Abstract
Background: With respect to the fact that physical and psychological factors affect each other in patients with non-cardiac chest pain:
Objective: The present study was carried out to compare the depression, anxiety, and stress severity in non-coronary patients with mild and severe chest pain.
Patients and Methods: A cross-sectional design was used. The statistical population comprised non-coronary patients who presented to the Heart Emergency Center, Kermanshah city, Iran. Using a matching method, 94
participants were selected and studied in two groups of 47. The instruments of the study comprised comorbidity index, the Brief Pain Index (BPI), and the Depression, Anxiety, and Stress Scale (DASS). The multivariate analysis of variance, chi-squared test, and t-test were used for data analysis.

Results: After adjustment for the effects of age and comorbid conditions, the results showed that there was significant difference among the two groups in terms of depression, anxiety and stress and the severity of these variables was more pronounced in patients with severe chest pain (P < 0.001).

Conclusion: Depression, anxiety, and stress are common psychological occurrences in patients with non-coronary chest pain, and they should be attended to by health professionals, especially in severe non-coronary chest pain. Therefore, paying attention to psychological factors could help the experts choose solutions to decrease pain and side effects of the diseases. It also may facilitate treatment procedures among patients in severe pain. Further investigation to determine the association between these variables and non-coronary chest pain is necessary.

Keywords: Non-coronary; chest pain; depression; anxiety; stress; patients.

1. Background
Chest pain is a common symptom in general population which is regarded as the second cause for which people visit heart hospitals. However, only 23% of the visiting patients with chest pain have a real coronary disorder and the rest are due to other causes such as pulmonary problems, musculoskeletal issues, gastritis, and psychological factors. Specifically, in 66% of patients, the existence of not one clear cause could be approved and the pain cause in 41% of patients is related to psychological factors. Psychological factors and psychiatric disorders play significant role in genesis and development of these pains and among these factors, anxiety and depression are considered as the most common existing problems. Many studies have dealt with the evaluation of stress, anxiety, and depression in patients with non-cardiac chest pain and have shown the effect of these factors on pain development. However, few researches have studied the effect of these variables on chest pain exacerbation. Therefore, regarding that the frequent visiting of these patients to the clinics takes a lot of time and money for evaluations and examinations which put a high economic pressure on medical system:

2. Objective
The present study was done to investigate and compare depression, anxiety, and stress severity in non-coronary patients with mild and severe chest pain.

3. Patients and Methods
3.1. Study Design
In this cross-sectional causal-comparative study, the depression, anxiety, and stress of patients with chest pain who presented to the Heart Emergency Department (HED) of Imam Ali Hospital, Kermanshah, Iran in winter 2014, despite having normal angiography, were studied. This treatment center is a state specialized hospital for cardiology in Western Iran.

3.2. Inclusion criteria
Inclusion criteria were educational level higher than elementary school, aged between 30 and 70 years, history of at least 3 months of chest pain, normal coronary angiography, and no evidence of chest pain alleviation for at least 1 month after angiography.

3.3. Patients and Procedure
Data were gathered using a checklist for demographic variables and the Depression, Anxiety, and Stress Scale (DASS). When the groups were specified, the patients were provided with the DASS and after the clinical psychologist presented the required explanations, they were requested to fill out the forms accurately. In the end, the forms were collected and the information was analyzed using the statistical methods. The statistical population of the present study included 153 patients with non-cardiac chest pain who presented to our hospital. They reported chest pain for at least 1 month after a normal coronary angiography. At first, 32 people were excluded after failing to meet the inclusion criteria. Then, the remaining 121 were requested to
participate in the study willingly after providing written informed consent. 12 patients did not agree to participate, and so 109 individuals were included. The Comorbidity Index and Brief Pain Inventory were administered to the 109 subjects in order to gather data about their comorbid conditions and pain intensity. According to the results of a 10-degree pain intensity description, 53 people who obtained scores of 1-5 were included in a mild pain group and 56 patients who scored 6-10 were included in a severe chest pain group. Afterwards, patients in the first group were paired with patients in the second group based on gender and education, and there remained 47 people in each group (15 men and 32 women). Matching was accomplished by excluding 5 patients with severe pain and a high school degree or higher, as there were no counterparts in the group with mild pain. Then, 4 individuals with mild pain and only elementary education, who also did not have counterparts in the other group, were excluded from the study. A man from the group with mild pain and two women from the group with severe pain were excluded from the study due to the lack of a counterpart. Finally, each group included 47 participants. A demographic information checklist and the DASS were used to collect the required data. When the groups were specified, the patients were provided with the DASS, and after the clinical psychologist presented the required explanations, they were requested to fill out the forms accurately. The forms were collected and the information was analyzed using the statistical methods outlined below.

3.4. Instruments

3.4.1. The Comorbidity Index: This index, designed by Ifudu et al (1998) is a scoring index for evaluating comorbid physical conditions. It evaluates the presence of 14 chronic illnesses. These conditions are 1) ischemic heart disease; 2) other cardiovascular illness; 3) chronic respiratory diseases; 4) autonomic neuropathy; 5) other neurologic problems; 6) muscular-neurologic disorders; 7) infections such as hepatitis; 8) blood disorders; 9) pancreas and bilious diseases; 10) genital and urinary diseases; 11) vision disorder; 12) limbs disorder; 13) backache, spine ache, or joint disorders; and 14) psychiatric illness. Each comorbid condition is scored from 0 to 3 representing the absence of the disease and the presence of severe disease, respectively. The total score ranges from 0 to 42, with a higher score being indicative of a greater comorbidity (15).

3.4.2. The Brief Pain Inventory (BPI): This scale scores pain severity on a ten-degree scale, with zero indicating no pain and ten indicating a high degree of pain. This measurement index has been given validity in Iran and its reliability was reported to be appropriate in Iranian populations (16).

3.4.3. The Depression, Anxiety, and Stress Scale (DASS): this scale, which was developed by Lovibond, and Lovibond, (17), consists of 21 items that measures three mini-scales of depression, anxiety, and stress (each, 7 items). The interviewee answers these items with never, few, many, and too many. The Cronbach’s alpha of this scale was reported as 0.81 for depression, 0.73 for anxiety, and 0.81 for stress. Sahebi (18) obtained Cronbach’s alpha in Iran (N= 400) as 0.70 for depression, 0.66 for anxiety, and 0.76 for stress. Also, Beck Depression Test correlation coefficient was significant for depression (0.66), anxiety (0.67), and stress (0.49).

3.5. Statistical Analysis

The data were analyzed by multivariate analysis of variance (MANOVA), t-test, and chi-squared test using SPSS for Windows (v. 20.0). The t-test was used to study the non-significance of the difference between the two groups on quantitative variables, including age and comorbidities. The chi square test was used to investigate the non-significance of the difference between the two groups on nominal variables, including job status and smoking and drinking. The data were analyzed using a multivariate analysis of variance for compare the two groups. Further, significance was determined with p-values less than 0.05, and eta-squared was used to evaluate the effect size for each dependent variable.

4. Results

Each group included 15 men and 32 women. The mean (SD) age for men with severe chest pain was 54.53 (±8.39) years and 54.07 (±9.80) for those with mild chest pain. The mean (SD) age was 52.21 (±7.39) years for women with severe pain and 52.36 (±8.69) for women with mild chest pain. Moreover, the mean (SD) pain severity in the group with mild chest pain was 3.24 (±1.11), and in the group with severe chest pain, it was 7.25 (±1.32). Demographic and behavioral variables are shown in
Table 1. Comparison of demographic and behavioral factors and comorbidities in the patients

As shown in Table 1, there was no significant difference in any of the variables between the groups. Table 2 presents means and SDs of the variables by group. Table 2 shows the results of the Multivariate analysis of variance comparing the two groups.

Table 2. Multivariate analysis of variance comparing between the two groups

The F-value for group effects when controlling for confounding variables [F(3,92) = 10.56; P < 0.001; eta-squared = 0.26] showed a significant difference for at least one of the dependent variables between the two groups. According to the table, patients with severe pain showed significantly higher scores than did patients with mild pain in depression [F(1,92) = 13.02; P < 0.001; eta-squared = 0.12], anxiety [F(1,92) = 31.83; P < 0.001; eta-squared = 0.25], and stress [F(1,92) = 12.89; P < 0.001; eta-squared = 0.12]. Eta-squared, which shows the effect size for each variable, suggests that the major differences were in anxiety, depression, and stress. Meanwhile, after applying the Bonferroni correction (P = 0.012), because of the three existing dependent variables, and given the significance levels of the variables, the significant difference was confirmed.

5. Discussion

The present study was carried out to compare the depression, anxiety, and stress in non-coronary patients with severe and mild chest pain. In line with (7,10,12), the results showed that there was significant difference between the two groups in terms of depression, anxiety, and stress. The severity of these variables was higher in patients with severe pain chest. There is a mutual relationship between the physical and psychological factors and as probably psychological factors play important role in development of non-cardiac chest pain, chest pains are the underlying cause for genesis of agitation (19). One of the findings showed that the degree of depression in patients with severe chest pain is higher than patients with mild chest pain. Apart from the fact that the heart examination process causes the patients to feel that they suffer from a heart problem and receiving a vague diagnosis from the doctor may lead to agitation and psychological distress of the patient (20), the primary depression may also affect the intensity of the pain (10).

According to the reports (21), nearly 97% of the depressed patients complain about the loss of energy as a barrier to perform their tasks and 80% of them complain about insomnia. Based on cognitive model, depression is caused by certain cognitive distortions which are called depressing schemas and are cognitive models that cause the person to perceive the internal and external data in a changed manner by the impact of the initial experiences (21). In this viewpoint, the assumption is that the depressed people distort environmental data that are consistent with their negative inner thoughts, and in this way, they eliminate and distort information which are inconsistent with the dominant cognitive system (22). Therefore, the pain intensity of this group of patients may increase due to these cognitive distortions. Other findings showed that the degree of anxiety in patients with severe chest pain is higher than in patients with mild chest pain. Anxiety often creates confusion and distortion in perception of time and space, recognition of people and the importance of incidences. These distortions can create disorder in correct perception of incidences by decreasing concentration and reminding power, and by upsetting the power of relating things to each other (21). Anxious people often report thoughts and imaginations which indicate the feeling of high danger in the present situations and it seems that this anxiety is an understandable response to their distorted perceptions (23). The distorted perceptions led anxiety can ultimately intensify chest pain in these patients. However, severe pain in chest probably improves the concern about seriousness of the disease and outbreak of fatal consequences, which definitely leads to higher levels of anxiety.

To explain this finding that the degree of stress in patients with severe chest pain is higher than in patients with mild pain, Kuijpers et al, (10) point out patients who experience negative emotions as well as having anxiety and depression reported to have higher degrees of chest pain. Stress is one of those negative emotions in which the persons see their physical and psychological wellbeing in danger. Stressed people
often are stricken with fear, avoiding behavior, depression, and anger and induce reactions in others which cause the disharmonious and non-adaptive models to be preserved. As individuals evaluate the incidents based on their own cognitive schemas and orientations, an internal self-approval process is created (24). Therefore, patients may feel the pain higher than before.

A limitation to the present study was a lack of consideration of variables that might affect the severity of noncardiac chest pain. In fact, there are many conditions that are comorbid with severity of pain, so future studies should attempt to control for these potentially confounding variables. In addition, regarding the sample size that we recruited and the probable loss of many patients because of careful matching, it is recommended to consider the following items in future studies: family history of chest pain, kinds of drugs taken, and history of cardiovascular disease in first-degree relatives.

Authors’ contributions
Mostafa Bahremand participated in the design of the study, subject recruitment, data collection, data analysis and drafted the manuscript. Mozhgan Saeidi participated in the design of the study, and revised the manuscript critically for important intellectual content. Fariba Takallo participated in the design of the study, data analysis, and revised the manuscript critically for important intellectual content. Saeid Komasi revised the manuscript critically for important intellectual content. All authors read and approved the final manuscript.

Conflict of interest: The authors declared no conflicts of interest.

References
Beliefs Compared to Patients with Mild Pain. Korean J Fam Med. 2015;36(4):180-5. PMID: 26217482

Table 1. Comparison of demographic and behavioral features and comorbidities by group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Severe pain</th>
<th>Mild pain</th>
<th>Total</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (a)</td>
<td>52.27 (±7.70)</td>
<td>52.53 (±8.95)</td>
<td>52.40 (±8.45)</td>
<td>0.17</td>
<td>.88</td>
</tr>
<tr>
<td>Comorbidity (a)</td>
<td>1.17 (±1.76)</td>
<td>1.26 (±1.79)</td>
<td>1.22 (±1.73)</td>
<td>0.22</td>
<td>.91</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior school</td>
<td>39</td>
<td>39</td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school diploma</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University degree</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job (b)</td>
<td>1.70</td>
<td>.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>31</td>
<td>31</td>
<td>62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office worker</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>9</td>
<td>7</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>39</td>
<td>39</td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed/separated</td>
<td>8</td>
<td>8</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking (b)</td>
<td>2.04</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>7</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>38</td>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking (b)</td>
<td>2.10</td>
<td>.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>45</td>
<td>43</td>
<td>88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) T-test; (b) Chi-square; *P < .05

Table 2. Multivariate analysis of variance comparing between the two groups

<table>
<thead>
<tr>
<th>eta-squared</th>
<th>p F Total</th>
<th>Mild pain</th>
<th>Severe pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n=47)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=47)</td>
<td></td>
<td></td>
<td>Variable</td>
</tr>
</tbody>
</table>
.12 .001* F(1,92)=13.02 8.40’4.32 6.90’4.35 9.90’3.78 Depression
.25 .001* F(1,92)=31.83 9.05’4.27 6.92’3.34 11.19’4.04 Anxiety
.12 .001* F(1,92)=12.89 11.74’4.85 10.06’4.32 13.42’4.82 Stress
.20 .001* F(1,92)=24.16 29.19’11.81 23.88’10.62 34.50’10.56 Total score
.26 .001* F(3,90)=10.567 Pilli’s Trace (Value)= .26

MANOVA (GROUP)
.26 .001* F(3,90)=10.567 Wilks Lambda (Value)= .74
.26 .001* F(3,90)=10.567 Hotelling.s Trace (Value)= .35
.26 .001* F(3,90)=10.567 Roy’s Largest Root (Value)= .35

*p<.01

About Essay Sauce

View all posts by Essay Sauce

...(download the rest of the essay above)

About this essay:

This essay was submitted to us by a student in order to help you with your studies.

If you use part of this page in your own work, you need to provide a citation, as follows:


Review this essay:

Please note that the above text is only a preview of this essay. The full essay has 2951 words and can be downloaded free in PDF format, using the link above.

<table>
<thead>
<tr>
<th>Name *</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Rating *</td>
<td>★ ★ ★ ★ ★</td>
</tr>
</tbody>
</table>
Latest reviews:

- Medicine essays
- Corporate social reporting in India on Welfare of Society
- Technology in hospitals for efficiency and productivity

Search for student essays:

Search ...

About EssaySauce, the student essay site:

EssaySauce.com is a free resource for students, providing thousands of example essays to help them complete their college and university coursework. Students can use our free essays as examples to write their own.
Latest student essays:

Ocular disease
HUMAN action recognition
Analysing data production
Desorption study
Surfactants (surface active agents)
Islamic Finance and Its Impact on Customer Satisfaction
Persian gulf
Feminist approach (Bhumika) (notes)
What does it mean to be a Muslim woman in 21st century? (Shari’ah)
Appellate Body’s analysis under section XIV(c)

Student essay categories:

Accounting essays
Architecture essays
Business essays
Computer science essays
Criminology essays
Economics essays
Education essays
Engineering essays
English language essays
English literature essays
Environmental studies essays
Finance essays
Geography essays
Health essays
History essays
Hospitality and tourism essays
Human rights essays
Information technology essays
International Relations
Law essays
Leadership essays
Linguistics essays
Literature essays
Management essays
Marketing essays
Media essays
Medicine essays
Miscellaneous essays
Music Essays
Philosophy essays
Photography and arts essays
Politics essays
Project management essays
Psychology essays
Religious studies and Theology essays
Science essays
Social work essays
Sociology essays
Uncategorized
Zoology essays

Average review:

Overall rating: 0 out of 5 based on 0 reviews.
Q: Is EssaySauce.com free?

Yes! EssaySauce.com is a completely free resource for students. You can view our terms of use here.

Why use Essay Sauce?

The brightest students know that the best way to learn is by example! EssaySauce.com has thousands of great essay examples for students to use as inspiration when writing their own essays.

Is Essay Sauce completely free?

Yes! EssaySauce.com is a completely free resource for students. You can view our terms of use here.

Info:

About
Content policy
Essay removal request
Privacy
Terms of use