

Prevalence and Determinants of Somatization and Anxiety among Adult Women in an Urban Population in Kerala

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Abstract

Background: Common mental disorders (CMDs) such as somatization and anxiety are prevalent in general practice. These are twice more common in women. **Objectives:** The objective of this study is to estimate the prevalence and determinants of somatization and anxiety among adult women in an urban population of Kochi. **Materials and Methods:** A cross-sectional study was conducted among 1210 adult women of Kochi in 2016–2017. The Patient Health Questionnaire-15; the Generalized Anxiety Disorder-7 questionnaire; the Hurt, Insult, Threaten, and Scream tool; and a semi-structured questionnaire were used to estimate the prevalence of somatization and anxiety. Descriptive statistics and univariate and multivariate analysis were done for factors associated with CMDs. **Results:** Most of the respondents were married (77.7%), with a mean age of 45.24 ± 15.59 . In the current study, 40.8% (95% confidence interval [CI] = 38.09–43.62) had somatization and 23.9% (95% CI = 21.57–26.37) had anxiety disorders. In the final logistic regression model, hypertension, perception of illness, positive family history of mental illness, and arthritis were the four determinants common to somatization and anxiety. Menstrual problems (odds ratio [OR] = 3.19; 95% CI = 1.12–5.9), cardiac illness (OR = 2.31; 95% CI = 1.08–4.9), and history of major surgeries (OR = 1.62; 95% CI = 1.14–2.41) were independent determinants of somatization. The status of being single (OR = 1.71; 95% CI = 1.25–2.32), adverse life circumstances (OR = 5.85; 95% CI = 3.98–8.6), diabetes (OR = 2.04; 95% CI = 1.25–3.34), sleep problems (OR = 1.64; 95% CI = 1.77–2.91), and history of drug use (OR = 4.89; 95% CI = 1.92–12.46) were independent determinants of anxiety. **Conclusion:** Mental health services for urban women deserve immediate attention as the prevalence of somatization and anxiety is high. Hence, it is important to screen for somatization and anxiety among women with noncommunicable diseases.

Keywords: Anxiety, common mental disorders, somatization, urban women

INTRODUCTION

Common mental disorders (CMDs) are a group of distress states manifesting as anxiety, somatic, and depressive symptoms and are the contemporary equivalent of neurotic disorders typically encountered in community and primary care settings.^[1,2] The WHO estimates that CMDs will be the leading cause of disability-adjusted life year by 2020.^[3] This study will focus mainly on somatization and anxiety among adult women. Women are faced with various life stressors including menstrual problems, comorbidities, marriage, and caring for the sick of the family.^[4] The factors associated with the risk of CMDs include excessive partner alcohol use, domestic violence, being separated, low autonomy in decision-making, and low levels of support from one's family.^[5] In a meta-analysis, the prevalence of CMDs in urban areas was high at 80.6%.^[6] Studies on CMDs such as anxiety and

somatization are lacking in Kerala. With the fast-paced life bringing a dramatic change in the roles and responsibilities of women in the home and outside, it is pertinent to study the prevalence of somatization and anxiety and associated factors among women in an urban population of Kochi.

MATERIALS AND METHODS

A cross-sectional study was conducted in Cochin Corporation among 1210 adult women of Ernakulam district, Kerala,

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between November 2016 and April 2017. Ethical committee approval and written informed consent were obtained from participants.

The sample size was calculated based on the prevalence of somatization and anxiety in two studies done by Escobar *et al.*^[7] in two large community samples in a developing country and Pinal Patel *et al.*^[8] in Gujarat, respectively. Data on depression are being analyzed and will be published later. The sample size was estimated for somatization with a prevalence of 19.7% and for high anxiety with a prevalence of 35% using the formula $4pq/d^2$. The minimum sample size was calculated as 438 and 186. Therefore, the higher sample size of 438 was taken and rounded off to 440. Assuming a design effect of 2 and a nonresponse rate of 10%, the minimum sample size was calculated to be 968. All women above 18 years who were residents of Cochin Corporation for more than 5 years were included. Seriously ill or bedridden patients who may have lost their ability to comprehend and those who were not willing to participate were excluded from the study.

Each corporation division was considered as a cluster, and the probability proportional to size (PPS) cluster sampling was carried out. The sampling frame included the adult female population 388,439. It was decided to choose 30 households from each cluster; hence, the number of clusters was 968/30 which is 32, and this was rounded to 40 clusters. The number of clusters was calculated to be 40, and the sampling interval was $388,439/40 = 9711$. The random number <9711 selected from the random number table was 744. To this random number, the sampling interval was consecutively added to identify the 40 clusters. Cochin Corporation consists of 74 divisions, of which 40 divisions were chosen using PPS technique. Thus, forty clusters and thirty houses from each cluster were selected. One woman was chosen from each household. After reaching the clusters, on the day of data collection, the principal investigator went to the center of the division and chose a direction randomly using lottery method by numbering the roads in a clockwise direction. All the houses in the right side of the chosen direction were visited, till thirty women above 18 years were reached. If the chosen direction ended before completing thirty houses, the right direction from the end of the first randomly chosen direction was selected. The Kuppaswamy classification for 2016 was used to assess the socioeconomic status, after scoring educational attainment, occupation engaged in, and monthly family income. If there were more than one woman in the household, the older women were chosen. This should not result in a major bias as the representation of the age group above 18 years is fairly representative of the distribution in Ernakulam district. Thus, a total of 1210 adult women were interviewed for the study. The Patient Health Questionnaire (PHQ)-15 and the Generalized Anxiety Disorder (GAD)-7 were used to assess somatization and anxiety. A pretested semi-structured questionnaire was also prepared. The Hurt, Insult, Threaten, and Scream (HITS) tool was used to measure domestic violence. Persons with a score of more than 10 are considered to be suffering from domestic

violence. HITS tool is an easy to use screening tool.^[9] The comorbidities were self-reported.

The collected data were tabulated on MS Excel, and the analysis was done using IBM SPSS Statistics for Windows, Version 20.0. (Armonk, NY: IBM Corp). To test the statistical significance between various factors and CMDs, the Chi-square test was done. Independent determinants were determined by backward logistic regression analysis.

RESULTS

The prevalence and determinants of somatization and anxiety were determined among 1210 adult women of Kochi Corporation. The mean age of women was 45.24 ± 15.59 years. More than half of the respondents (52%) belonged to Hindu faith. About three-fourths (77.7%) of the respondents were married. Only 0.2% of the urban adult women were illiterate. A majority of women (61%) were unemployed or homemakers. More than three-fourths (79.5%) of the study population belonged to the middle class of the Kuppaswamy scale. About 60% had less than or four members in the family. About 14.5% of the study respondents thought that they were ill. In the present study, 9.25% were suffering from domestic violence. Among the respondents comorbidities such as Hypertension was found among 14%, Type 2 diabetes and menstrual problems among 9% each [Table 1]. In this study, 40.8% (95% confidence interval [CI] = 38.09–43.62) of the respondents had symptoms of somatization according to PHQ-15. Less than a fourth (23.9%; 95% CI = 21.57–26.37) of the respondents suffered from GAD according to GAD-7.

In the univariate analysis of factors associated with somatization, 48.3% of those who were unmarried, widowed, divorced, and separated suffered more symptoms of somatization (odds ratio [OR] = 1.57; 95% CI = 1.23–2.01). In this study, 67.3% of women with hypertension suffered from somatization in contrast to 38.2% of women without hypertension (OR = 3.32; 95% CI = 2.19–5.01). A higher proportion of women (66.4%) with menstrual problems have also reported somatic symptoms (OR = 3.21; 95% CI = 2.14–4.81).

In the univariate analysis for factors associated with anxiety, 35.5% of those who were unmarried, widowed, divorced, and separated suffered significantly more anxiety than those who were married (OR = 2.48; 95% CI = 1.18–3.2; $P < 0.001$). Women who were diabetic had 2.49 times (95% CI = 1.77–3.49) the odds of having anxiety compared to nondiabetic women. About 33.5% of women who had adverse life circumstances in their personal life involving matters of finance, health, and social relationships were found to have anxiety (OR = 5.054; 95% CI = 3.566–7.164).

In the final logistic regression model, hypertension, perception of illness, positive family history of mental illness, and arthritis were the four determinants common to somatization and anxiety. Menstrual problems (OR = 3.19; 95% CI = 1.12–5.9),

Table 1: Distribution of respondents according to comorbidities and personal habits (n=1210)

Number	Variable	n (%)
1	Domestic violence (using HITS tool)	
	Domestic violence + (score >10)	87 (9.25)
	Domestic violence – (score <10)	854 (90.75)
2	History of chronic disease in family member	
	Yes	109 (9)
	No	1101 (91)
3	History of mental illness among family member	
	Yes	48 (4)
	No	1162 (96)
4	Diabetes	
	Yes	172 (14.2)
	No	1038 (85.8)
5	Hypertension	
	Yes	110 (9.09)
	No	1100 (90.9)
6	Cardiac illness	
	Yes	48 (4)
	No	1162 (96)
7	Arthritis	
	Yes	55 (4.5)
	No	1155 (95.5)
8	Menstrual problem	
	Yes	116 (9.6)
	No	1094 (90.4)
9	Others	
	Yes	42 (3.5)
	No	1168 (96.5)
10	History of major surgeries in the past	
	Yes	60 (13.2)
	No	1050 (86.8)
11	Sleep problems	
	Yes	769 (63.5)
	No	441 (36.4)
12	Ever use of alcohol	
	Yes	67 (5.5)
	No	1143 (94.5)
13	Ever use of tobacco	
	Yes	54 (4.5)
	No	1156 (95.5)
14	History of drug use	
	Yes	9 (0.7)
	No	1201 (99.3)
15	Adverse life circumstances	
	Finance problems	439 (36.3)
	Health problems	98 (8.1)
	Relationship problems	76 (6.3)
	Others	122 (10.1)

cardiac illness (OR = 2.31; 95% CI = 1.08–4.9), and history of major surgeries (OR = 1.62; 95% CI = 1.14–2.41) were independent determinants of somatization [Table 2]. The status of being single (OR = 1.71; 95% CI = 1.25–2.32), adverse life circumstances (OR = 5.85; 95% CI = 3.98–8.6),

Table 2: Logistic regression analysis for determinants of somatization

Number	Variable	Adjusted OR	95% CI	P
1	Perception of illness	2.62	1.77-3.87	<0.001
2	History of mental illness among family members	3.32	1.64-6.74	<0.001
3	Hypertension	1.74	1.01-2.78	0.003
4	Cardiac illness	2.31	1.08-4.9	0.029
5	Arthritis	2.45	1.32-4.54	0.005
6	History of major surgeries in the past	1.62	1.14-2.41	0.008
7	Menstrual problems	3.19	1.12-5.9	<0.001

OR: Odds ratio, CI: Confidence interval

diabetes (OR = 2.04; 95% CI = 1.25–3.34), sleep problems (OR = 1.64; 95% CI = 1.77–2.91), and history of drug use (OR = 4.89; 95% CI = 1.92–12.46) were independent determinants of anxiety [Table 3].

DISCUSSION

The prevalence of somatization and anxiety among adult women in this study is 40.8% and 23.9%, respectively.

The presence of Co-morbidities such as Hypertension and a perception of being ill increased the odds of suffering from anxiety and somatisation by at least two times. A positive family history of mental illness was responsible for a 3 times and 2.5 times higher odds of suffering from somatization and anxiety, respectively.

The present study found an important association between somatization and perception of illness (OR = 2.62; 95% CI = 1.77–3.87). However, in a study in Sindh, 84% of the respondents thought that they had no mental issues though 40% had CMD.^[10] The present study found a significant association between somatization and menstrual problems (OR = 3.19; 95% CI = 1.12–5.9). In a South Indian study, it was shown that the prevalence of CMDs among women with menstrual problems was 25.93%.^[11] The current study also found a significant association between somatization and history of mental illness among family members (OR = 3.32; 95% CI = 1.64–6.74). In a study in Assam, patients with somatization had a significantly higher odds of a positive family history of mental illness.^[12]

In a Pakistan study, the prevalence of anxiety was 22% in the general population^[13] and the prevalence of CMD was more among married (60%)^[14] in contrast to this study where the single women were more likely to be more anxious. The current study also found an important association between adverse life circumstances and anxiety (OR = 5.85; 95% CI = 3.98–8.6). It was found that women with CMD were more likely to report financial problems in meeting their daily needs. This is consistent with a review linking CMD and poverty.^[15] This study found an association between anxiety and arthritis (OR = 2.21; 95% CI = 1.12–4.31). In a

Table 3: Logistic regression analysis for determinants of anxiety

Number	Variable	Adjusted OR	95% CI	P
1	Marital status - unmarried, divorced, separated, and widowed	1.71	1.25-2.32	<0.001
2	Perception of Illness	1.58	1.06-2.46	0.042
3	History of mental illness among family members	2.47	1.26-4.84	0.008
4	Diabetes	2.04	1.25-3.34	0.004
5	Hypertension	1.83	1.04-3.23	0.034
6	Arthritis	2.21	1.12-4.31	0.021
7	History of drug use	4.89	1.92-12.46	0.001
8	Adverse life circumstances	5.85	3.98-8.6	<0.001
9	Sleep problems	1.64	1.77-2.91	0.004

OR: Odds ratio, CI: Confidence interval

hospital-based study in Egypt among patients with rheumatoid arthritis, anxiety was diagnosed among 70% of the patients.^[15]

Chronic diseases and injuries are the leading public health problems in India.^[17] CMDs share common determinants with noncommunicable diseases (NCDs) and frequently co-occur.^[18] The prevalence of CMDs among individuals with NCDs ranges from 22% to 33%.^[19] Evidence from South Asia has shown that psychosocial factors and stress at work or home have an association with cardiac illness (OR = 2.62).^[20] Risk of stroke is increased among individuals suffering from mental disorder, and 31% of survivors are likely to have mental disorder at any time point up to 5 years after stroke.^[21] Although this study was carried out among a representative urban population, the limitation of this study is that the diagnosis could not be confirmed by a psychiatrist due to the large number of people involved and the geographic spread of the respondents.

CONCLUSION

The prevalence of somatization and anxiety is high with about one in two and one in four urban adult women, respectively, suffering from somatization and anxiety. Screening among women with other NCDs is especially important as diseases such as hypertension, diabetes, and arthritis seem to be important determinants. Somatization also requires further in-depth studies to rule out other diseases. Therefore, mental health services for women cannot be ignored and deserves immediate attention.

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Conflicts of interest

There are no conflicts of interest.

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