Changing profile of disease contributing to mortality in a resettlement colony of Delhi

RENUKA SAHA, ANITA NATH, NANDINI SHARMA, S. K. BADHAN, G. K. INGLE

ABSTRACT

Background. The past decade has seen a decline in the disability-adjusted life years (DALYs) contributed by communicable diseases while lifestyle changes and rapid urbanization have led to an increase in DALYs contributed by non-communicable diseases. We studied the causes of death in a low socioeconomic area over 11 years to help identify changes in the pattern of disease.

Methods. We did this study in Gokulpuri, a resettlement colony in East Delhi. All deaths occurring from 1994 to 2004 were analysed using a verbal autopsy questionnaire completed by trained health workers during their home visits in the area.

Results. A total of 515 deaths occurred during the period; 340 in men (66%) and 175 in women (34%). The six commonest causes of death were tuberculosis (24.8%), chronic obstructive pulmonary disease (11.6%), pneumonia (8.7%), accidents and poisoning (8.6%), coronary heart disease (8.2%) and cancer (4.6%). The age-specific mortality rate was highest among people > 45 years of age. The cause-specific mortality rate due to communicable diseases showed a decline while that due to non-communicable diseases showed a rising trend in all age groups.

Conclusion. Our study shows the coexistence of communicable and non-communicable diseases in a low socioeconomic area with a rising trend in non-communicable diseases. Surveillance for risk factors of non-communicable diseases should be done even in predominantly low socioeconomic areas. The coexistence of communicable and non-communicable diseases and the increase in non-communicable diseases among the economically deprived sections of our society suggest the need to re-prioritize components of healthcare among these sections.

INTRODUCTION

India has the highest burden of communicable diseases in the world, with malaria and tuberculosis among the leading causes of death. However, the past decade has seen a decline in disability-adjusted life years (DALYs) contributed by communicable diseases. With an improvement in the standard of living, lifestyle changes and rapid urbanization, non-communicable diseases (NCDs) now contribute an increasing proportion to the overall burden of disease in India. Chronic diseases account for an estimated 53% of deaths and 44% of DALYs lost in India. Moreover, poverty has resulted in the migration of people to urban areas from rural areas. A large proportion of migrants from the poor socioeconomic strata reside in urban slums and resettlement colonies.

Gathering information on the prevailing causes of death in an area and the changing trends over a period of time can help identify priority areas for healthcare and health-related programmes. Verbal autopsy has been shown to be a useful means of ascertaining the causes of death. It reduces the proportion of deaths due to unspecified or unknown causes. There is little information available on the prevalence of various diseases, causes of death and patterns of change, if any, in urban slums in India. We studied the causes of death in a resettlement colony of Delhi over an 11-year period (1994–2004).

METHODS

We chose a resettlement colony in Delhi (Gokulpuri) where comprehensive healthcare is provided by an Urban Health Centre of the Maulana Azad Medical College. This centre caters to a population of 19 865. All deaths during 1994–2004 were analysed. A pre-designed proforma in Hindi based on a standard verbal autopsy tool was used by trained health workers during their routine monthly home visits. The causes of death were recorded using the International Classification of Diseases-10 code. The diagnoses documented in the proformas were reviewed by the medical officer at the Urban Health Centre.

RESULTS

A total of 515 deaths occurred during the 11-year study period, of which 340 deaths occurred among men (66%) and 175 among women (34%); Tables I and II). The commonest cause of death in the younger age groups was pneumonia while chronic obstructive pulmonary disease and coronary heart disease were the commonest in the older age groups. Tuberculosis was the commonest cause in both sexes.

The age-specific mortality rate was significantly higher

### Table I. Gender-wise distribution of causes of death

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>102 (30)</td>
<td>26 (14.8)</td>
<td>128 (24.8)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>29 (8.6)</td>
<td>16 (9.1)</td>
<td>45 (8.7)</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>36 (10.5)</td>
<td>24 (13.7)</td>
<td>60 (11.6)</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>26 (7.6)</td>
<td>16 (9.1)</td>
<td>42 (8.2)</td>
</tr>
<tr>
<td>Accidents</td>
<td>29 (8.6)</td>
<td>15 (8.7)</td>
<td>44 (8.6)</td>
</tr>
<tr>
<td>Cancer</td>
<td>6 (1.9)</td>
<td>17 (9.8)</td>
<td>24 (4.6)</td>
</tr>
<tr>
<td>Others</td>
<td>112 (32.9)</td>
<td>61 (34.8)</td>
<td>173 (33.5)</td>
</tr>
<tr>
<td>Total</td>
<td>340 (32.9)</td>
<td>175 (32.9)</td>
<td>515 (32.9)</td>
</tr>
</tbody>
</table>

Values in parentheses are percentages.
(p<0.001) in those >45 years of age all through the 11-year period. However, there was a downward trend over the years in the age-specific mortality rate in all groups (Fig. 1). The cause-specific mortality rate showed that during the study period communicable diseases had declined while NCDs had increased in all age groups (Fig. 2).

**DISCUSSION**

Two-thirds of deaths in our study population occurred in men and this could be because the proportion of men in this area was higher (sex ratio 748:1000). This is possibly because most residents of this area had migrated alone (leaving their families in their native places) to the city in search of employment. Tuberculosis accounted for a quarter of the total deaths (24.8%) followed by chronic obstructive pulmonary disease (11.6%). Tuberculosis accounted for a higher number of deaths (30%) in men than women (14.8%). This could be partly attributed due to the higher proportion of men in the study area and partly to a higher incidence of smoking in men. Gajalakshmi et al. in a case–control study of rural and urban men in Tamil Nadu found that tuberculosis accounted for one-third of the excess mortality among smokers. It has been suggested that the HIV epidemic, and increasing poverty and rising levels of drug resistance will result in an increase in the burden of tuberculosis in women.

Cancer accounted for a higher proportion of deaths in women (9.8%) compared with men (1.9%). This is consistent with reports from WHO.

Most of the deaths in the 0–5 years’ age group were due to pneumonia. Studies from Ballahgarh and Lucknow had similar findings. Accidents are becoming an important cause of death even in the younger age groups. We found that most deaths due to accidents occurred in the 15–44 years’ age group. In many developing countries, accidents are now a major cause of death in children between 1 and 5 years of age. In the 5–14 years’ age group, 7 deaths occurred as a result of NCDs.

Fig. 1. Trends in age-specific mortality rates

In children between 1 and 5 years of age. In the 5–14 years’ age group, 7 deaths occurred as a result of NCDs.

The trends in mortality in different age categories revealed that pneumonia contributed to a higher proportion of deaths in the extremes of life (<5 years of age and >65 years of age). A study at an urban tertiary care hospital in Delhi found that in children with acute lower respiratory tract infection, age <1 year
was a significant predictor of mortality. Chronic obstructive pulmonary disease accounted for a majority of deaths in the elderly population (>65 years of age) and deaths due to coronary heart disease were highest in the 45–64 years’ age group. Similar findings have been reported in a study from Ahmedabad and is supported by other reports.

We found the age-specific mortality rate to be higher in the >45 years’ age group although the mortality rate appeared to decline over a period of time.

We also found that during the study period, the cause-specific mortality rate due to communicable diseases showed a downward trend while NCDs showed a rising trend. These trends, especially in the younger age group, indicate the emerging burden of NCDs even among the low socioeconomic strata. Disease surveillance and surveillance for the risk factors of NCDs should be given due priority. This calls for strengthening the existing national health programmes for communicable diseases as well as the Reproductive and Child Health Programme. Reliable, routine and economical systems for measuring mortality should be promoted and strengthened for disease control. Such systems would serve to monitor health conditions, detect epidemics, evaluate the outcome of disease control programmes and ensure accountability for the resources provided.

REFERENCES


4 Gajalakshmi V, Peto R. Verbal autopsy of 80,000 adult deaths in Tamil Nadu, South India. BMC Public Health 2004;4:47.


