

# Gender differences in somatic symptoms, quality of life, and functional impairment in depressive patients

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## Abstract

**Objectives:** Investigate gender related differences in somatic symptoms, severity of depression, quality of life (QOL), and functional impairment, and correlate somatic symptoms with QOL and functional impairment.

**Methods:** This cross-sectional study was conducted with 100 consecutive outpatients seeking treatment for depressive disorder at district hospital psychiatric outpatient clinic, Kolar, Karnataka, India. This study utilised the Beck Depression Inventory II, Physical Distress Scale, Work and Social Adjustment Scale, and World Health Organization QOL BREF instrument.

**Results:** Mean constipation scores and back pain scores were higher in women compared to men. There were no statistically significant differences between male and female patients with regard to depression scores, total somatic symptom scores, QOL, and functional impairment scores. Somatic symptoms scores are positively correlated with depression scores and functional impairment scores, and negatively correlated with QOL scores.

**Conclusion:** Women had higher constipation and back pain scores compared to men. If the symptoms of same disease differ between men and women, this has important implications for the history collection, diagnosis, and treatment process.

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## Introduction

Gender is one of the strongest demographic influences on somatic symptom reporting.[1] Indeed, physical symptoms are 50% or more likely to be reported by women presenting for primary care than by men.[2] While the increased prevalence of depressive, anxiety, and somatoform disorders in women is one important risk factor,[3] a variety of social, cultural, and biological gender differences may also contribute to increased somatic symptoms in women.[4,5]

Many studies have examined whether men and women report somatic symptoms of depression differently or whether the number of somatic symptoms reported by men and women might explain gender differences in depression

rates and severity.[6-10] Few findings in the literature have been as widely studied and consistently verified as the higher prevalence of depression among women. However, doubts remain on the distinguishing features of female depression. The available studies concur in the higher prevalence of somatisations among women and in the possibility that the impact of these symptoms on quality of life (QOL) could be underestimated.

Approximately two thirds of patients with depression in the primary care setting present with somatic symptoms.[11,12] Patients usually attribute their somatic symptoms to normalising causes, making depression difficult to

recognise in patients who present with chiefly somatic symptoms.[13] Among these, painful somatic symptoms are most frequent,[11,14] being responsible for disability in 41% of patients with depression.[15] Moreover, the relationship between chronic pain and depression is well documented. Whereas depression is common in patients with chronic pain, pain is a frequent complaint in patients with depression,[16] and its presence is associated with poorer QOL.[17]

However, few studies have addressed gender differences in somatic symptoms, QOL, and functional impairment. Evaluating the characteristics of somatic symptoms when assessing patients will contribute to more effectively recognising and treating depression in patients who present with mainly somatic symptoms.

## Methods

This was a descriptive study conducted on 100 depressive disorder patients attending the psychiatric outpatient department of District Hospital at Kolar, Karnataka, India.

## Subjects

The sample comprised of 100 depressive patients. Inclusion criteria were: (a) diagnosed with depressive disorder according to International Classification of Diseases, Tenth Revision (ICD-10);[18] (b) aged between 20 to 40 years; (c) recommended antidepressant treatment by the treating psychiatrist. Subjects with psychotic symptoms, cancer, severe life threatening illnesses, or current drug or alcohol related disorders were excluded. Subjects meeting these criteria were interviewed after providing written informed consent.

## Data collection instruments

Data was collected on the basis of a single cross-sectional interview of the subjects who fulfilled the inclusion and exclusion criteria. All consenting adults were administered the socio-demographic proforma, Beck Depression Inventory II (BDI-II), Physical Distress Scale, Work and Social Adjustment Scale (WSAS), and World Health Organization (WHO) QOL-BREF scale.

**Socio-demographic proforma:** Patients were asked to fill a form, including questions on their age, gender, marital status, occupation, religion, type of family, area of residence, mean monthly income, suicidal attempts, previous depressive episodes, and mean duration of present illness.

**BDI-II:** This scale was developed by Dr Aaron T Beck, a self-administered four point Likert scale containing 21-items, designed to assess the severity of the symptoms of depression. Statement denotes symptom severity along with an ordinal continuum from absent (scored as zero) or mild (scored as one) to severe (scored as three). The responses are summed to determine possible scores ranging from zero to 63, with higher scores indicating a greater level of symptoms. The total scores of the BDI-II classify as four levels of depression: zero to 13=minimal depression; 14–19=mild; 20–28=moderate; 29–63=severe depression. In Indian studies, the BDI indicated high internal consistency (Cronbach's alpha 0.96).[19]

**Physical Distress Scale:** This scale was developed by Chan, Ho, and Chow in 2002. It is a self-rated scale to assess somatic symptoms. Physical Distress Scale measures the level of subjective distress caused by specific physical symptoms that the respondents experienced during the previous week. It consists of 14 items, examples of which are 'constipation', 'coldness of hands or feet', and 'fatigue'. The inventory adopts an 11-point scale, with scores ranging from zero to ten; the range of the total score is zero to 140, with higher scores indicating greater level of symptoms and more distress. The physical distress scale indicated high internal consistency (Cronbach's alpha 0.87).[20]

**WSAS:** It is a self-report scale of functional impairment. It was developed by James C Mundt, Isaac M Marks, M Katherine Shear, John M Greist. It comprises five questions on a zero to eight scale. The range of the total score is zero to 40, with lower scores indicating higher functioning. A WSAS score >20 suggests at least moderately severe functional impairment. Scores between ten and 20 indicate measurable functional impairment but less severe clinical symptomatology. Cronbach's measure of internal scale consistency ranged from 0.70 to 0.94. Test-retest correlation was 0.73.[21]

**WHOQOL-BREF:** QOL assessment was made with WHOQOL-BREF Kannada version. This scale was chosen because it is a generic scale, developed simultaneously in 15 field centres around the world (India was one of the participating countries). It is a subjective assessment for adults with a reading age of eight years and above, and can be completed with interviewer assistance. This 26-item self administered

scale measures four domains of QOL. They are physical health (item nos. 3, 4, 10, 15–18), psychological health (item nos. 5–7, 11, 19, 26), environment (item nos. 8, 9, 12–14, 23–25), and social relationships (item nos. 20–22). Item numbers 1 (QOL) and 2 (QOL) reflect a general factor named ‘general wellbeing’ which is not considered a specific domain. The items are scored from one to five with total scores ranging from 26 to 130, higher scores indicating better QOL in each domain and in total score. The psychometric properties of WHOQOL-BREF have been found to be comparable with those of the full version of WHOQOL 100. High correlation of domain scores (0.89 or above) for the two scales has been obtained using a four domain structure. This scale has shown good discriminant validity, content validity, internal consistency, and test-retest reliability.[22]

#### Ethical considerations

The study was approved by Ethical Committee of Sri Devaraj Urs College of Nursing, and permission obtained from District Surgeon of SNR District Hospital, Kolar, Karnataka for carrying out the study. All the subjects gave

their written consent and researchers maintained data confidentiality.

#### Statistical analysis

Data were analysed using Statistical Package for the Social Sciences (SPSS) software package (version 15), and results were presented in table form. Descriptive statistics were used for all variables. Somatic symptoms, QOL, and functional impairment between men and women were compared using unpaired ‘t’ test. Pearson’s analysis was used for the correlation between somatic symptom scores, depressive scores, functional impairment, and QOL scores.

#### Results

Comparisons of demographic and clinical characteristics between male and female subjects were presented in Table 1. The sample comprised of 100 depressive patients of whom 40 were male and 60 were females. Mean age of male and female subjects was  $29.10 \pm 8.04$  years and  $30.95 \pm 7.06$  years, respectively. Half (50%) of the male subjects studied up to tenth std, more men (35%) than women (22%) had degree and above education. A significant asso-

ciation was observed among men and women in terms of marital status ( $\chi^2=10.76$ ,  $p<.001$ ). Most (45%) of the women were married compared to men (17%). Most of the women (87%) belonged to Hindu religion and a significant association was observed in this area ( $\chi^2=6.57$ ,  $p<.01$ ). Most of the men (90%) were from nuclear family. Majority (70%) of the men were residing in rural area. A significant association was observed among men and women in terms of occupation ( $\chi^2=13.98$ ,  $p<.001$ ). Average mean

**Table 1: Comparison of demographic and clinical characteristics between male and female subjects**

| Socio-demographic characteristic      |                              | Gender              |                       | $\chi^2 / t$ | p-value |
|---------------------------------------|------------------------------|---------------------|-----------------------|--------------|---------|
|                                       |                              | Males (%)<br>(n=40) | Females (%)<br>(n=60) |              |         |
| Age in years (Mean, SD)               |                              | 29.10 (8.04)        | 30.95 (7.06)          | -1.21        | 0.23    |
| Education                             | - Up to 10th std             | 20 (50%)            | 41 (68%)              | 3.40         | 0.18    |
|                                       | - 10th std to pre-university | 06 (15%)            | 06 (10%)              |              |         |
|                                       | - Degree and above           | 14 (35%)            | 13 (22%)              |              |         |
| Marital status                        | - Single /Separated /Widow   | 23 (58%)            | 15 (25%)              | 10.76        | 0.001   |
|                                       | - Married                    | 17 (43%)            | 45 (75%)              |              |         |
| Religion                              | - Hindu                      | 26 (65%)            | 52 (87%)              | 6.57         | 0.01    |
|                                       | - Muslim                     | 14 (35%)            | 08 (13%)              |              |         |
| Type of family                        | - Nuclear                    | 36 (90%)            | 49 (82%)              | 1.31         | 0.25    |
|                                       | - Joint                      | 04 (10%)            | 11 (18%)              |              |         |
| Area of residence                     | - Urban                      | 12 (30%)            | 24 (40%)              | 1.04         | 0.31    |
|                                       | - Rural                      | 28 (70%)            | 36 (60%)              |              |         |
| Occupation                            | - Student / Housewife        | 11 (28%)            | 39 (65%)              | 13.98        | 0.001   |
|                                       | - Own business               | 18 (45%)            | 11 (18%)              |              |         |
|                                       | - Employed                   | 11 (28%)            | 10 (17%)              |              |         |
| Mean monthly income (SD) (Rs)         |                              | 6563 (3112)         | 8692 (6968)           | -1.81        | 0.07    |
| Mean duration of illness (SD) (mths)  |                              | 15.35 (14.2)        | 15.63 (15.4)          | -0.09        | 0.93    |
| Suicidal attempts                     | - Yes                        | 04 (10%)            | 07 (12%)              | 0.07         | 0.79    |
|                                       | - No                         | 36 (90%)            | 53 (88%)              |              |         |
| No. of previous depressive episodes   | - No                         | 30 (75%)            | 45 (75%)              | 0.00         | 1       |
|                                       | - Yes                        | 10 (25%)            | 15 (25%)              |              |         |
| Family history of depressive disorder | - No                         | 37 (93%)            | 48 (80%)              | 2.94         | 0.09    |
|                                       | - Yes                        | 03 (8%)             | 12 (20%)              |              |         |
| Previously treated for depression     | - No                         | 34 (85%)            | 48 (80%)              | 0.41         | 0.52    |
|                                       | - Yes                        | 06 (15%)            | 12 (20%)              |              |         |

SD=standard deviation

monthly income of women was Rs. 8692±6968. Both the male and female subjects had almost the same mean duration of illness. Ninety per cent of the male subjects did not attempt suicide compared to 88% of female subjects. In both the genders, majority (75%) did not have previous depressive episodes. Ninety three per cent of male subjects did not have family history of depression. Only 20% of the female subjects were previously treated for depression.

Table 2 compares somatic symptoms between male and female subjects. Both men and women are similar in mean somatic symptoms of headache, dizziness, insomnia, blurred vision, sore throat, difficulty in breathing, palpitation, chest pain, stomach discomfort, diarrhoea, coldness of hands or feet, and fatigue. There were statistically significant changes in constipation scores ( $t=-3.27$ ,  $p=0.001$ ); mean constipation scores were higher in women compared to men. Mean back pain scores were also found to higher in women; these differences are statistically significant ( $t=-2.23$ ,  $p=0.02$ ).

Data presented in Table 3 shows that there were no statistically significant differences between male and female patients with regard to depression, total somatic symptoms, QOL, and functional impairment scores.

Pearson's correlation was calculated to examine the relationship between the depressive scores, somatic symptoms scores, functional impairment scores, and QOL scores (Table 4). The somatic symptom scores are positively correlated with depression scores ( $r=.479$ ) and functional impairment scores ( $r=.417$ ), indicating that as the somatic symptoms increased depressive scores and functional impairment scores also increased. The somatic symptom scores were negatively correlated with QOL scores ( $r=-.399$ ), indicating that as somatic symptom scores were increasing QOL decreased. QOL scores were negatively correlated with depressive scores and functional

**Table 2: Comparison of somatic symptoms scores between male and female subjects**

| Somatic symptoms           | Males<br>(n=40) | Females<br>(n=60) | t     | p' value |
|----------------------------|-----------------|-------------------|-------|----------|
|                            | Mean±SD         | Mean±SD           |       |          |
| Headache                   | 5.05±3.77       | 5.83±3.74         | -1.02 | 0.31     |
| Dizziness                  | 4.03±3.69       | 4.2±3.88          | -0.23 | 0.82     |
| Insomnia                   | 6.35±3.24       | 5.67±3.31         | 1.02  | 0.31     |
| Blurred vision             | 3.7±3.67        | 4.8±3.43          | -1.53 | 0.13     |
| Sore throat / hoarse voice | 2.03±2.90       | 2.63±3.09         | -0.98 | 0.33     |
| Difficulty in breathing    | 3.95±3.94       | 2.92±3.5          | 1.38  | 0.17     |
| Palpitation                | 5.63±3.44       | 5.77±3.32         | -0.2  | 0.84     |
| Chest pain                 | 3.15±3.33       | 3.98±3.62         | -1.16 | 0.25     |
| Stomach discomfort         | 4.05±3.58       | 4.55±3.87         | -0.65 | 0.52     |
| Diarrhoea                  | 0.43±1.53       | 0.43±1.35         | -0.03 | 0.98     |
| Constipation               | 0.25±1.10       | 1.98±3.22         | -3.27 | 0.001**  |
| Coldness of hands or feet  | 2.75±3.38       | 3.17±3.32         | -0.61 | 0.54     |
| Back pain                  | 3.55±3.91       | 5.2±3.43          | -2.23 | 0.02*    |
| Fatigue                    | 6.88±3.11       | 6.88±2.64         | -0.01 | 0.99     |

SD=standard deviation

**Table 3: Comparison of depression, somatic symptom, quality of life, and functional impairment scores for male patients vs female patients**

| Variables              | Males<br>(n=40) | Females<br>(n=60) | t      | p' value |
|------------------------|-----------------|-------------------|--------|----------|
|                        | Mean±SD         | Mean±SD           |        |          |
| Depression             | 28.60±9.97      | 30.23±12.79       | -0.716 | .476     |
| Total somatic symptoms | 51.78±18.99     | 58.02±23.32       | -1.41  | 0.16     |
| Quality of life        | 64.08±11.70     | 65.33±12.37       | -0.51  | 0.61     |
| Functional impairment  | 30.35±8.62      | 30.32±9.12        | 0.02   | 0.99     |

SD=standard deviation

**Table 4: Correlation between depression, somatic symptoms, quality of life, and functional impairment among depressive patients (total n=100)**

| Variables             | Depression | Somatic symptoms | Functional impairment |
|-----------------------|------------|------------------|-----------------------|
| Somatic symptoms      | .479*      | 1                |                       |
| Functional impairment | .417*      | .282*            | 1                     |
| Quality of life       | -.688*     | -.399*           | -.528*                |

\*Correlation is significant at .001 level (2-tailed)

impairment scores ( $r=-.399$ ,  $r=-.688$ , and  $r=-.528$ ), indicating that as severity of depression increased QOL decreased; and also as the functional impairment increased QOL decreased (Table 4).

## Discussion

The main findings of this study show that two somatic symptom scores (back pain and constipation) significantly differ between female and male psychiatry outpatients with

depressive disorder. Two US population survey studies reported that women with major depressive disorder (MDD) were twice more likely to experience somatic depression than men with MDD.[23,24] In those studies, somatic depression was defined as having appetite disturbance, sleep disturbance, and fatigue. The studies reported that women with MDD were twice as likely to endorse all three somatic symptoms versus men with MDD. There were no statistically significant differences between male and female patients with regard to depression, total somatic symptoms, QOL, and functional impairment scores. The present study suggests that gender differences in depression are not adequately explained in terms of somatic symptoms. A number of other studies have examined whether there are gender differences in the endorsement of depressive symptoms on an item-by-item basis.[6,7,25-27] Some studies have found that women are more likely to report certain somatic items, including appetite disturbances, weight disturbances, and fatigue than men.[6,8,24,25] However, the specific somatic symptoms identified as potentially different for men and women are not the same across studies, and most somatic symptom items analysed show no differences.[26]

In the present study, somatic symptoms score was found to have positive associations with depression severity. There is a close affiliation between pain and depression. Over half of depressed patients suffer from pain, and more than a quarter of pain patients report significant depression.[12] There is a positive and strong association between the severity of depressive illness and somatic symptoms.[28,29] In regard to the relationship between somatic symptoms and functional impairment, the results showed that somatic symptoms score was positively associated with functional impairment. These results are consistent with those reported by Von Korff et al.,[30] who examined depression levels as a function of different dimensions of chronic pain among primary care patients. A study in Asian ethnic groups reveals that non-affective symptoms in depression have large health and functional significance and important implications for the diagnosis and management of depression among the elderly in primary care.[31] In regard to the relationship between somatic symptoms and QOL, the presence of somatic symptoms had a significant inverse association with QOL, a finding also recently reported in the psychiatric setting by Muñoz et al.[32]

Sreevani and Reddemma[33] found that QOL was significantly impaired in severely depressed patients. Depression is negatively correlated with QOL and positively correlated with functional impairment.[33]

Continuing research is required to explore the relative contributions of gender and socio-cultural factors in presentation of symptoms among depressive patients. It is particularly crucial to examine the ways in which common diseases manifest themselves differently in men and women. Evaluation and management of somatic symptoms are particularly salient issue in the treatment of depressive disorder.

There are several limitations to this study. The sample was limited to patients with depressive disorder, and therefore the results cannot provide information on somatic symptoms related to non-depressed populations. Small sample size limited the generalisability of the findings. The cross-sectional design of the study and the instruments used do not permit an investigation of the possible causal relationships between somatic symptoms and depression.

## Conclusion

Somatic symptoms are strongly associated with functional impairment, increased depression severity, as well as with decreased QOL. Results may contribute to help psychiatrist / physician to identify relevant characteristics of somatic symptoms in order to more effectively diagnose and treat depression in patients.

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