Evidence on the contribution of body mass index to mortality: What does this mean for India?

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SUMMARY

This population-based cohort study examined the association of body mass index (BMI) with all-cause and cause-specific mortality in 3.6 million individuals in the UK using primary care data from the Clinical Practice Research Datalink (CPRD). These data include primary care records from general practitioners covering about 9% of the UK population, which are linked to the death registration data for the majority including the date and cause of death. The first 5 years of follow-up after the BMI record started was excluded to minimize the potential bias of disease leading to weight change. The analysis included individuals who had BMI measured at 16 years of age or older and had follow-up data between 1998 and 2016. The median age of entry in this study was about 40 years. The first recorded BMI was considered as the exposure variable. Cox regression models were used to determine the association of BMI with all-cause mortality and cause-specific mortality based on ICD-10, adjusting for potential confounders.

All-cause mortality had a J-shaped association with BMI, with the lowest mortality at BMI of 25 kg/m^2. Similar J-shaped associations were found for cancer, cardiovascular, respiratory, blood and endocrine (including diabetes), digestive, musculoskeletal and urogenital causes of death, with lowest mortality at 21–25 kg/m^2. The association of higher mortality with higher BMI was generally stronger among men than among women. The strength of this association decreased with age. Mortality from mental and neurological disorders had an inverse association with BMI up to 24–27 kg/m^2, above which there was no significant association. Deaths from suicide and interpersonal violence had an inverse linear association with BMI. Among individuals who had never smoked, obesity, BMI of 30 kg/m^2 or more, was associated with a reduction of remaining life by 4.2 years among men aged 40 years and by 3.5 years among women aged 40 years. Among 40-year-olds who had never smoked, underweight (BMI of <18.5 kg/m^2) was also associated with a reduction of remaining life by about 4.4 years, roughly similar for both men and women.

COMMENT

Implications for India

The findings of this study from the UK are generally consistent with other recent studies on the association of BMI with mortality, which have included data from many countries at various stages of development.[1–3] It would be reasonable to assume that these adverse health impacts of abnormally high or low BMI would generally be applicable to India as well. The rise in the prevalence of overweight and obesity in India has recently been reported to be spectacular, with the proportion of individuals 20 years of age or older with BMI of 25 kg/m^2 or more increasing from 9% in 1990 to 20.4% in 2016.[4–6] Importantly, this increase has been substantial in every state of India, including the relatively less developed states. In addition, some adverse outcomes associated with high BMI are higher in India. For example, the proportion of individuals with diabetes among those with BMI of 25 kg/m^2 or more in India is double the global average.[6] With rapid increase in the prevalence of diabetes, ischaemic heart disease and stroke all over India,[6,7] the need to control the rising levels of overweight and obesity across the country can hardly be overemphasized. Besides adults, high BMI levels are also increasing among children across India.[8] India needs to urgently develop an obesity prevention programme to bring visibility to this cross-cutting and worsening public health problem, and introduce strategies and mechanisms to mitigate their adverse impact in the coming years. The strategies would include enabling healthier dietary patterns and physical activity for adults as well as children through appropriate means that are feasible and sustainable in India. A

crucial factor in the success of such strategies would be widespread realization of the adverse impact of overweight and obesity among the public. Lessons learnt from obesity control efforts in other countries should be taken into account.

It is important to note that undernutrition continues to be a major contributor to disease burden in India in children as well as adults.[4,5,8–10] With rising levels of overweight and obesity on the one hand, and the continuing burden of undernutrition on the other hand, India is in the grip of the double burden of malnutrition. Addressing this double burden should be one of the highest priorities for health policy in India.

Conflicts of interest. None declared

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