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Change in the structures, dynamics and disease-related mortality rates of the population of Qatari nationals: 2007–2011

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Abstract *Background:* Developing effective public health policies and strategies for interventions necessitates an assessment of the structure, dynamics, disease rates and causes of death in a population. Lately, Qatar has undertaken development resurgence in health and economy that resulted in improving the standard of health services and health status of the entire Qatari population (i.e., Qatari nationals and non-Qatari residents). No study has attempted to evaluate the population structure/dynamics and recent changes in disease-related mortality rates among Qatari nationals.

Objective: The present study examines the population structure/dynamics and the related changes in the cause-specific mortality rates and disease prevalence in the Qatari nationals.

Methods: This is a retrospective, analytic descriptive analysis covering a period of 5 years (2007–2011) and utilizes a range of data sources from the State of Qatar including the population structure, disease-related mortality rates, and the prevalence of a range of chronic and infectious diseases. Factors reflecting population dynamics such as crude death (CDR), crude birth (CBR), total fertility (TFR) and infant mortality (IMR) rates were also calculated.

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Results: The Qatari nationals is an expansive population with an annual growth rate of ~4% and a stable male:female ratio. The CDR declined by 15% within the study period, whereas the CBR was almost stable. The total disease-specific death rate, however, was decreased among the Qatari nationals by 23% due to the decline in mortality rates attributed to diseases of the blood and immune system (43%), nervous system (44%) and cardiovascular system (41%). There was a high prevalence of a range of chronic diseases, whereas very low frequencies of the infectious diseases within the study population.

Conclusion: Public health strategies, approaches and programs developed to reduce disease burden and the related death, should be tailored to target the population of Qatari nationals which exhibits characteristics that vary from the entire Qatari population.

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1. Introduction

A clear understanding of population structure, dynamics, disease frequency and causes of death is critical for developing and implementing effective public health policies and strategies for interventions [1]. However, a few countries in the world have estimates of cause-specific mortality rates that can be reliable to develop evidence-based public health actions [2]. This shortage in health-related information is primarily common in the developing world [3] where the disease burden is related to both communicable and non-communicable diseases and injuries. This is in contrast to the notable changes in demographic and epidemiological factors and risk patterns across the world over the past few decades that led to the transition from infectious to chronic non-communicable disease in the developed world. The developing countries also experience a shortage of medical personnel to record details of deaths together with poor quality information on the causes of deaths [4].

The State of Qatar has undergone major social and economic changes resulting in rapid urbanization and a shift into a more sedentary lifestyle and unhealthy dietary practices with a consequent increase in the burden of non-communicable diseases and injuries over the infectious disorders [5–7]. In agreement, a recent study has shown that ischemic heart disease and road traffic accidents are the two leading causes of burden of diseases in Qatar in 2010 [8]. The study utilized the mortality data for the year 2010 according to the International Statistical Classification of Diseases and related health problems, tenth revision (ICD-10) coding system. The study did not assess the cause-specific mortality rates, but rather the disability adjusted life years (DALYs), total years of life with disability (YLD), years of life lost and per-

cent of total DALYs, and did not distinguish between the disease burden within the homogeneous Qatari nationals and the heterogeneous dynamic non-Qatari population. It is known that the vast majority of the population in Qatar is composed of expatriates that – although increasing – continually change [9]. The populations of the Qatari nationals and non-Qataris exhibit diverse socioeconomic and cultural differences that ought to reflect in discrepancy in their disease prevalence rates. No study has examined the changes in the cause-specific mortality rates and disease burden among the Qatari nationals, particularly over the past few years. This is despite the fact that the State of Qatar prospectively monitors numerous demographic events within the entire population and can thus provide accurate cause-specific mortality rates that should assist in developing effective public health policies and actions specifically suitable for the Qatari nationals.

The United Nations Millennium Development Goals (MDGs) are eight goals that all the 191 UN Member States have agreed in the year 2000 to try to achieve by the year 2015. Reducing child mortality, improving maternal health and combating a range of diseases were among these goals [10]. The midpoint assessment of MDG achievement, published in 2007 [11] has shown that the countries from the Western Asia, including Qatar, are on track to accomplish the MDGs [11]. Additional effort to further improve the health status in Qatar and reduce the burden of diseases remains and requires to be designed to meet the local needs and conditions. The present study was undertaken, therefore, in an attempt to examine the structure and dynamics of the population of Qatari nationals over the past few years (2007–2011), i.e., since the MDG midpoint assessment, and to evaluate the related changes in the

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