among female-headed family covered by Tehran Welfare.

MATERIALS AND METHODS

The study population included all women without sponsors covered by Tehran Welfare who were almost 500 women according to Tehran Welfare Statistics. According to Morgan Table, adequate sample for a community of 500 people is at least 217 people. Therefore, taking into account the sample loss, 300 women without sponsors covered by Tehran's welfare were selected voluntarily and were participated in the study. However, due to the effect of lifestyle features on health, the following were considered as criteria for exclusion from the study:

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1. Smoking
2. Abuse drugs or alcohol
3. Acute mental disorders (according to psychiatric diagnosis)
4. The physical chronic diseases

After elimination of incomplete questionnaires and people with one of the criteria for exclusion, the sample size was reduced to 267.Dass-42 questionnaire was used to collect data that include three subscales of stress, anxiety and depression. Each of the subscales dass-42 includes 14 questions that the final score were obtained from the total score for each question. Each question is scored between zero (does not apply at all in my case) to 3 (completely true in my case).Anthony and colleagues (1998) put the mentioned scale under factor analysis that the results again showed three factors of depression, anxiety and stress, respectively. The research results showed that 68 percent of the total variance scale is determined by three factors. Equity of stress, depression and anxiety in the study were9.07, 2.89, and 1.23 and alpha coefficient for these three factors were 0.97,0.92 and 0.95 (29).In addition to completing the dass-42 questionnaire, each of the subjects also mentioned the number of times that catch a colds over the past year. Because it is assumed that people suffer more anxiety, stress and depression catch colds over a year more than others. Finally, data were analyzed using Pearson's correlation coefficient and simultaneous multivariate regression models.

RESULTS

The findings related to 267 women heads of households with a mean age of 37.82 (8.13 ±) were studied. Of these, 121 had primary school 135 diplomas and 11 had license education. To evaluate the research results, initially Pearson correlation between stress, anxiety and depression cold scores of women heads of households covered by Tehran Welfare during the year were calculated. Then, to determine the share of each of the variables (stress, anxiety and depression) to predict the level of cold among women heads of households covered by Tehran Welfare, simultaneous multiple regression was used.

Table 1. Descriptive indicators of research variables

Scale	Mean	Standard deviation	Minimum	Maximum
Cold	1.56	1.29	0	6
Depression	15.53	8.68	0	42
Anxiety	14.20	7.50	2	41
Stress	16.94	7.61	2	41

To evaluate the results, Pearson correlation coefficient between each of the scales of anxiety, stress and depression were first measured by the number of colds per person over the past year. Then, to determine the contribution of each of the scales of anxiety, stress and depression in the prediction of the frequency of colds, multivariate regression was used.

Table 2: Correlation Matrix of stress, anxiety and depression scales and the amount cold of people over the year

	Cold	Depression	Anxiety	Stress
Cold	1			
Depression	0.304[**]	1		
Anxiety	0.341[**]	0.797[**]	1	
Stress	0.291[**]	0.775[**]	0.723[**]	1

*n= 267**=P< 0.01 *=P< 0.05*

The results in Table 2 indicate that depression scores (r = 0/304), anxiety (r = 0/341) and stress (r = 0/291) is directly and significantly related to frequent colds of women heads of households covered by welfare (P≤01/0).In other words, by increasing the scores of depression, anxiety and stress of women heads of households, the number of colds have also increased over the last year and vice versa. Also, to determine the contribution of each of the scales of depression, anxiety and stress to predict the frequency of colds, multiple regression analysis was used. For this purpose, according to the established assumption of linearity, normality, constant variance and multiple linear, multiple regression analysis was performed. The results of simultaneous multiple regression analysis method is presented in Table 3.

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Table 3: Multivariate regression analysis to predict cold by depression, anxiety and stress

Variable	F	R	R^2	B	β	P
Constant				0.633	-	0.001
Depression	12.05	0.348	0.121	0.008	0.051	0.640
Anxiety				0.043	0.248	0.013
Stress				0.012	0.072	0.450

Table 3 summarizes multiple regression analysis of the number of colds of female-headed families through depression, anxiety and stress. Assuming that R2 is the percentage of common variance of measures of depression, anxiety and stress in predicting the number of cold among female-headed households, the above table results show that of all variables used (depression, anxiety and stress) predict 12% of the variance of the frequency of cold among female-headed households. Given that calculated F is significant at the level of less than 0.01, the linear regression model is thus significant. Results of regression analysis indicated that anxiety (P≤0/05) can directly and significantly predict the number of cold among female-headed households. In other words, the increase in anxiety scores, the number of women cold also increased.

DISCUSSION AND CONCLUSION

According to the results, it is essential to say that the sudden transfer of custody from husband to wife causes strands of insecurity and multiple functions, including loss of income, children upbringing, playing a dual role (parent) for women. As a result, it will brought adverse effect on women's physical and mental health and a new health problems. This group of women are responsible for nearly ten percent of Iranian families (30).Maternal health in determining physical, mental and social health of children has an important role; this is more pronounced in the absence of father. And these women, so to speak, are the poorest of the poor, are caught in the chain of poverty (and thus reducing the level of physical and mental health). By reducing health level of other rings of this chain, such as powerlessness, vulnerability to events, weakness ad inability, etc.it imposes a disproportionate burden on women heads of households, leading to an increase in anxiety, stress and depression among them. The results of research carried out abroad (10, 14-23, 26-28) has shown that an increase in anxiety, stress and depression can make one susceptible to infectious diseases such as the common cold by reducing the body's defense power. The results of this study, in line with external research, showed that stress, depression and anxiety can lead to frequent colds and anxiety can predict frequent colds in female-headed family covered by Tehran Welfare.

Previous studies have shown that chronic psychological stress leads to an increased risk of depression, cardiovascular disease (CVD), diabetes, autoimmune diseases, upper respiratory tract infection (URI), and the wound healing (10).A series of studies have shown that stress and anxiety in patients is associated with hypersensitivity of the immune system against colds and non-resistance of the body's immune system against upper respiratory viruses (9, 15 and 16).These studies have shown that an increase in anxiety and stress will lead to an increase in Cytokines. In cold, common signs and symptoms are primarily created by the release of proinflammatory cytokines produced in response to infection (31).The explanation for this relationship is that the stress disturbs the response of brain hypothalamus as well as regulating inflammation that can be done by the hypothalamus. In another study, the researchers also showed that stress and anxiety can increase a person's chance of developing the disease by affecting the function of the hypothalamus (10).

Therefore, considering the high prevalence of anxiety and depression among women heads of household (29), it can be expected that physical problems and respiratory infections such as colds are more prevalent in women. For this reason, and given the research results and a close relationship between mental and physical health, it is suggested that Welfare Organization, in addition to economic problems, consider mental health problems under the supervision of their communities. Because increased mental health of vulnerable groups (such as women heads of household) increased their physical health as well. In addition to enhance quality of life of these people and mental health of their children (as part of the society of tomorrow), it will lead to reduced future health costs of organization.

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