

# Determining the Prevalence of Chronic Illness in Patients

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## Abstract

Chronic disorders including Type 2 Diabetes Mellitus (T2DM) and hypertension are often linked to psychiatric co-morbidities such as anxiety, sadness, and somatization (HTN). Depression and anxiety that are brought on by illness have a negative impact on quality of life and increase the amount of money spent on medical treatment. Co-occurring mental problems, on the other hand, go mostly unnoticed and untreated. Our study's goals were to assess the prevalence of common mental illnesses (anxiety, depression, and somatization) among T2DM and HTN patients and to discover the factors related with these common mental disorders. Outpatient services of the Community Health Department of St. Stephen's Hospital, situated in an urban slum in East Delhi, were used as the setting for cross-sectional research. Study participants were people with Type 2 Diabetes (T2DM), Hypertension (HTN), or both. Patient Health Questionnaire-Somatic, Anxiety and Depression Symptoms was used to gather information from the subjects, who were then interviewed (PHQ-SADS). SPSS 20.0 was used to analyze the data. Logistic regression was used to investigate the relationship between variables. 51.5% of those in the research had just hypertension, 25.7% had only type 2 diabetes, and 22.8% had it all. This study reported a 56.4% prevalence of light anxiety, a 45.6% prevalence of moderate anxiety and an 8.8% prevalence of severe anxiety and a prevalence of 79.2% (46.2%) mild anxiety and a 43.75% moderate anxiety and a 10.0% severe depression. The research population has a high prevalence of prevalent mental diseases. Awareness and treatment for these disorders should be promoted.

**Keywords:** *Epidemiology, Co-morbidly, Community Psychiatry, Diabetes mellitus, Modifiable risk factors.*

## 1. INTRODUCTION

Around 2.1 billion people over the age of 60 are expected to populate the planet by the year 2050. As the world's aging population grows, so does the demand for healthcare services, which is already being squeezed by a global labor shortage. Chronic illness is exacerbated by social change, unplanned urbanization, an unfavorable physical environment, and an unhealthy lifestyle. 80% of all deaths in low- and middle-income nations are caused by chronic illnesses. By 2025, India's old population is predicted to number 158.7 million people, or 11.1% of the country's overall population. A dramatic demographic shift has occurred in India during the last five decades, with southern regions becoming major contributors to the aging process. The "older boom" is also occurring in several other states, mostly in rural regions. More than 70% of India's elderly population reside in rural areas, according to the 2011 census. Chronic illnesses are widespread among the elderly and may be influenced by lifestyle and the surrounding environment, therefore it's important to know how common they are and what causes them in both urban and rural India.

Non-communicable illnesses and lifestyle-related disorders are becoming more prevalent in India. The elderly in rural areas tend to have a lower socioeconomic level (SES) and are thus more reliant on others for their basic needs. On the other side, urban elders face social isolation, criminal activity and mental stress. While chronic illnesses are on the rise throughout the nation, the urban-rural divide is widening due to a considerable socioeconomic and health disparity between urban and rural areas. Those who live in metropolitan regions earn more money and have fewer active lifestyles than those who live in the countryside. It's also worth noting that chronic illnesses are influenced by a wide range of factors, including socioeconomic status, job type, education, wealth, and health behavior.

Chronic illnesses have a negative impact on a country's GDP since they contribute to premature mortality and incapacity in old life (GDP). Diabetes, hypertension, cancer, and chronic respiratory disease (CRD) accounted

for roughly 60 percent of all fatalities in India in 2014. Cardiovascular disease affects 27% of Indian people, whereas diabetes affects 18%, with metropolitan regions having a substantially greater rate of diabetes than rural ones. Roughly 10% of rural residents lack access to basic medications, while just 19% are covered by health insurance.

A chronic illness will claim the lives of one out of every four Indians. Adults and older people should be aware of the hazards and maintain a healthy lifestyle in order to ensure a healthy aging process. The public health system in India, which is based on the principles of mother and child health, is woefully unable to meet the health care demands of an aging society. The National Program for the Health Care of the Elderly has been in effect since 1999 and aims to enhance the health of the elderly (NPHCE). Despite this, over half of the senior population is uninsured. India is also seeing a rural-urban convergence of noncommunicable illnesses. Because of this, governments are concerned about prioritizing health care in rural regions as much in metropolitan ones. There are very few studies on chronic illness in the elderly, and they tend to be hospital-based, with a very limited number of participants. In addition, no research has studied this problem utilizing data from the Indian government's National Sample Survey (NSS). Because we utilize the NSS data to evaluate the incidence and causes of chronic illness in Indian senior people and the factors that contribute to rural-urban inequalities, our study takes a new approach. SDGs focused at improving the health and well-being of the elderly might benefit from the results of our research.

## 2. LITERATURE REVIEW

**Brett D. Thombs, (2017)** Patients with coronary artery disease (CAD) are recommended to be screened for depression, although how to do so is uncertain. For serious depression, we tested the two-item Patient Health Questionnaire (PHQ-2), the nine-item Patient Health Questionnaire (PHQ-9), and a two-step screening strategy (PHQ-2 then PHQ-9 if positive on PHQ-2) compared to C-DIS. Besides the C-DIS, we also tested a "PHQ diagnosis" for depression, which requires five of nine symptoms to be present "more than half the time." Cross-sectional research including 1,024 CAD outpatients was conducted. Major depression was present in 22% of the patients surveyed. The PHQ-2 and PHQ-9 have optimal cut points of 2 (82% sensitivity, 79% specificity) and 6 respectively (83 percent sensitive, 76 percent specific). Two-step screening was less sensitive (75%) but more specific (84%) than either the PHQ-2 or 9 alone. Only 28% of "PHQ" diagnoses were accurate, although they had excellent specificity (96 percent). There were no significant differences in test features between the PHQ-2 and PHQ-9 cut points of 2. There is no benefit to a two-step method that includes both the PHQ-2 and PHQ-9. "PHQ" was a good diagnostic tool for depression, although it had low sensitivity.

**Murlidhar Meghwal (2021)** Hypertension and NIDDM patients' diets were examined in this research. It is a study of 100 patients, 50 of whom were male and 50 of whom were female. Chronic illness burden in India is heavily influenced by hypertension (bp), which is a major risk factor. Hypertension is a common problem in India, according to recent studies. The purpose of this research was to assess the profile, nutritional content, education, dietary habits, and medicinal use of hypertension in NIDDM patients, as well as their use of medication. When it comes to the development, treatment, or prevention of non-insulin-dependent diabetic mellitus, an individual's diet and dietary pattern play a significant role (NIDDM). Non-insulin dependent diabetes mellitus in men and women between the ages of 40 and 60 was the primary selection criterion. Only a few people have successfully managed their diabetes. They were able to manage their diabetes by doing the following: Limiting their caloric intake, walking in the morning and evening, and engaging in other forms of exercise, such as yoga and meditation, are all recommended. Aside from their normal medication, some people use therapeutic plants such meth seeds, bitter gourd powder, or jamun seeds [2]. (Figure 1). Every 15 days or once a month, they had their urine and blood sugar levels examined. In other cases, diabetes patients relied only on medicine to maintain their blood glucose levels and did not monitor their food or exercise routines.

**Akula Sanjeevaiah (2019)** Rapid urbanization in suburban areas might explain the high incidence of diabetes mellitus (DM). A shift from communicable to non-communicable illnesses is taking place in India due of the progressive acceptance of unhealthy lifestyles, such as increased consumption of high-calorie-dense foods and decreasing physical activity. The purpose of this study is to determine the prevalence of diabetes mellitus (DM) and its related risk factors in adults over the age of 15. Methods and materials: The Department of General Medicine at our institution performed a four-month cross-sectional research in January-April, 2018. There were 250 people included in the study. Each subject gave explicit agreement to participate in the study. Subjects with hypoglycemia, impaired fasting glucose (IFG), and diabetes were recruited for the research at the general medical department. A total of 250 people participated in the research. The prevalence of diabetes mellitus (DM) was found to be 6.4%. Of the 250 people who took part in the study, 32% said that they were heavy

drinkers, while just 1.2% (3/250) claimed to be abstainers. There were 6.4 percent of the trial participants with blood glucose levels below 126 mg/dl fasting. There is a correlation between diabetes mellitus prevalence and factors such as age, waist circumference, hypertension, BMI, smoking, and total cholesterol levels.

**Jaya Prasad Tripathy (2017)** India has the second-highest number of diabetes cases in the world, with 69.1 million individuals suffering from the disease. Recent epidemiological research suggests that diabetes mellitus (DM) is spreading across India's population, from the rich to the poor. According to this study, the incidence of diabetes and prediabetes in Punjab, a state in northern India, is high. A multistage stratified sample of 5127 people was used to conduct a household NCD STEPS survey in the Indian state of Punjab. The WHO STEPS questionnaire, as well as anthropometric and blood pressure measures, were given to each individual. All 2499 alternative respondents in the sample were tested for blood parameters. The research participants had an overall DM prevalence of 8.3% (95% CI 7.3–9.4%), whereas the prevalence of prediabetes was 6.3% (5.4–7.3%). As a result of the study, the following risk variables were identified: age group (45–69 years), married status, hypertension, obesity and family history of diabetes mellitus (DM). Only 18% of people with diabetes were aware they had it or were receiving treatment for it, and only roughly a third of those people had blood glucose levels under control. Among the adult population, the research found a significant prevalence of diabetes, particularly among those who had not been diagnosed. This shows the necessity for a systematic screening and awareness campaign to detect the undiagnosed patients in the community and provide early treatment and frequent follow-ups.

**Ketan Dhatariya (2020)** More than 460 million individuals throughout the world are thought to be affected by diabetes, which is the most common metabolic illness. Diabetes affects around 10.5 percent of the population in the United States. Patients with diabetes are three times more likely to be hospitalized than those without the disease. Patients with diabetes were admitted to hospitals in excess of 7.8 million times in the United States in 2016. When a patient's blood glucose levels exceed 140 mg/dl (7.8 mmol/l), they are said to have hyperglycemia. Inpatient hyperglycemia, regardless of previous diabetes diagnosis, is related with an increased risk of complications and death, according to extensive research. Target glucose levels of 140 to 180 mg/dl (7.8 to 10.0 mmol/l) for critically ill patients in the ICU and for most patients admitted to general care and surgery outside the ICU have recently been suggested by the American Diabetes Association. Inpatient insulin therapy is still the most effective strategy to manage hyperglycemia, particularly in critically sick patients. In order to reach the necessary glycemic goal in the ICU, intravenously delivered insulin is the preferable approach. Due to a lack of safety and effectiveness trials in the inpatient environment, earlier recommendations did not advocate using oral antidiabetic medications. To counter mild to moderate hyperglycemia in general medicine and surgical patients, emerging evidence suggests the use of oral medicines such as DPP4 inhibitors alone or with basal insulin. Please see our online FREE web-text for comprehensive treatment of all allied fields of Endocrinology.

### 3. MATERIALS AND METHODS

At a tertiary care hospital in East Delhi, the Community Health Department, cross-sectional research was conducted from October 15, 2014, to January 15, 2015. Patients diagnosed with T2DM and HTN who visited the Outpatient Department during the course of the research period and had been sick for more than a year were eligible to participate. It was necessary to get prior approval from St Stephen Hospital's institutional ethics council in New Delhi before beginning the research. As part of the research, participants signed an informed consent form, and all information gathered from them was kept private and confidential.

Data on socioeconomic and demographic variables was gathered, and the PHQ-SADS was used to obtain clinical information from the subjects. " The lead investigator gave the questionnaire in the local language since majority of the research participants were illiterate. A validated questionnaire, the PHQ-SADS, has been proven to be beneficial in the screening and diagnosis of people with mental diseases.

As a self-reporting tool or administered by qualified health care professionals, it is suitable for use in primary care settings. The PHQ-SADS consists of three parts: the PHQ-15, which measures somatic functioning, the GAD-7, which measures anxiety, and the PHQ-9, which measures depression. Due to the frequency of comorbid conditions in our mostly elderly research sample, we were unable to evaluate the data from PHQ 15 since it would have been beyond the scope of our study.

Scaled from zero to seventy-seven, the PHQ-9 subscale for depression was evaluated. According to the recommendations, we rated 5-9 as mild depression, 10-14 as moderate depression, 15-19 as moderately severe

depression, and 20-27 as severe depression. It was decided to use a 0-21 scale for the GAD-7's subscales. According to the scale's recommendations, we gave ourselves a light anxiety score of 5-9, a moderate anxiety score of 10-14, and a severe anxiety score of 15-21. Descriptive statistics, the Chi-square test, and multivariate logistic regression were performed using SPSS Version 20 on the data, which was imported into Microsoft Excel.

#### 4. RESULTS

A total of 101 people with Hypertension, Diabetes, or both agreed to participate in the research and were enrolled. Males made up 26.7% of the group, while females made up 74 percent. The average age of the participants in this research was between 60 and 69 years old (37.6 percent). More over half of the participants (56.4 percent) identified as Muslim. Seventy-nine percent of the people who took part in the study were married. More over eight in ten (80.2%) of those polled said they'd never smoked or used alcohol. Table 1 provides an overview of the research participants' demographics.

**Table 1: Distribution of the sociodemographic variables of the study subjects (n=101)**

Variable	N (%)
<b>Age (in years)</b>	
30-39	7(6.9)
40-49	17(16.8)
50-59	22(21.8)
60-69	38(37.6)
>=70	17(16.8)
<b>Gender</b>	
Male	27(26.7%)
Female	74(73.3%)
<b>Religion</b>	
Hindu	44(43.6%)
Muslim	57(56.4%)
<b>Education</b>	
Illiterate	69(68.3%)
Upton primary	21(20.8%)
Upton Secondary	6(5.9%)
Higher	5(5%)
<b>Occupation</b>	
Employed	22(21.8%)
Unemployed	79(78.2%)
<b>Marital Status</b>	
Married	79(78.2%)
Unmarried	2(2%)
Widowed	17(16.8%)
Divorced	3(3%)
<b>Duration of illness since diagnosis</b>	
<10 years	81(80.2%)
>10 years	20(19.8%)

Patients with hypertension accounted for 51.5% of the NCDs in the study, whereas Type 2 diabetes accounted for 25.7% of the participants. In 23(22.8 percent) of the research subjects, both hypertension and type 2 diabetes were present. On the second table

A total of 56.4% (n=57) and 79.2% (n=80) of people with different NCDs reported experiencing symptoms of anxiety or sadness. (Section 2) Among the 52 hypertension study participants, 28 (53.8 percent) had anxiety and 43 (82.7%) had depression. On the other hand, among diabetics (n=26), anxiety and depression were found in 15 (57.7%) of the participants and in 23 (88.5%) of the subjects. Furthermore, anxiety and

depression were found in 14 (60.9%) and 14 (60.9%) of the 23 diabetic and hypertensive people studied (Table 2).

**Table 2: Prevalence of anxiety and depression among study subjects having Hypertension, diabetes or both (N=101)**

Disease	Anxiety	Depression
HTN(n=52)	28(53.8%)	43(82.7%)
DM(n=26)	15(57.7%)	23(88.5%)
HTN + DM(n=23)	14(60.9%)	14(60.9%)
Total(N=101)	57(56.4%)	80(79.2%)

26 (45.6 percent) had mild, 26 (45.6 percent) had moderate, and 5 (8.8 percent) had severe symptoms of anxiety disorder among the individuals with anxiety disorder (n=57). Table 2A

**Table 3: Distribution of the participants according to various category of anxiety (N=57)**

Anxiety	N (%)
Mild	26(45.6)
Moderate	26(45.6)
Severe	5(8.8)

Thirty-seven (46.2%) had mild depression, 35 (43.7%) had moderate depression, and 8 (ten percent) had moderately severe depression among the 80 patients who reported depressive symptoms. Nobody exhibited signs of severe depression in this study (Table 3).

**Table 4: Distribution of the participants according to various category of depression (N=80)**

Depression	N (%)
Mild	37(46.2)
Moderate	35(43.7)
Moderately severe	8(10)
Severe	0

Depression symptoms were found to be more prevalent among individuals over the age of sixty, women, those who were illiterate or jobless, and those who had been unwell for more than ten years. However, when using multivariate logistic regression, only men (OR=.191, CI-.04- We used a cutoff score of 5 and above in the PHQ-9 as indicative of major depression, as studies on patients with coronary arterial disease had shown 83% sensitivity and 76% specificity for diagnosing major depression) showed statistically significant association with depression symptoms (Table 4).

More than 79% of the research participants were found to have depressive symptoms. The prevalence of depressive symptoms in the research participants was determined to be 29.1%, according to Kulkarni V et al. Compared to other studies in India and overseas, our research found a greater prevalence of the disease. Elderly people may be living in slums, without a source of money, or emotionally deprived due to family rejection. The study was carried out by Kulkarni V and others. In multivariate analysis, only illiteracy was shown to be a significant risk factor for anxiety symptoms, whereas work was found to be protective. Analyzing high rates of anxiety in hypertensives is necessary to better understand how these conditions are linked. Another thing to keep in mind is that the ICD considers depression to be the primary diagnosis in individuals who exhibit symptoms of both depression and anxiety (International Classification of diseases). The research, on the other hand, does not differentiate between these two groups.

Patients with several chronic illnesses are more likely to have psychological issues overlooked by doctors, according to research in outpatient settings. Due to the fact that India is now launching a large-scale program to prevent and control NCDs called the National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke, we argue that this program should also cover mental health. We infer that the frequency of common mental diseases in the studied sample was quite high. In order to combat the growing burden of these psychological co-morbidities, support groups in the community must be developed and psychiatric counseling must be provided to patients diagnosed with any kind of NCD. Patients with any kind of NCD should have their mental health needs addressed in future studies.

#### **Strengths:**

This research is unique in that it reveals the prevalence of common mental co-morbidities among an appropriate sample of individuals diagnosed with hypertension and diabetes. Depression symptoms were shown to be more prevalent in women, older patients, those who were illiterate, jobless, and those who were retired. Similar results were found by Kulkarni V et al. Men were shown to be more resistant to developing depression symptoms in multivariate analyses. In our research, we observed that 56.4% of people had signs of anxiousness. In a comparable research, Kulkarni V et al found a frequency of 19.1 percent. Anxiety symptoms were shown to be more prevalent among older adults, women, the illiterate, the jobless, and those with high blood pressure in this research. The research found similar outcomes.

### **5. LIMITATIONS**

The convenience sampling approach was used. As to ICD-10, if a patient exhibits symptoms of both depression and anxiety, depression is the primary diagnosis (International Classification of diseases). However, this separation has not been established in the research, and these individuals were classed as having both illnesses.

**Conflict of interest:** None declared

**Source(s) of support:** Nil

### **6. CONCLUSION**

Chronic disorders including Type 2 Diabetes Mellitus (T2DM) and hypertension are often linked to psychiatric co-morbidities such as anxiety, sadness, and somatization (HTN). Depression and anxiety that are brought on by illness have a negative impact on quality of life and increase the amount of money spent on medical treatment. Around 2.1 billion people over the age of 60 are expected to populate the planet by the year 2050. As the world's aging population grows, so does the demand for healthcare services, which is already being squeezed by a global labor shortage. Chronic illness is exacerbated by social change, unplanned urbanization, an unfavorable physical environment, and an unhealthy lifestyle. 80% of all deaths in low- and middle-income nations are caused by chronic illnesses. At a tertiary care hospital in East Delhi, the Community Health Department, cross-sectional research was conducted from October 15, 2014, to January 15, 2015. Patients diagnosed with T2DM and HTN who visited the Outpatient Department during the course of the research period and had been sick for more than a year were eligible to participate. It was necessary to get prior approval from St Stephen Hospital's institutional ethics council in New Delhi before beginning the research.

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