ORIGINAL ARTICLE

# Epidemiological correlates of Common Mental Disorders in a rural community of South India: A cross sectional study

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## Abstract

**Background**: Common Mental Disorders (CMDs) encompass a range of anxiety/depressive disorders. They cause considerable morbidity at individual level and pose a significant burden to the community in terms of the suffering and cost. **Objectives**: This study was done to determine the prevalence, determinants, patterns and severity of CMDs in a rural community of Udupi district. **Methods**: A cross sectional two- stage study was done in rural field practice area of Department of Community Medicine with the help of the Rural Psychiatry team from Department of Psychiatry. Screening for psychological distress in the first stage was done using SRQ-20. In second stage screen positive patients were assessed in Nitte CHC by trained psychiatrists using M.I.N.I schedule. Assessment of severity was done using Hamilton A scale (HAM A), Hamilton D scale (HAM D), Yale Brown Obsessive Compulsive Scale (YBOCS) and the Scale for Assessment of Somatic Symptoms (SASS). **Results**: Prevalence of CMDs was 26.5 per thousand population. Dysthymia was the most common diagnosis. Gender, marital status and educational status were the significant determinants of CMDs. Those who were married but staying separate/ divorced, illiterates and those educated up to primary school were the only groups with higher adjusted odds on multivariate analysis. The common presenting symptoms were sad mood/ crying episodes and somatic complaints. **Conclusion**: Prevalence of CMDs was low at 26.5 per thousand. Sad mood/ crying episodes as well as somatic complaints are the common presentations which have to be borne in mind when treating patients at the primary care level.

## Keywords

Epidemiology; Mental Health; Community

## Introduction

Many of the earlier epidemiological studies in community, primary or tertiary health care settings refer to common mental disorders using terms like neuroses or neurotic disorders or anxiety and depressive disorders or minor mental disorders. Common mental disorders (CMDs) was a term first coined by Goldberg and Huxley (1) to describe disorders that are commonly encountered in community and primary-care settings, and whose occurrence signals a breakdown in normal functioning. CMDs describe the 'deeper psychological distress states' of an individual and is primarily applicable to community mental health or mental health at/ in primary care. Thus, they include

"neurotic, stress-related and somatoform disorders" and "mood disorders. (2) Medically unexplained symptoms of pain and bodily dysfunction constitute the most frequent presentation. (3) CMDs are often associated with chronic physical health conditions, with the co-morbid depression and chronic diseases dramatically increasing the risk of poor health outcomes. (4)

Globally, about 4.4% of the population suffer from depressive disorder, and 3.6% from anxiety disorder. However, as many people suffer from depression and anxiety simultaneously, it is incorrect to combine the figures to derive the prevalence of CMDs. (5) The prevalence in India has been estimated at 20 to 30 per thousand population. (6)

## Aims & Objectives

1. To determine the prevalence of Common Mental Disorders in a rural community of Udupi district.
2. To assess the patterns and severity of various Common Mental Disorders in the community

## Material & Methods

The present study was a cross sectional study done in the rural field practice area, Nitte of K.S Hegde Medical Academy done for a period of 2 years from 2012-14. This was a community survey done with the help of medico-social workers and the psychiatric social workers of the psychiatry department at Nitte Community Health Centre.

With the earlier known prevalence as 2% (p) (6) and the absolute allowable error as 1%, the sample size was calculated to be 784 with the formula.

$$N = 4pq/L^2$$
$$= \frac{4 \times 2 \times 98}{1 \times 1}$$
$$= 784$$

Taking 20% as non-consenting persons, we contacted 940 persons.

Sampling unit taken was a household. Taking the average no. of adult members per household as 3 (as per NFHS 4, mean household size is 4.3 out of which 68% belong to 15-64 years age group), (7) the number of households surveyed in this study was calculated as follows:

$$\text{No. of households to be surveyed} = \frac{\text{Sample size (N)}}{\text{Average no. of adult members per household}}$$
$$= 940/3 = 313$$

Systematic random sampling was done and every 8th household was selected

$$\text{Sampling interval} = \frac{\text{Total no. of households in the rural field practice area (2347)}}{\text{No. of households to be surveyed (313)}}$$
$$= 7.5$$

All adults (persons belonging to age group 18-65 years) who consented to be a part of the study. Persons with severe psychiatric or medical disorders who cannot give a reliable and adequate history were excluded.

Common mental disorders in this study refer to following diseases as per ICD 10 classification- F 32.0 Mild Depressive Episode, F 32.1 Moderate Depressive Episode, F 32.2 Severe Depressive Episode Without Psychotic Symptoms, F 40-48 Neurotic, Stress Related and Somatoform Disorders. (8)

Ethical approval was obtained from the institutional ethics committee. The study was done in two stages. In the first stage the sample households selected from the Nitte community by systematic random sampling were screened. Before starting the study, village panchayat was approached and voters list as well as the list of households were obtained. Notable persons in the community and health centres were contacted and their cooperation was sought. Households were selected with the aid of the voters list issued for election purposes (ward no I to VIII). Door to door enquiry of each family as a unit and of each individual adult member of the family separately was done. They were screened with the help of psychiatry social worker who is adequately trained using the WHO Self Reporting Questionnaire (SRQ) (9) after obtaining informed consent (and the contact information of the household). Also, the details of the head of the family were obtained and socio-economic status was assessed by Udai Pareek revised scale. (10) Cross verification of the data was done by the principal investigator.

A cut off value of eight in SRQ was taken as screening positive and these individuals were referred to Nitte CHC to enter the 2nd stage. A score of 8 has shown a sensitivity of 79%, specificity of 96%, Positive Predictive Value of 75%, Negative Predictive Value of 97% and maximum (93.6%) cases screened correctly in a study by Chipimo and Fylkesnes. (11) Mobilization and sensitization were done by the psychiatry social worker. Steps taken to minimize follow up losses included telephonic contact with the

individuals, home visits and transport arrangements to the CHC. In the second stage at the CHC, screen positive persons underwent further evaluation. A detailed assessment was done by 3 qualified and trained psychiatrists to obtain specific psychiatric diagnoses using MINI PLUS. (12) All the psychiatrists are trained and working in the same institution and follow same protocol ensuring inter-observer reliability. Severity assessment was done using Hamilton A for anxiety, (13) Hamilton D for depression, (14) Yale Brown Obsessive Compulsive Scale (YBOCS) for OCD (15) and Scale for Assessment of Somatic Symptoms (SASS) for somatoform disorders. (16) A pilot study was undertaken to test the accuracy of questionnaires, validate the translation of the scales and to test the operational efficiency of the study plan.

Descriptive analysis was done to calculate the percentage prevalence of common mental disorders as well as to assess the distribution of sociodemographic characteristics. Chi square test was done to determine the level of significance of association between sociodemographic factors and common mental disorders. Further, multivariate logistic regression was also performed among those predictors that emerged significant on univariate analysis. All analyses have been represented in tables and figures as necessary

## Results

Majority of the study population had no psychiatric diagnosis or psychological distress (908 subjects, 96.3%). Of the 40 (4%) subjects with psychological distress (SRQ score of 8 or more, four refused further assessment, three scored normal (<8) with repeat SRQ, three had some diagnosis other than common mental disorder. This group includes one case of Bipolar disorder, one case of alcohol dependence disorder and one case of hyperthyroidism with no anxiety. Five patients had no psychiatric disorder though distress was present. 25 patients were ultimately diagnosed with common mental disorder; hence the prevalence of CMD was assessed to be 26.5 per thousand population. (Table 1)

A higher prevalence of CMD was seen in females (3.6%) compared to males (1.41%). Also, out of the persons diagnosed with CMDs, females (76%) outnumbered the males (24%) by 3 times. This difference was significant, with a significant association of CMD and gender (p=0.033) [OR Females: Males=3.04] Majority (64%) of those diagnosed with CMDs were married and staying together. However, the highest prevalence of CMD (100%) was seen in divorcees and least in unmarried (0.89%). The association between marital status and CMD was highly significant (p=0.000) [OR Divorced: Married=68.2; OR Married and together: Married and separate= 5.97; Divorced: Widowed= 58.5] The majority (30%) of persons with CMDs was educated up to primary school and the next majority (27.5%) educated up to middle school (28%. However, illiterates had the highest prevalence (6.81 %) followed by those educated up to primary school. There was a significant association between education and CMD (p=0.002). [Illiterate+ primary: others=3.94] There was no significant association of CMDs with SE class (p=0.848), occupation (p=0.705), age (p=0.151), religion (p=0.914), individual monthly income (p=0.150), physical morbidity (p=0.692), tobacco use (p=0.801) and alcohol consumption (p=0.761) (Table 2), and (Table 3)

However, those who were married but staying separate or divorced, illiterates and those educated up to primary school were the only groups that were found to have higher adjusted odds of common mental disorder (Adjusted odds of 16.9, 8.8 and 7.1 respectively) on multinomial logistic regression analysis with bootstrapping. (Table 4)

The most common presenting symptoms were sad mood/ crying episodes (76%) and somatic complaints (64%). Other presenting complaints included lack of interest and motivation, decreased appetite, memory and concentration, pessimistic ideas, low self-esteem, autonomic symptoms, tremors, hopelessness and helplessness, poor interpersonal relationships, irritability and anger outbursts. (Figure 1)

Out of the 25 patients, on history taking, most (17 patients, 68%) had a continuous course of illness. Almost equal number had normal (12, 48%) or decreased appetite (13, 52%). Majority of them (21 patients, 84%) had complained of decreased sleep. Dysthymia was the most common psychiatric diagnosis (60%), followed by major depressive episode (20%) and adjustment and mixed anxiety depressive disorder (12%). All patients were assessed with HAM- A. Majority (20 patients, 80%) was normal or had mild anxiety. 5 patients (20%) were diagnosed to have very severe depression with HAM-D and 2 (8%) were diagnosed with severe depression. A total of 5 patients (20%) presented with somatic complaints. Of these 2 (8%) of them

had >11 such complaints. 2 of the patients (8%) presented with significant somatic complaints (complaints that scored 3 or more in SASS) Only 10 patients (40%) had sought some form of care for their mental illness in the past. Out of those who sought help, most of them (6 of the total 25, 24%) had sought help from 1 carer alone. (Table 5)

## Discussion

Differences in definitions and evolution of concepts over time make accurate comparisons with respect to prevalence difficult. In the present study, CMD has been defined as depressive disorders including dysthymia, phobias, panic disorders, OCD, somatoform disorders, adjustment disorders and anxiety depressive disorders. This is a two-stage study and hence yields more accurate picture compared to studies which defined CMD based on a single screening questionnaire. The present study yielded a prevalence rate of CMD at 26.5 per thousand population. Prevalence estimates were comparable to some studies (6, 17, 18) but lower than others. (19, 20) Reasons could be true difference in common mental disorder prevalence or due to differences in study designs. Wide variations occur in prevalence rates as seen in various epidemiological studies; and this could be because of true changes across various populations studied at the same time or even in the same population over a period of time. The dynamic nature of mental disorders in general plays a major role in these variations. Defining a case is another contributing factor, if threshold for definition of a case in very low, prevalence rates will be obtained very high. (6) In the present study, threshold for caseness has been set considering 2 factors- lower threshold may lead to labelling of more people as cases and recalling them to CHC may lead to issues of stigma, at the same time it also had feasibility issues. Comparison of Indian studies with that of the west finds lower rates and it is postulated that either many Indian studies were not able to tap psychiatric morbidity adequately or prevalence rates are truly low in India because of low rates of substance abuse, genetic reasons, good social and family support, cultural factors, life style, better coping skills and comfortable environment. (6)

In the present study significant associations of CMD were seen with gender, with 3 times higher rates among females. Earlier studies in India (21,22,23) and abroad (24,25,26,27) have found gender to be a significant associated factor with females tending to have a higher prevalence particularly of depression and other affective disorders than males similar to our study. V Patel and A Kleinman (28) argue that apart from the possible role of biological factors, it is plausible that gender factors- the considerable stresses faced by women may also play a role. In many developing societies, women bear the brunt of the adversities associated with poverty: less access to school, physical abuse from husbands, forced marriages, sexual trafficking, fewer job opportunities and, in some societies, limitation of their participation in activities outside the home.

Our study found that education was a significant factor contributing to CMD. Illiterates and primary school educated had significantly higher rates of CMD. This association of common mental disorders with education is well known and has been demonstrated in earlier studies. (24,29) V Patel and A Kleinman 29 state that the relationship between low educational level and mental disorders may be confounded or explained by a number of pathways: these include malnutrition, which impairs intellectual development, leading to poor educational performance and poor psychosocial development. Also, the social consequences of poor education are obvious: lack of education represents a diminished opportunity for persons to access resources to improve their situation. T Fryers et al (30) in their systematic review to study social inequalities and CMDs in Europe found that education emerges strongly as a useful indicator for CMDs and suggest focusing more on education indicators, suitably honed, to identify vulnerable groups for preventive action.

The third significant factor for CMD that emerged in the present study was marital status, with married but staying separate or divorced individuals having a higher odd of CMD. This association has been found in many other studies. (18,20,31)

In the present study socioeconomic status was not found to a significant factor contributing to CMDs. Earlier evidence shows that it may not be the socio-economic status per se in but insecurity which is associated with CMDs. Security is defined as- stability and maintenance of livelihood, relationships, feeling of safety and a sense of belonging to a social group. (32) Lack of security, shame, stigma and the humiliation that are associated with poverty lead to common mental disorders. In the present study, many of these factors

are unlikely to be present since majority of the population; even among those belonging to lower socioeconomic classes had some form of steady income and social support from other members of the family or the community and there were no individuals with dire states like homelessness. There were no households in extremes of social class, thus there was also no widespread income inequity. This may explain the lack of association of socioeconomic status with CMDs here.

## Conclusion

Prevalence of CMDs was low at 26.5 per thousand. Dysthymia was the most common diagnosis. Sad mood and somatic complaints were the most common presenting symptoms among the patients. Being a female, married but staying separate and divorced individuals, poor education (primary and illiterate) were the significant factors for CMDs.

## Recommendation

We recommend that planning for community mental health services at a health centre level should include initial screening at community level for psychological distress by trained medico social workers using standardized scales. Those patients who have distress may be mobilized by the medico social workers for a detailed assessment at the health centre level by qualified psychiatrists. Further feasibility studies can be undertaken by Departments of Community Medicine/ Psychiatry before implementing these strategies in a larger scale.

## Limitation of the study

The SRQ instrument checks the distress based on questions on the subject's experiences for the past 1 month. Since the referral and mobilization of screened persons was a continuous process, some of the individuals while passing from first to second stage, on repeat assessment became SRQ negative. The effect of this transition on prevalence is hard to interpret. The number of subjects who were diagnosed with individual diagnoses were small, hence second stage analysis were done on smaller numbers or samples. Loss to follow up was present to a certain extent, though small.

## Relevance of the study

CMDs have been shown to be associated significantly with low socioeconomic status in the past. However, in the current study there was no such association. Instead education and marital status were the significant determinants which may reflect the fact that in a rural community without widespread socioeconomic inequities; social support, feeling of safety and sense of belonging may play a more important role in mental health.

## Authors Contribution

Dr SSM was involved in the development of concept and study design, definition of intellectual content, literature search, data collection, data analysis and statistical analysis, manuscript preparation and manuscript editing. Dr RK was involved in the development of concept and study design, definition of intellectual content, data analysis, statistical analysis and manuscript review.

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## Tables

### TABLE 1 DISTRIBUTION OF STUDY POPULATION ACCORDING TO FINAL ASSESSMENT (N=943)

| Diagnosis | Frequency (Percentage) |
|---|---|
| **CMD** | 25 (2.7%) |
| **Other psychiatric/ medical diagnosis** | 3 (0.3%) |
| **Nil psychiatric diagnosis** | 908 (96.3%) |
| **Repeat SRQ normal** | 3 (0.3%) |
| **Refusal/ loss to follow up** | 4 (0.4%) |
| **Total** | 943 |

### TABLE 2 SOCIOECONOMIC DETERMINANTS OF COMMON MENTAL DISORDERS (N =943)

| | | CMD | | Total | p value |
|---|---|---|---|---|---|
| | | CMD present | CMD absent | | |
| **Socio-economic class** | Class 2 | 3 (3.5%) | 83 (96.5%) | 86 (91.2%) | 0.848 |
| | Class 3 | 12 (2.4%) | 480 (97.5%) | 492 (52.7%) | |
| | Class 4 | 10 (2.7%) | 355 (97.2%) | 365 (38.7%) | |
| **Occupation** | Unemployed | 12 (2.8%) | 411 (97.2%) | 423 (44.8%) | 0.705 |
| | Unskilled worker | 7 (3.8%) | 179 (96.2%) | 186 (19.7%) | |
| | Semiskilled worker | 1 (1.1%) | 94 (98.9%) | 95 (10.1) | |
| | Skilled worker | 1 (1.1%) | 94 (98.9%) | 95 (10.1%) | |
| | Clerical, shop owner, farmer | 4 (3.4%) | 114 (96.6%) | 118 (12.5%) | |
| | Semi-professional | 0 | 14 (100%) | 14 (1.5%) | |
| | Professional | 0 | 12 (100%) | 12 (1.3%) | |
| **Education** | Illiterate | 6 (6.8%) | 82 (93.2%) | 88(9.3%) | 0.002* |
| | Primary school certificate | 8 (5.3%) | 142 (94.6%) | 150 (15.9%) | |
| | Middle school certificate | 7 (3.33%) | 203 (96.67%) | 210 (22.26%) | |
| | High school certificate | 2 (0.96%) | 206 (99.03%) | 208 (22.05%) | |
| | Intermediate, post high school | 0 | 206 (100%) | 206 (21.84%) | |
| | Graduate or post graduate | 2 (5.12%) | 37 (94.87%) | 39 (4.13%) | |
| | Professional or honours | 0 | 42 (100%) | 42 (4.45%) | |
| **Individual monthly income** | > ₹ 20000 | 0 | 12 (100%) | 12 (1.3%) | 0.150 |
| | ₹10000- ₹20000 | 0 | 38 (100%) | 38 (4%) | |
| | ₹5000- ₹10000 | 2 (1.5%) | 130 (98.5%) | 132 (14%) | |
| | ₹1000- ₹5000 | 3 (1.4%) | 212 (98.6%) | 215 (22.8%) | |
| | < ₹1000 | 7 (5.7%) | 115 (94.3%) | 122 (12.9%) | |
| | none | 13 (3.1%) | 411 (96.9%) | 424 (45%) | |

### TABLE 3 MENTAL DISORDERS AND OTHER SOCIO-DEMOGRAPHIC & PERSONAL CHARACTERISTICS

| | | | | | |
|---|---|---|---|---|---|
| **Religion** | **Hindu** | **21 (2.7%)** | **771 (97.3%)** | **792 (83.9%)** | **0.914** |
| | Muslim | 2 (2.2%) | 89 (97.8%) | 91 (9.7%) | |
| | Christian | 2 (3.3%) | 58 (96.7%) | 60 (6.4%) | |
| **Gender** | Male | 6 (1.4%) | 418 (98.6%) | 424 (45%) | 0.040* |
| | Female | 19 (3.7%) | 500 (96.3%) | 519 (55%) | |
| **Age** | 18-25 | 3 (1.6%) | 189 (98.4%) | 192 (20.4%) | 0.151 |

| | | | | | |
|---|---|---|---|---|---|
| | 26-35 | 4 (2.2%) | 176 (97.8%) | 180 (19.1%) | |
| | 36-45 | 6 (3.1%) | 186 (96.9%) | 192 (20.4%) | |
| | 46-55 | 10 (4.9%) | 194 (95.1%) | 204 (21.6%) | |
| | 56-65 | 2 (1.1%) | 173 (98.9%) | 175 (18.6%) | |
| **Marital status** | Unmarried | 2 (0.9%) | 221 (99.1%) | 223 (23.64%) | 0.000* |
| | Married and staying together | 16 (2.7%) | 574 (97.3%) | 590 (62.5%) | |
| | Married but staying separate | 1 (14.3%) | 6 (85.7%) | 7 (0.74%) | |
| | Divorced | 2 (100%) | 0 | 2 (0.21%) | |
| | Widow/widower | 4 (3.3%) | 117(96.7%) | 121 (12.83%) | |
| **Co morbidity** | 1 co morbidity | 10 (3.3%) | 297 (96.7%) | 307 (32.6%) | 0.692 |
| | >1 comorbidity | 1 (1.8%) | 56 (98.2%) | 57 (6%) | |
| | none | 14 (2.4%) | 565 (97.6%) | 579 (61.4%) | |
| **Tobacco use** | yes | 4 (2.1%) | 184 (97.9%) | 188 (19.9%) | 0.801 |
| | no | 21 (2.8%) | 734 (97.2%) | 755 (80.1%) | |
| **Alcohol use** | yes | 2 (1.6%) | 120 (98.4%) | 122 (12.9%) | 0.761 |
| | no | 23 (2.8%) | 798 (97.2%) | 821 (87.1%) | |

## TABLE 4 COMMON MENTAL DISORDERS IN MULTIVARIATE REGRESSION ANALYSIS (N =943)

| | CMD | Adjusted Odds (95%CI) | p value |
|---|---|---|---|
| **Gender** | Male | 0.521 (0.202 to 1.349) | 0.179 |
| | Female | Reference group | |
| **Marital status** | Unmarried | 0.966 (0.146 to 6.382) | 0.971 |
| | Married and staying together | 1.478 (0.461 to 4.736) | 0.511 |
| | Married but staying separate or divorced | 16.97 (2.86 to 100.35) | 0.002 |
| | Widow/ widower | Reference group | |
| **Education status** | Illiterate | 8.81 (1.54 to 50. 32) | 0.014 |
| | Primary school | 7.12 (1.38 to 36.69) | 0.019 |
| | Middle school | 4.32 (0.86 to 21.69) | 0.07 |
| | High school | 1.31 (0.18 to 9.48) | 0.79 |
| | Post high school/ Graduate/ Professional | Reference group | |

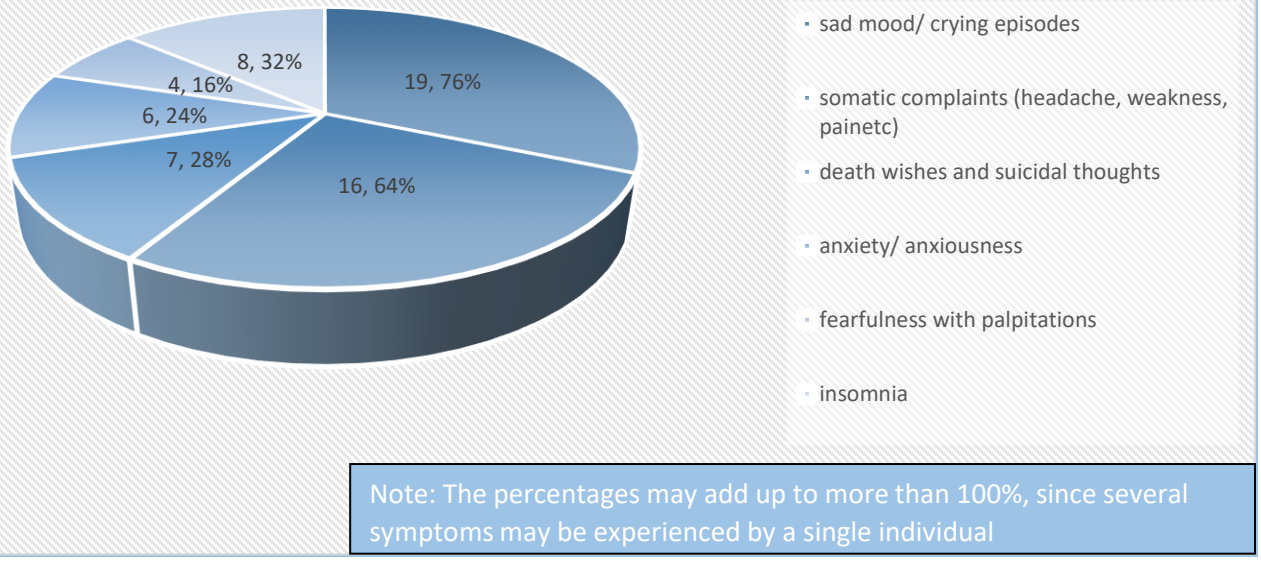
## TABLE 5 PATIENTS OF CMD ACCORDING TO PSYCHIATRIC ASSESSMENT (N=25)

| Course of illness | Stable | 1 (4%) |
|---|---|---|
| | Episodic | 7 (28%) |
| | Continuous | 17 (68%) |
| **Appetite** | Normal | 12 (48%) |
| | Decreased | 13 (52%) |
| **Sleep** | Normal | 4 (16%) |
| | Decreased | 21 (84%) |
| **Psychiatric diagnosis (MINI)** | Dysthymia or dysthymia with comorbid psychiatric illness | 15 (60%) |
| | Social phobia | 1 (4%) |
| | Adjustment and mixed anxiety depressive disorder | 3 (12%) |
| | MDD or MDD with comorbid psychiatric illness | 5 (20%) |
| | Somatization disorder | 1 (4%) |
| **Duration of illness** | < 1 year | 4 (16%) |
| | 1- 5 years | 16 (64%) |
| | 6- 10 years | 1 (4%) |
| | 11- 15 years | 2 (8%) |
| | 16 years and above | 2 (8%) |
| **No. of somatic symptoms** | None | 20 (80%) |
| | 1 to 5 | 2 (8%) |
| | 6 to 10 | 1 (4%) |
| | 11 to 15 | 2 (8%) |

| | | |
|---|---|---|
| **Severity of anxiety** | Mild (0-17) | 20 (80%) |
| | Mild to moderate (18- 25) | 5 (20%) |
| **Severity of depression** | Normal (0-7) | 8 (30%) |
| | Mild (8-13) | 6 (24%) |
| | Moderate (14-18) | 4 (16%) |
| | Severe (19-22) | 2 (8%) |
| | Very severe (>/= 23) | 5 (20%) |
| **Care seeking in the past** | Yes | 10 (40%) |
| | No | 15 (60%) |

## Figures

### FIGURE 1 STUDY POPULATION ACCORDING TO THE PRESENTING SYMPTOMS (N= 25)




Note: The percentages may add up to more than 100%, since several symptoms may be experienced by a single individual