

National Burden of Disease and Study in Iran

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Abstract

Background: The objective of this study was to estimate the burden of disease and injury in Iran for the year 2003, using Disability-Adjusted Life Years (DALYs) at the national level.

Methods: Methods developed by the World Health Organization for National Burden of Disease (NBD) studies were applied to estimate disease and injury incidence for the calculation of Years of Life Lost due to premature mortality (YLL), Years Lived with Disability (YLD), and DALYs. The following adjustments of the NBD methodology were made in this study: a revised list with 214 disease and injury causes, development of new and more specific disease modeling templates for cancers and injuries, and adjustment for dependent co morbidity.

Results: We estimated that in the year 2003, there were 21,572 DALYs due to all diseases and injuries per 100,000 Iranian people of all ages and both sexes, 62% were due to disability premature deaths (YLD) and 38% were due to premature deaths (YLL); 58% were due to non communicable diseases, 28% - to injuries, and 14% - to communicable, maternal, perinatal, and nutritional conditions. Fifty-three percent of the total number of 14.349 million DALYs in Iran were in males and 47% of DALYs were in females. The disease and injury causes leading to the highest number of DALYs in males were road traffic accidents, and in females were ischemic heart disease.

Conclusions: The health and disease profile in Iran has made the transition from the dominance of communicable diseases to that of noncommunicable diseases and road traffic injuries. NBD results are to be used in health program planning, research, and resource allocation generation policies and practices.

Keywords: *Disability-Adjusted Life Years, Years Lived with Disability, Diseases, Iran*

Introduction

Summary Measures of Population Health (SMPH) that describe health gaps and health expectancies reflect the attempt to measure health and make WHO's definition of health which was introduced in the 40s operationally measurable and comparable in a global context. As populations go through the demographic, epidemiologic, and health transitions, conventional mortality measures progressively fail to fully reflect the quantity of ill health and its impact on population health. One major cause for this is the shift of populations' disease profile from the dominance of communicable, maternal, perinatal, and nutritional conditions to non

communicable diseases, which lead to more non-fatal health outcomes as compared with their contribution to mortality (1).

The overall objective of the first National Burden of Disease Study in Iran was to provide quantitative estimations of the burden of death and disability, their determinants, and the average level of population health. The ultimate goal of the study was to provide evidence to inform health policy making, in order to guide priorities in health intervention program planning, health and biomedical research, and resource generation and expansion (2).

The burden of disease and injury resulting from premature deaths and disability was estimated

as 14.3 million DALYs in 2003, comprised of 8.8 million years lived with disability (YLD) and 5.5 million years lost due to premature death (YLL), or 62% and 38% of total DALYs, respectively. Rates per 100,000 people were 21,572 for DALYs, 13,271 for YLD, and 8,301 for YLL. Noncommunicable diseases (group II of GBD) caused 58% of the total number of DALYs, injuries (group III of GBD) caused 28%, and communicable, maternal, perinatal, and nutritional conditions (group I of GBD) caused the remaining 14%. The three disease groups causing the highest DALY rates in all ages and both sexes were injuries (28% of the total), mental and behavioral disorders (16%), and circulatory system diseases (10%).

Conclusion

Burden of disease results provide a crucial part of biomedical information needed for evidence-based health policymaking. This information along with economic analyses of the cost-effectiveness of interventions forms a strong platform for the advancement of evidence use in health policy and management. In essence, the diseases, injuries, and risk factors causing the highest burden should be assessed with respect to the current evidence, its accuracy and national applicability, on the effectiveness and cost-effectiveness of prevention and control interventions, and the availability of organizational, human, financial, and technological resources. The NBD results can provide strategic directions for population health research, resource generation and expansion, health programs evaluation, health system development, and future forecasting. This opportunity can be viewed and used as a substantial advancement in evidence-based health policymaking and program planning.

The most prominent finding of the first national burden of disease study in Iran for 2003, as indicated by the mix and levels (rates) of YLD, YLL, and DALYs caused by three groups of noncommunicable diseases, injuries, and “com-

municable, maternal, perinatal, and nutritional conditions,” was an advanced health transition profile from communicable, maternal, and perinatal conditions and nutritional deficiencies, through injuries, to the dominance of noncommunicable diseases in the overall picture of disease burden. Assessment of mortality and morbidity rates had demonstrated the dominance of noncommunicable, maternal, perinatal, and nutritional conditions in Iran in recent four decades, as well as the start of the health transition in the past few years (3-5). While this was the prominent overall national picture, results at the province level showed the variability of health transition advancement among provinces, which can be due to differences in the relative socioeconomic development levels of the studied provinces.

The mix of causes for YLL and YLD shows reducing the burden of which disease groups can extend the total life expectancy (relatively more than increasing the healthy life expectancy), and proper management of which other disease groups is expected to have a larger effect on reducing disability and increasing the healthy life expectancy (as compared with the resultant increase in total life span). Hence, by decreasing the perinatal mortality and the frequency and intensity of road traffic injuries, the total life expectancy can be improved (with relatively less increase in healthy life expectancy), since these disease and injury causes, have very high YLL to YLD ratios. On the other hand, through reducing the incidence of and increasing the quality of healthcare for noncommunicable diseases such as ischemic heart disease, major depressive disorder, and mental disorders due to opioid use, loss of healthy years of life can be prevented, and the relative gain in healthy life expectancy should be higher than the relative increase in total life expectancy. Across the age- and sex-specific subgroups, as well as in different geographical regions, the priority areas for intervention differ, a matter of crucial importance for customizing the priority diseases' control projects over per-

son and place variables. The use of results in priority setting is discussed below.

The NBD study is to be conducted every 5 yr, in order to coincide with the 5 yr cycle of the Comprehensive Social and Economic Development Master Plan of I. R. Iran. The second IRNBD study is being launched to make 2005 estimates.

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