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Abstract

Background: Noncommunicable diseases (NCDs) are a major public health problem worldwide. Despite improvement in the health situation, Afghanistan's health indicators are the worst in the region. About 37% of Afghan adults die due to NCD.

Aims: We aimed to estimate the proportion of major risk factors for NCDs in Afghanistan.

Methods: We analysed the dataset of studies conducted in 5 provinces, Kabul, Balkh, Hirat, Nangarhar and Kandahar, during 2013–2015, using the WHO STEPwise approach to NCD surveillance. This involved multistage cluster sampling from urban citizens aged 25–70 years. EpiInfo, version 7, and SPSS, version 20, were used for data management.

Results: In total, 5897 records were included in the analysis; 54% were females. Mean age was 39.56 (standard deviation12.29) years; illiteracy rate was 61.5% and 83.2% were married. Smoking and snuff use was 8% and 11.1% respectively. On average the subjects were consuming fruits 2.76 and vegetable 3.85 days per week. Overweight, general and abdominal obesity was 19%, 33.7% and 57.1% respectively. Typically, 32.4% had high blood pressure and 12.5% had high blood sugar.

Conclusions: The modifiable risk factors of NCDs were prevalent in the major cities of the country. Their identification is vital in attempting to focus on prevalence of NCDs in urban cities. Tailored interventions are needed to focus on NCDs in Afghanistan.

Keywords: noncommunicable diseases, risk factors, Afghanistan, STEPwise

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Introduction

Afghanistan is a landlocked country in south central Asia. Administratively, the country is divided into 8 geographical regions, 34 provinces and 398 administrative districts. The 2014/15 estimated population of the country was 26.5 million (1). The most recent figures from 2015, though better than the previous (2003) data, estimate a total fertility rate of 5.3 children per women and an infant mortality rate of 55 per 1000 live births (2). About 4 decades of war in Afghanistan has devastated the country's infrastructure, economy and social services, resulting in a low quality of life. The Taliban rule compounded the suffering of women by curtailing their access to already limited health services. Almost 75% of the districts in Afghanistan lacked maternal and child health services and most women gave birth devoid of the presence of a skilled birth attendant (3,4). Moreover, opiate production increased in the country significantly and led to destabilization of the formal economy and the political situation of Afghanistan. According to a 2015 UN report, opium production in Afghanistan accounted for an estimated 85% of global production (5).

Despite improvement in the health situation, Afghanistan's health indicators are the worst in the region. Above all, about 37% of Afghan adults die due to noncommunicable disease (NCD) (6). Noncommunicable diseases are medical conditions with long duration and slow progression. Currently, NCDs constitute a major challenge with adverse social and economic consequences, particularly in low- and middle-income countries (7). The 4 priority NCDs are cardiovascular diseases, cancer, chronic respiratory disease and diabetes (8). For many years the world has been expending efforts to prevent and control infectious diseases, malnutrition and maternal and perinatal conditions whereas the epidemiological transition indicates the decline of infectious diseases and the upsurge in chronic NCDs (9).

Mortality due to NCDs contributed to 70% of global deaths in 2017 and the documented prevalence in 2008 was 63% (10–12). Recently, the World Health Organization (WHO) has reported that NCDs kill 40 million people a year, and almost 80% of NCD deaths (32 million) occur in low- and middle-income countries. Cardiovascular diseases account for most of these deaths at 17.7 million annually, followed by cancer (8.8 million), respiratory diseases (3.9 million) and diabetes (1.6 million). These 4 groups of diseases account for 82% of all NCD deaths. Tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets together increase the risk of dying from an NCD (13). Furthermore, beyond the health impact, NCDs impose an economic burden on health systems, skewed towards the low-income countries (14–15). In countries of the WHO Region for the Eastern Mediterranean, up to 50% of deaths due to NCDs occur before the age of 60 years compared with less than 10% in Western Europe (16). Nearly 54% of deaths occur due to NCDs in the South-East Asia Region (17). Key factors that greatly contribute to the progress of NCDs have been identified and considered (18). The health goal is to reduce mortality from NCDs by 25% by 2025; this is "the 25 by 25 goal" (19).

According to WHO, NCDs are estimated to account for 62% of total deaths in Tajikistan, 79% in Uzbekistan, 50% in Pakistan and 76% in the Islamic Republic of Iran and Turkmenistan, all countries neighbouring Afghanistan, conversely NCDs account for 37% of total deaths in our country (20). Similar results were found in the 2010 Afghanistan mortality survey: 33.3% of all deaths in the country were attributed to NCDs (6). Furthermore, WHO estimates the number with diabetes, for instance, is expected to rise nearly threefold in 2030 compared with 2000 (21). Among men aged ≥ 15 years in Kabul, the prevalence of smoking was 35% (22), while a 2012 report on prevalence and risk factors of NCDs among the older adult population (aged ≥ 40 years) in Kabul reported the prevalence of diabetes mellitus as 13.3%, obesity 31.2% and hypertension 46.2% (23). The national policy for NCDs has recently been developed by Ministry of Public Health (24).

This study aimed to estimate the prevalence of risk factors for chronic NCDs in the urban population in 5 main cities in Afghanistan.

Methods

Study setting and design

Using the WHO STEPwise approach, a series of cross-sectional studies were conducted in urban settings of major provinces in Afghanistan: Jalalabad city (May–June, 2013), Mazar-e-Sharif (April to May, 2015), Herat city (May–June, 2015), Kandahar city (October–November, 2015) and Kabul city (November 2015). All permanent residents and household members aged 25–70 years, including men and women, who gave consent to participate were included in the study. Temporary residents (**Sampling techniques and strategy**

Cluster sampling was used as a suitable strategy to approach the households. Assuming the highest proportion (50%), 95% confidence interval (CI) and margin of error of 5%, a sample size of 385 was calculated. However, considering the frequency of risk factors such as smoking, physical activity, dietary habits and other factors and the design effect of cluster sampling, the final sample size was increased to 600 and finally to 1200 (deff = 2 × 600) for each city. After completion of data collection and cleaning of the data, 1200 participants in Jalalabad, 1231 in Mazar-e-Sharif, 1129 in Hirat, 1165 in Kandahar and 1172 in Kabul were included in the final analysis.

For more than 4 decades no census has been conducted in the country and a complete list of villages was not available. The 2015 Expanded Programme on Immunization (EPI) lists of clusters were obtained from EPI unit in provinces and were used as the sampling frame. This frame was used for immunization by the Ministry of Public Health in Afghanistan. Two-stage cluster sampling was used. In the first stage, random sampling was accomplished using Excel; from the EPI list, 4 clusters were selected in Jalalabad, 5 in Mazar-e-Sharif, 16 in Hirat, 7 in Kandahar and 5 in Kabul using random numbers from Excel. In the second stage, the overall sample of 1200 households was divided among these selected areas proportionate to the number of households in each cluster/area. Based on the frequency and size of each selected cluster, households were selected using a systematic random sampling technique.

Variables and data collection

The STEPwise approach has a standard questionnaire, which was adapted and used by the interviewers and which covered information on demographic, behavioural and physical measurements. The study variables included sociodemographic characteristics such as age, sex, level of education, occupation, income and marital status;, behavioural factors such as physical activity, consumption of fruits and vegetables, use of cooking oil, smoking and naswar (tobacco snuff) use; and physical measurements such as blood pressure, weight, height, waist circumference and body mass index (BMI), biological components such as blood sugar, triglycerides and cholesterol. From height and weight, BMIs was calculated: ≥30.0 kg/m2 was

considered obese, 25.0–29.9 kg/m2 overweight and 18.5–24.9 kg/m2 normal weight (28). A waist circumference of 94 cm for men and 80 cm for women was defined as central obesity (29). Systolic blood pressure ≥ 140 mmHg and/or diastolic pressure ≥ 90 mmHg were considered as hypertensive. Furthermore, systolic blood pressure of