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journal homepage: www.elsevier.com/puhe

Review Paper

Increasing prevalence of diabetes in Bangladesh: a scoping review

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ARTICLE INFO

Article history:
Received 12 April 2015
Received in revised form
18 January 2016
Accepted 28 March 2016
Available online 9 May 2016

Keywords:
Diabetes
Prevalence
Bangladesh

ABSTRACT

Background: The prevalence of type 2 diabetes is increasing rapidly in Bangladesh. However, studies documenting the increasing trend of diabetes prevalence are scarce. The aim of this study was to conduct a scoping review of published literature to ascertain the changing patterns of diabetes prevalence in Bangladesh.

Methodology: We conducted a scoping review based on York scoping reviews framework and performed a comprehensive search of published literature through Medline, BanglaJOL, and Google Scholar published between 1994 and 2013. We summarised and calculated the time trends and pooled prevalence for type 2 diabetes among adults (≥18 years) in both urban and rural areas in Bangladesh.

Results: Of 152 studies identified, we included 22 studies for the scoping review which met the inclusion criteria. Overall, 11 studies (50%) were conducted in rural areas, eight in urban (36%) and three (14%) in semi-urban, semi-rural and tribal areas. The overall prevalence of type 2 diabetes ranged between 4.5% and 35.0%. The final estimate of diabetes prevalence obtained after pooling of data from individual studies among 51,252 participants was 7.4% (95% CI 7.2–7.7%). The prevalence of diabetes was higher in males compared to females in urban areas and vice-versa in rural areas. Analyses of exponential trend revealed an increasing trend of diabetes prevalence among urban and rural population at a rate of 0.05% ($R = 0.18$) and 0.06% ($R = 0.35$) per year, respectively.

Conclusion: The prevalence of type 2 diabetes showed an increasing trend in both urban and rural population in Bangladesh. Our findings suggest the need for an all-out effort by the government and stakeholders to implement preventive strategies for diabetes in Bangladesh.

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http://dx.doi.org/10.1016/j.puhe.2016.03.025
0033-3506/

Introduction

Diabetes has emerged as a major public health problem worldwide, especially in low-and-middle income countries (LMICs), where more than 80% of people with diabetes are living.[1,2] The International Diabetes Federation (IDF) estimated that the global prevalence of diabetes among adults in 2013 was 8.3%, which is 382 million people living with diabetes and projected to increase beyond 592 million in less than 25 years,[1] which might be a conservative estimate. Southeast Asia accounts for close to one-fifth of all diabetes cases worldwide and the prevalence of diabetes is estimated to increase by 71% in this region by 2035.[1] The IDF Diabetes Atlas 5th edition projected that diabetes prevalence in Bangladesh will increase to more than 50% by next 15 years, placing Bangladesh as the 8th highest diabetic populous country in the world.[3] The economic and human costs provoked by diabetes in a large population such as in Bangladesh will be substantial.[4,5]

Evidence suggests that the increasing global epidemic of diabetes is contributed by increasing incidence, changing epidemiology of risk factors for type 2 diabetes, increasing surveillance and improvement of survival.[6] Rapid urbanisation and economic growth in many countries of Southeast Asia have lead to exposure to new risk factors, such as adverse dietary pattern, sedentary lifestyles, obesity, environmental exposure among others in addition to traditional risk factors of increasing age and genetic predisposition.[7,8] Southeast Asians develop type 2 diabetes at a lower body mass index (BMI) compared to Caucasians and have more central obesity.[9] Moreover, South Asians develop diabetes and its complications at a relative younger age compared to the Western population.[10–12] With increase in life-expectancy and exposure to several traditional and emerging risk factors, the overwhelming burden of diabetes is expected to firestorm in SouthEast Asia, including Bangladesh.[13,14]

In Bangladesh, a large number of studies have been carried out in both urban and rural population and a few studies in semi-urban, semi-rural and tribal areas over the last decades. These studies have reported different prevalence of diabetes, which might be due to difference in methods of detection, study population, age groups and time of the study. Understanding the prevalence trend of diabetes will provide useful information to health professionals and policy makers in developing future action plans and resource allocation in Bangladesh, as well as other developing countries. There are limited data on the time trends of diabetes and its risk factors in SouthEast Asian countries. Therefore, we conducted this scoping review to explore the increasing trend of prevalence of type 2 diabetes in Bangladesh.

Review

Methodology

We conducted a scoping review based on the York methodology outlined by Arksey and O'Malley from the University of York, UK,[15] that aims to capture all literature regardless of study design and quality appropriate for this review. We followed the five stages of undertaking a scoping review as suggested by the 'York framework'(Fig. 1), which included: (i) identifying the research question; (ii) identifying relevant studies; (iii) selecting appropriate studies; (iv) charting the data and collating; (v) summarising and reporting the results.[15]

Initially, we defined research questions and developed a search strategy. Relevant peer-reviewed literature were then identified through a comprehensive search across different databases including PubMed, Google Scholar and Bangladesh's country specific search engine (BanglaJOL) published between January 1, 1994 and December 31, 2013.

The literature search and data abstraction were performed independently by two authors (TB and SMSI) and revised by a third author (AI). We categorised the search terms according to the location, methodology and outcomes: (1) Location: 'Bangladesh'; (2) Method: 'prevalence, cross-sectional, cohort studies, case control, survey'; (3) Outcome: 'prevalence of type 2 diabetes in both urban and rural area of Bangladesh'. The 'AND' Boolean operator was used to combine search terms across the categories and the 'OR' was used to combine within the categories. Further, we limited the search to studies that only involved Bangladeshi people residing in Bangladesh and were published between January 1, 1994 and December 31, 2013. We screened the studies using the inclusion criteria: language (English); dates (between '1st January 1994 and 31st December 2013'); species (humans) and age: 18+ years. Studies confined to a specific age group, review papers

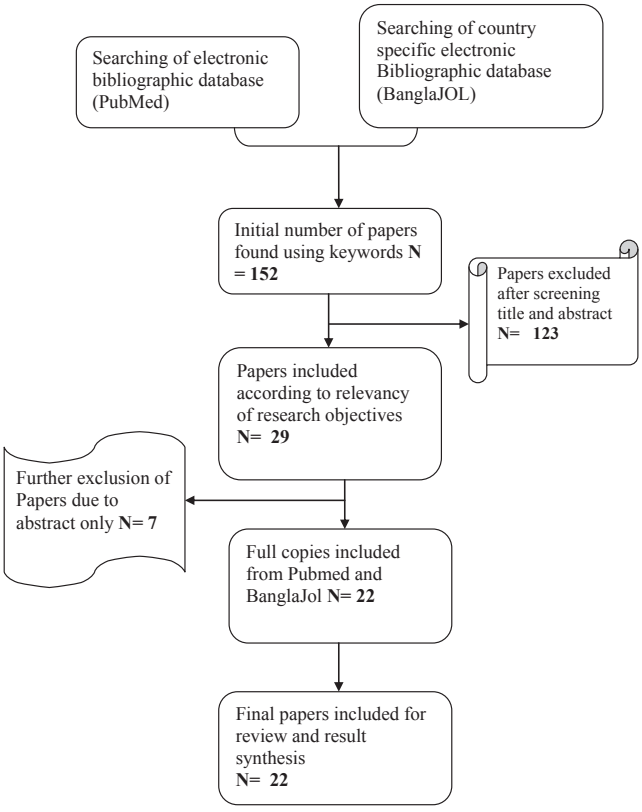

Fig. 1 – Steps of the method used to sort out relevant literature for reviewing.