

Chapter I

INTRODUCTION

Editing Sample

INTRODUCTION

~~Sixty-five years post-Independence from the British, India seems to be witnessing After completion of 65 years of independence, our country has witnessed~~ remarkable progress in the health status of its population. However, over the past few decades, there ~~has~~ have been major transitions in the country that have seriously impacted ~~ed-on~~ health. Changes have been ~~seen-noted~~ in economic development, nutritional status, mortality rates ~~and, which have~~ consequently, ~~and considerably changed~~ the disease profile ~~has changed considerably~~. Though there have been substantial achievements in controlling communicable diseases, still, they ~~have been found to- significantly~~ contribute ~~significantly~~ to ~~the~~ disease burden of the country. ~~A Decline-decline~~ in morbidity and mortality ~~arising~~ from communicable diseases ~~have-has~~ been accompanied by a gradual shift ~~-to and~~ an acceleration in ~~accelerated-rise-in~~ the prevalence of chronic ~~non~~ Non-communicable ~~diseases-Diseases~~ (NCDs) ~~such as -- cardiovascular-Cardiovascular disease Disease (CVD), Diabetes, chronic-Chronic obstructive-Obstructive pulmonary-Pulmonary disease-Disease (COPD), cancersCancer, mental-Mental health-Health disorders and injuries (106)-~~. Researchers and policy makers around the world have been increasingly recognizing NCDs- as- ~~a~~ health and developmental emergency. NCDs are the leading causes of death in the South-~~East east~~ Asian Region, killing 7.9 million annually (55% of the total deaths in the region). NCD deaths ~~are expected to in region are expected to~~ increase by 21% over the next decade. (110)

A combination of genetic predisposition and rapidly increasing prosperity ~~means-implies~~ that India may be at facing a unique risk ~~of-from NCDs non-communicable diseases such as --~~ hypertension ~~and~~ diabetes. Cardiovascular ailments have displaced communicable diseases as the biggest killer in India- ~~and According-according~~ to the report published by the WHO, India ranks very high among the nations struck by the rising wave of "premature deaths" caused by non-communicable diseases. (111)

Almost 2.6 million Indians are predicted to die due to ~~eoronary-Coronary heart-Heart disease-Disease~~ (CHD), which will constitute 54.1% of all CVD deaths in India by 2020.

Additionally, CHD in Indians has been shown to occur prematurely, that is, at least a decade or two earlier than their counterparts in developed countries. (112)

India is experiencing a rapid health transition with a rising burden of NCDs. Overall, NCDs are emerging as the leading causes of death in the country accounting for over 42% of all deaths (Registrar General of India). NCDs cause significant morbidity and mortality both in

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urban and rural population, with considerable loss in potentially productive years (aged 35-64 years) of life. (107)

With rapid economic development and ~~increasing~~ increased westernization of lifestyles over the past few decades, the ~~in the past few decades~~ prevalence of the lifestyle diseases has reached alarming proportions among Indians in the recent years (2). In this context, special attention ~~is has been~~ devoted to ~~cardiovascular~~ Cardiovascular disease Disease (CVD), and ~~type-Type 2 diabetes~~ Diabetes mellitus Mellitus (T2DM). It ~~is has been~~ predicted that, by 2020, ~~non~~Non-communicable ~~diseases~~ Diseases (NCD) – ~~diabetes, hypertension and metabolic syndrome, which already pose grim challenges --~~ will cause seven out of every ten deaths in developing countries (1). ~~It is critical here to note the Non-communicable diseases, particularly the upsurge of diabetes mellitus, hypertension and metabolic syndrome pose a grim challenge to India in this century.~~ Contribution of dietary practices and lifestyle factors ~~in significantly are crucial, increasing the making~~ incidence and prevalence of these lifestyle diseases ~~significantly more in among~~ the urban population. Hence, it ~~becomes imperative to makes it further more important to monitor the increasing prevalence of these diseases~~ the disease in India, (1) particularly ~~in among~~ the urban population (2D).

1.1 : Type 2 Diabetes Mellitus

Type 2 Diabetes ~~mellitus~~ Mellitus (T2DM) is one of the major causes of morbidity and mortality in the world (2). It ~~is~~ a metabolic disorder that is characterized by hyperglycemia (high blood sugar) in the context of insulin resistance and relative lack of insulin. (3) It ~~makes up~~ constitutes about 90% of ~~diabetic cases~~ ~~cases of diabetes~~, with the other 10% accounting primarily ~~due to for~~ ~~type-Type 1 diabetes~~ Diabetes and gestational diabetes related cases. The ~~World Health Organization~~ World Health Organisation defines ~~diabetes definition of diabetes~~ (both ~~type-Type 1~~ and ~~type-Type 2~~) ~~is for~~ as a single, raised glucose reading with symptoms, ~~otherwise raised values on two occasions, of either: fasting plasma glucose ≥ 126 mg/dl (7.0 mmol/l) or with a glucose tolerance test, two hours after the oral dose a plasma glucose ≥ 200 mg/dl (11.1 mmol/l)~~ (5)

A random blood sugar ~~of count~~ greater than 200 mg/dL (11.1 mmol/l) in association with typical symptoms (6) or a glycated haemoglobin (HbA_{1c}) ~~of~~ greater than 6.5% is another method of diagnosing diabetes. (7). In 2009, an international expert committee that included

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representatives of the American Diabetes Association (ADA), the International Diabetes Federation (IDF), and the European Association for the Study of Diabetes (EASD) recommended that a threshold of $\geq 6.5\%$ HbA_{1c} should be used to diagnose diabetes. (8) This recommendation was also adopted by the American Diabetes Association in 2010. (9)

The classic symptoms of diabetes are [polyuria](#) (frequent urination), [polydipsia](#) (increased thirst), [polyphagia](#) (increased hunger), and [weight loss](#). (12) Other symptoms that are commonly present at the diagnosis include a history of [blurred vision](#), [itchiness](#), [peripheral neuropathy](#), recurrent [vaginal infections](#), and [fatigue](#). Many people, however, have no symptoms during the first few years and are diagnosed on routine testing. People with T2DM may rarely present with [hyperosmolar hyperglycemic state](#), a condition of very high blood sugar associated with a [decreased level of consciousness](#) and [low blood pressure](#). (13)

Diagnostic Criteria for Diabetes Mellitus

TABLE 1.1

Criteria for the Diagnosis of Diabetes Mellitus and Impaired Glucose Homeostasis

Diabetes mellitus—positive findings from any two of the following tests on different days: Symptoms of diabetes mellitus* plus casual† plasma glucose concentration ≥ 200 mg per dL (11.1 mmol per L) or FPG ≥ 126 mg per dL (7.0 mmol per L) or 2hrPPG ≥ 200 mg per dL (11.1 mmol per L) after a 75-g glucose load
Impaired glucose homeostasis Impaired fasting glucose: FPG from 110 to <126 (6.1 to 7.0 mmol per L) Impaired glucose tolerance: 2hrPPG from 140 to <200 (7.75 to <11.1 mmol per L)
Normal FPG <110 mg per dL (6.1 mmol per L) 2hrPPG <140 mg per dL (7.75 mmol per L)

FPG = fasting plasma glucose; 2hrPPG = two-hour postprandial glucose.

*—Symptoms include polyuria, polydipsia or unexplained weight loss.

†—Casual is defined as any time of day without regard to time since last meal.

(95.)

Table 1.2: Diagnostic Criteria for Hypertension

Classification (JNC7)	Systolic pressure	Diastolic pressure
	<u>mmHg</u>	mmHg
Normal	90–119	60–79
High normal or prehypertension	120–139	80–89
Stage 1 hypertension	140–159	90–99
Stage 2 hypertension	≥160	≥100

(96)(97)

Table 1.3: Diagnostic Criteria for Metabolic Syndrome

The World Health Organization 1999 criteria (98) require the presence of any one of diabetes mellitus, impaired glucose tolerance, impaired fasting glucose or insulin resistance, AND two of the following:

Sr.No.	Component of Metabolic Syndrome
1	Blood pressure: ≥ 140/90 mmHg
2	Dyslipidemia: triglycerides (TG): ≥ 150 mg/dl
3	High density lipoprotein cholesterol (HDL-C) ≤ 40 mg/dl

4	Central obesity: waist:hip ratio > 0.90 (male); > 0.85 (female), or body mass index > 30 kg/m ²
5	Microalbuminuria: urinary albumin excretion ratio ≥ 20 µg/min or albumin:creatinine ratio ≥ 30 mg/g

NEED FOR STUDY:

~~Thus far. So far~~ no data is available ~~in on~~ this particular section of the population regarding the prevalence of the ~~type-Type 2 diabetes-Diabetes mellitusMellitus~~, hypertension and metabolic syndrome in the ~~urban-Urban sikh-Sikh~~ population of Amritsar.

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AIMS AND OBJECTIVES:

~~This study aimed primarily at The primary aim of this study was to~~ identify~~ing~~ the prevalence of the ~~type-Type 2 diabetes-Diabetes mellitusMellitus~~, hypertension and metabolic syndrome in the urban Sikh population of Amritsar by means of a door-to-door survey. The secondary aim was to ~~see-note~~ the awareness and identification of the risk factors for the development ~~type 2 diabetes mellitusT2DM~~, hypertension and metabolic syndrome in the urban Sikh population of Amritsar

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