

# Relationship Between Depression and Perception of Pain Severity in Patients Admitted to General Surgery Ward

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## Abstract

**Background:** Depression is considered as the most common psychological problem in individuals. Patients with persistent pain usually suffer from depression, disturbance in interpersonal relations, fatigue, and reduced physical and psychological performance.

**Objectives:** The aim of this study was to survey the relationship between depression and perception of pain severity in patients admitted to general surgery ward.

**Methods:** This research was a cross-sectional descriptive study. The study population included patients admitted to general surgery ward at hospitals of Ardabil city during 2010 - 2011. The study sample consisted of 168 individuals (male and female) who were selected by nonrandomized convenience sampling method. The data were collected using a questionnaire on demographic information, the Beck depression inventory (BDI), and Toren questionnaire on pain beliefs and perceptions. The SPSS software was used for statistical analysis.

**Results:** The highest frequency of participants had moderate depression (44.1%) while the lowest frequency belonged to healthy individuals (4.2%). The score of depression was higher in men ( $23.21 \pm 7.56$ ) than women ( $19.19 \pm 6.84$ ) as the same as the score of pain perception ( $8.91 \pm 2.34$  vs.  $7.95 \pm 1.87$ , respectively). The results indicated that there was a positive significant relationship between depression and perception of pain severity ( $P \leq 0.01$ ). This means that patients who have a history of depression feel much more pain during hospitalization and after the surgery.

**Conclusions:** Depressed or anguished patients report more pain compared to healthy ones.

**Keywords:** Depression, Pain Perception, Surgery, General

## 1. Background

Depression is considered as the most common psychological problem in societies. Despite of the high global prevalence of depression, about 50% of patients do not receive treatment in this regard. Failure to diagnose and treat depression leads to treatment resistance, recurrence, and delayed healing of concurrent disease (1). Depressed patients in medical wards use medical resources three times more than non-depressed ones and cause to duplicate medical costs. They refer seven times more than others to emergency centers for checking their health, meanwhile suffer more physical complaints and pain (2). Pain is the most common complaint in patients, disabling seven million people annually in the United States and consisting more than 8 million patients referring to medical services. Depression, anxiety disorders, and substance abuse are also more common in patients with pain than the general population (3). The association between depression and pain has been reported in various researches (4). The

incidence of recurrent major depression among patients with chronic pain ranges from 30 to 54% (5). Patients with severe depression are associated with higher pain intensity, greater painful sites, and major pain-related disability (6).

Usually, the physical symptoms of depression are less being considered. The prevalence of depressive disorder is 2 to 3 times higher in patients admitted to medical and surgery wards than the general population. 30 to 60 percent of the patients with short-term hospitalization in surgery and internal wards suffer from mental disorders or psycho-social problems. Unfortunately, depression and perception of severe pain and pain persistency belief leaves a negative impact on the course and outcome of disease (7). Depression is believed to complicate the care of general hospital patients in medical and surgical wards (8). Today, surgeons are aware of their patients' psychiatric care aspects. Such care is needed both before and after the surgery. The existence of chronic fatigue and depression before surgery has a significant impact on hospitalization,

cooperation, and acceptance of operation. Moreover, after the surgery, depression and fatigue can lead to the lack of motivation and interest for the cooperation with treatment and thereby, delaying the recovery and lasting hospitalization (9).

Posht Mashhadi (2004) showed the prevalence of depression in patients of medical and surgery wards is 2 to 3 times higher than its prevalence in the general population (7). A study performed by Balestrieri (2002) reported that psychiatric problems in hospitalized patients must seriously be taken into consideration. According to the report, 41 percent of the patients had moderate to mild depression and 6 percent were afflicted by severe depression. This rate was higher in the group that had a severe depression (10). In addition, Buenaver and colleagues (2008) suggested that catastrophizing pain and depression experience causes the person's selective attention to some stimuli (11). Litvack (2011) in a study showed that the depression before surgery has a great impact on hospitalization and operation acceptance as well as cooperation. After the operation, depression and fatigue can cause the lack of motivation and interest in patients and reduction of their cooperation during the treatment procedure (12).

## 2. Objectives

The present study was performed to determine the relationship between depression and perception of pain severity in patients hospitalized in general surgery wards.

## 3. Methods

This cross-sectional descriptive study was performed among male and female patients admitted to the general surgery wards at hospitals of Ardabil city during 2010 - 11. The study sample consisted of 168 patients who were selected by nonrandomized convenience sampling method.

Inclusion criteria were patients aged 15 - 50 years and hospitalized in a general surgery ward and exclusion criteria comprised those known with mental disorder, comorbidity, drug abuse, and lack of tendency to participate in the study.

The research tools included beck depression inventory (BDI), which is one of the most useful tools for measuring mental disorders, and Toren (1989) questionnaire for measuring pain beliefs and perceptions. The total score of BDI test can fluctuate from zero to 63. According to the cut-off points introduced to this test, a total score of 0 - 9 indicate normal range, 10-15 show mild depression, 16 - 23 suggest moderate depression, and scores above 24 indicate severe depression.

Concerning the assessment of validity and reliability of beck depression inventory (BDI), numerous studies have indicated acceptable validity and reliability for this test. Marnat (1990) reported that the test-retest reliability gave coefficients from 48% to 86% for different time intervals. Pain beliefs and perceptions inventory [PBAPI] of Toren measures the belief in pain stability and the rate of pain perception. In this test, the scores may be changed from -18 to +18, and a higher positive score indicates a deeper belief of the person in pain stability. Pouladi (2001) obtained the reliability coefficient of 0.79 using split-half method for the subscales of pain stability (13). In the study of Najarian et al. (1992), the coefficient of 0.54 was reported for the validity obtained by the simultaneous performance of pain beliefs and perceptions inventory with public anxiety test.

After initial selection of the samples, Depression Scale questionnaire and then pain beliefs and perceptions inventory [PBAPI] were filled out by all of the subjects. Then, the collected data were analyzed using Pearson correlation and regression analysis methods by SPSS 16 software. During the study, being fiduciary, obtaining permission and consent from the relevant authorities, and considering values and culture of the society were often taken into account.

## 4. Results

Among total patients admitted to the hospitals, 102 (60.7%) were male and 66 (39.3%) were female. The mean and standard deviation in men and women were  $37.92 \pm 9.04$  and  $39.24 \pm 6.74$ , respectively. The results of BDI test for depression assessment is presented in Table 1.

**Table 1.** Frequency of Participant Based on Degree of Depression

Degree of Depression	Frequency	Percentage
Healthy	7	4.2
Minor depression	27	16
Moderate depression	72	44.1
Major depression	62	36.2

According to Table 1, the highest frequency of participants had moderate depression (44.1%), while the lowest frequency belonged to healthy individuals (4.2%). Table 2 shows the mean and standard deviation of age, depression, and pain perception in participants.

The depression and pain perception was higher in men than women. The Pearson coefficient of correlation between depression and pain perception in the patients of

**Table 2.** Mean and Standard Deviation of Depression and Pain Perception Scores in Participants

Variable	Group	Mean	SD
Depression	Men	23.21	7.56
	Women	19.19	6.84
Pain perception	Men	8.91	2.34
	Women	7.95	1.87

surgery wards was 0.24 ( $P < 0.01$ ) that showed a significant positive relationship between depression and pain perception.

## 5. Discussion

The results showed that in terms of depression, 4.2% of participants were normal and healthy, 16% had mild depression, 44.1% had moderate depression, and 36.1% had severe depression. This result means that the prevalence of depression in patients hospitalized in surgery wards is very high. Bair et al. (2003) declared that major depression is common among primary care patients with a prevalence of 5% to 10% (14).

The results showed that there is a positive significant correlation between depression and pain perception severity ( $P < 0.01$ ). Other researches such as those conducted by Balestrieri, 2002 (10), Litvack, 2011 (12), Baghbanyan, 2001 (15), Posht Mashhadi, 2001 (7), and Ghoreishizadeh et al. 2005 (8) confirmed the results of this study. These results suggest that patients living in anguish and depression report more pain compared to those feeling comfort and enjoying enough support. In addition to the negative impact on the assessment, depression causes a person to expect more threat under a coping situation. Therefore, there has been reported a significant relationship between emotion-oriented coping techniques and depression.

Epidemiological studies indicated that the lifetime prevalence of pain symptoms ranges from 24% to 37% (14). Pain, in fact, undermines the mood only when it involves in life areas and affects personal performance. While some patients tackle desirably with their pain, others show a significant depression. Several researches have attempted to identify and elaborate the factors causing diversity of depression levels in patients with chronic pain.

Depression and pain may be related conditions (6). The prevalence of depression has been reported higher in patients with chronic pain compared to general population (16).

Studies during 2000-2011 showed that depression is associated with higher pain intensity (17). Chronic pain is re-

ported in up to 70% of patients with anxiety and depression (6); and anxiety and depression has been suggested to increase the sensitivity to pain (18). Epidemiologic studies showed that 1/5 general population in Europe and America suffer from chronic pain (19). Mesgarian et al. (2012) reported that there is a significant relationship between pain intensity and depression ( $P \leq 0/01$ ) (16). According to Marsala et al. (2015), the pain threshold and pain tolerance are lower in patients with major depression than controls (6).

Our study had some limitations. It was conducted in one city that makes the results less generalizable to population of other cities. Also, the other limitation of the study was that some patients did not cooperate enough with the researcher.

### 5.1. Conclusion

Patients who actually have a history of depression feel more pain during hospitalization and after the surgery. Therefore, some strategies are recommended to decrease depression in patients undergoing surgery.

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### Footnote

**Conflict of Interest:** None declared.

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