Journal of Community Medicine & Health Education

Balogun, J Community Med Health Educ 2017, 7:4
DOI: 10.4172/2161-0711.1000548

Mini Review OMICS International

To What Extent can Chronic Diseases be Prevented in the United Kingdom and the Rest of the West?

Femi Balogun*

Department of Psychiatry, Oxleas NHS Foundation Trust, Greenwich CAMHS, United Kingdom

***Corresponding author:** Femi Balogun, Consultant Child and Adolescent Psychiatrist, Oxleas NHS Foundation Trust, Greenwich CAMHS, United Kingdom, Tel: +447707861383; E-mail: femi@doctors.org.uk

Rec date: Aug 21, 2017; **Acc date:** Aug 24, 2017; **Pub date:** Aug 28, 2017

Copyright: © 2017 Balogun F. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Abstract

The public health challenge of our generation and indeed generations to come is the effective management of the prevalence of non-communicable diseases. The task is fraught with complexity and plagued by paradox. On one hand we laud our efforts in increasing life expectancy but on the other we are stunned by dementia, the flipside of improved longevity. Depression has risen to prime place at the summit of morbidity tables in the West and obesity (in particular, child obesity) is on the rise. There is effective public health action aimed at smoking, physical activity uptake and obesity but the yield is slow and the process complex. Thrown into the mix is the powerful lobby of commercial interests opposed to real change and government inaction in tackling health inequalities. Non-communicable disease account for 60% of annual deaths and will cost the global economy US$47 trillion over the next twenty years. With a concise review of mass public health action on targeted lifestyle choices, the author evaluates the future impact of NCDs in this most relevant of debates on the advance of chronic illness. 'Non-Communicable Diseases (NCDs) En Marche' seems a fitting contemporary title for this discourse; it symbolizes our current predicament with chronic or non-communicable diseases. NCDs are an enormous public health challenge and in many ways present a more formidable opponent than the old communicable disease foe. In the West, the leading cause of death and disease is ill health characterized by a protracted clinical course, linked to key life style choices or consumption behaviors and a rather complicated prevention strategy. NCDs now constitute 60% of global mortality, accounting for about 34 million deaths each year [1]. The focus of attention is how much prevention strategies can limit the scourge of NCDs in the western world? And how many of the unique hurdles can we scale on the way to reversing the ascend of NCD related ill-health?

Keywords: Obesity; Smoking; Physical activity; Depression; Dementia; Public health; Noncommunicable diseases; Developed nations; Economics

Introduction

Epidemiology

The deference of mortality due to improved medical care in Western populations translates to improved longevity and a higher incidence of NCDs. Ischemic heart disease (IHD), cerebrovascular disease (CVD), cancer, chronic obstructive lung disease and diabetes are the leading causes of mortality in high income countries. They account for 60% of annual deaths and will cost the global economy US$47 trillion over the next twenty years. In 2010, the economic burden represented 48% [2]. At the top of morbidity tables are unipolar depression, IHD, CVD, Alzheimers and other dementias and alcohol use disorders. The disease burden of unipolar depression alone accounts for around 10 million disability adjusted life years (DALYs) and when grouped with dementia, the burden of mental ill health alone makes up around 13% of total DALYs [3]. Mental health conditions alone will account for the loss of an additional US$ 16.1 trillion over the next twenty years [2]. Public health care spending in the average OECD country could increase from 5.7% of GDP in 2005 to 9.6% in 2050, if efforts are not made to tackle the likely causes of the increasing trend in chronic diseases [3]. Common to NCDs are the key risk factors of aging, tobacco and alcohol misuse, unhealthy diets (obesity) and inadequate physical activity levels. These primary and potentially modifiable factors are however further complicated by the complex influence of the consequences of globalization, urbanization and increasing levels of poverty even in western democratic societies. A cursory look at the NCD risk factor evidence reveals that in 2009, physical inactivity was identified as the fourth leading risk factor for NCDs and in that year accounted for over 3 million preventable deaths with the suggestion that two thirds of adults and 80% of adolescents world-wide fall short of recommended public health physical activity guidelines [4]. In western countries, work-based physical activity levels have dropped but leisure-time activity has risen. Tobacco use allegedly the single biggest cause of death and disease in England. It is widely recognized as the most important human carcinogen, causing between 25 and 30 per cent of all cancers in developed countries [5]. In 2013, high-income OECD countries accounted for around 200 million smokers globally [6]. The average rate of smoking in populations across all 35 OECD countries is about 20%. The Greeks have the highest rate at just under 39%. In 2014, 19% of adults in Great Britain smoked, down from a peak of 46% in 1974; and there were 78,000 deaths in 2014 which were estimated to be attributed to smoking [7,8]. Argue that poor diet generates an even bigger non-communicable disease (NCD) burden than tobacco, alcohol and physical inactivity combined. As a result, today, more than one in two adults and nearly one in six children are overweight or obese in the OECD area. In 2015, across the OECD, 19.5% of the adult population was obese [9]. In 2014, 58% of women and 65% of men were overweight or obese in England where the obesity prevalence has increased from 15% in 1993 to 26% in 2014

[10]. This obesity epidemic means an increase population risk of cancer, heart disease, type 2 diabetes and strokes.

Prevention

Modifying risk factor related consumption behaviors has been the focus of NCD prevention strategies for a long time (and rightly so) but we also know that poverty and health inequalities lock people into the lifestyle choices they make; and for many the healthy choice is simply not the affordable one. Prevention based on 'can-do individualism' and the argument that people are free to make healthy choices is seriously flawed and until the wider macro determinants of NCDs are appropriately tackled, efforts to prevent NCDs will be significantly limited. Education and socio-economic background affect obesity rates and inequalities have grown in Italy, Spain and England between 2010 and 2014 [11]. Upstream approaches require complex strategies involving several policy areas and government departments; and are fraught with fragmentation and implementation problems. In addition, the stakeholder arena is crowded by powerful phantom actorsguised as self-interest multinationals opposed to real change. Nonetheless, what's the current evidence on interventions to prevent NCDs? Are we doing what works? If we are, how far will these efforts go at their very best in the prevention of NCDs?

Obesity

To date, reversing the obesity epidemic has proved elusive to all nations; not surprising, because the evidence base informing what preventive measures work best is weak and at times contradictory [12]. Increasing fruit and vegetable consumption is the second most effective strategy for reducing the risk of cancer [13] And familiar mass media campaigns that promote eating fruit and vegetables over sugary high calorie foods, are in place in most OECD nations (i.e. our 5-a-day promotion in England). Evidence from the West Australian equivalent showed the campaign increased the mean number of fruit and vegetable servings by only 0.2 over a three year period [14]. Food labeling and nutrient lists on packaged foods are compulsory by law in the vast majority of OECD countries. Evidence in this area suggests that "traffic-light" systems are an effective anti-obesity strategy with the potential to increase the number of people selecting a healthier option by about 18% leading to a 4% decrease in calorie intake [15]. Norway has taken an impressive lead in advertising regulation as a preventive policy measure by instituting a ban (agreed voluntarily with food manufacturers and suppliers) on marketing unhealthy foods and drinks to children under the age of thirteen. It is too early to make a call on its reach and impact in controlling childhood obesity. Food pricing interventions also show varied effect sizes. [16] In a modeling study on food subsidies suggested that subsidizing the cost of fruit and vegetables by a lasting price reduction of 1% would prevent 6733 cases of coronary heart disease and 2946 cases of ischemic stroke. Similarly, in another modeling study 'that a US penny-per-ounce tax might reduce sugar sweetened beverage consumption by 15% among adults and subsequently prevent around 95,000 coronary heart events, approximately 8,000 strokes and about 26,000 premature deaths [17].' Increasing the price of salty foods by 40% was suggested to reduce sodium consumption by around 6% [18]. The point must however be made that taxing any unhealthy consumable including food may lead to unwanted substitution behaviors.

Smoking

Just under a fifth of the UK adult population still smoke and this proportion seems to have held steady over the last few years following a significant decline since peak levels in the mid-seventies [19]. Arguably, the cardinal intervention, a smoking ban in enclosed public areas is in place in most western OECD countries; starting with Ireland in 1998 and then most others in the last decade. There is consistent evidence of the benefits of a smoking ban on public health with a resultant reduction in associated deaths [20]. However, there doesn't seem to be such strong support for a similar impact on chronic respiratory deaths. The literature contains contradictory statistics on the overall public health impact of smoking bans. In England for instance, [21] after controlling for other factors, reported a 'significant' reduction in hospital admissions for ischemic cardiac events in the first year following the UK 2007 smoking ban; with a £8.4 million savings to the NHS. These financial gains can in turn be ployed back into further prevention efforts. However, other studies found no significant effect of the ban on smoking prevalence and cardiac ischemia-related hospitalization and mortality [22-25]; save of course on heavy smokers who frequent bars and restaurants [26]. Their suggestion is that smoking bans merely displaces where people smoke. Other researchers highlight that bans induce a switch to higher tar, higher nicotine products [27,28]. The long standing policy of tobacco excise taxes is supported by good evidence from a large evidence base as an effective upstream intervention to limit tobacco consumption. Tobacco taxes were forecast to raise around £9.8 billion for the UK treasury in the financial year 2012/13, 1.7% of total receipts. [29]; perhaps a significant proportion of these additional receipts should be ring fenced to correct inequalities and bolster NCD prevention strategies.

Cancer

More than 220,000 people are diagnosed with cancer each year in England, and it causes more than 128,000 deaths [30]. Seventy percent of these deaths occur in people above the age of seventy five [30]. Fundamental to prevention efforts is cancer screening; which in England is offered for breast, bowel and cervical cancer as part of a national screening framework. The impact is positive across board and screening continues to be an effective intervention in the fight against cancer. Reporting on the effectiveness of the first round of screening for colorectal carcinoma in England, [31] Logan in 2012 presented an 'overall' improvement in cancer stage at diagnosis but no evidence on the overall public health impact. A clearer picture is evident with breast screening; which led to a 39% drop in mortality from the disease. Attendance in the last three years prior to diagnosis led to an even greater reduction in mortality of 60% [32]. Outcomes are equally positive for cervical cancer in the UK with an estimated 5000 less cases of the disease each year attributed to screening on the NHS [33]. In highlighting the importance of cervical screening as an effective prevention tool, the Royal College of Obstetricians and Gynecologists, 2016 point out that almost half of women who developed cervical cancer hadn't been screened in the 5 years prior to diagnosis. Vaccination against HPV is also predicted to yield a 70% decrease in cervical cancer [34].

Secondary prevention of CVA/IHD

The benefits of statins for secondary prevention or in people at high risk of cardiovascular disease are undisputed [28], but an unfortunate controversy storm on their clinical utility and future now brews; which is unlikely to help our IHD prevention efforts. The Statins controversy

may have led to medication non-compliance in as many as 200,000 UK patients with a possible extra 2,000 extra heart attacks or strokes in next decade [35]. High blood pressure was the primary or contributory cause of mortality for more than 410,000 in 2014 [30]; fortunately, there is also overwhelming evidence for the effectiveness of anti-hypertensive treatment in reducing strokes and cardiac events [36].

Conclusion

It is unlikely that we would ever totally eradicate NCDs. Certainly not in the same way we proudly fossilized smallpox in the late 1970s; however, we have made some progress over the last four decades in reducing the health burden of these conditions. By how much, remains debatable though smoking rates in the UK have more than halved in that period. The economics of NCDs is complex and there are limits to how far legislation can impinge on personal liberties, rights and consumption choices in free liberal societies. At present, it is not in every stakeholder's interest to strictly limit exposure to the risk factors at the heart of the NCD epidemic; and active opposition and lobbying from the 'other side' is likely to continue well into the future; slowing the pace and progress of change. NCDs are not all about environmental exposure either and though of a smaller contribution, there remains the influence of genetic factors in the incidence of these conditions. In addition to improved screening, it is hoped that personalized genomic sequencing will in time also significantly improve early cancer detection and prevention. Dementia and Alzheimer disease replaced ischemic heart disease as the leading cause of death in England and Wales for the first time accounting for 11.6% of all deaths registered in 2015 [19]. Both these degenerative diseases are entirely age related and given our success in prolonging life; the point must be made that these are two sides of the same coin. By deferring death we have also increased (and quite significantly so,) the incidence of age-related NCDs. The same argument holds true for cancers, the vast majority of which occur after the age of 70. Effectively preventing the dementias at the public heath level is a tall order indeed and there is little evidence in support of effective interventions at present. On one hand, we are optimistic about our emerging success in reducing some NCD mortality, but on the other hand a third of these survivors will be living with dementia downstream. The candle's burning at both ends! This is clearly a 'new' challenge, a new frontier as we continue with the struggle to contain the obesity epidemic and build on the relatively little gains made in reduced exposure to smoking, improved cancer screening and prevention of heart disease. What's the judgment though? To what extent can we prevent NCDs in the West? There's still a lot of work to be done to halt, let alone reverse the obesity epidemic and with depression hitting new highs, it's difficult to be optimistic about extensive NCD prevention at this time.

References

1. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, et al. (2012) Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the global burden of disease study 2010. Lancet 380: 2095-2128.
2. Bloom DE, Ca ero ET, Jané-Llopis E, Gessel SA, Bloom LR, et al. (2011) The global economic burden of noncommunicable diseases. Geneva: World Economic Forum.
3. Sassi F, Hurst J (2008) The prevention of lifestyle-related chronic diseases: An economic framework. OECD Health Working Paper No.32; Organisation for Economic Co-operation and Development.
4. Hallal PC, Andersen LB, Bull FC, Guthold R, Haskell W, et al. (2012) Global physical activity levels: Surveillance progress, pitfalls and prospects. Lancet 380: 247-257
5. Peto R, Lopez AD, Boreham J, Thun M, Heath C (1992) Mortality from tobacco in developed countries: Indirect estimation from national vital statistics. Lancet 339: 1268-1278
6. WHO (2014) Global status report on noncommunicable diseases. Noncommunicable diseases and mental health. Geneva.
7. Office for National Statistics (2016) Statistical bulletin: Adult smoking habits in the UK.
8. Hyseni L, Atkinson M, Bromley H, Orton L, Williams FL, et al. (2017) The effects of policy actions to improve population dietary patterns and prevent diet-related non-communicable diseases: Scoping review. Eur J Clin Nutr 71: 694-711.
9. Organisation for Economic Co-operation and Development (2017) Obesity-update.
10. Health and Social Care Information Centre (2016) Statistics on obesity, physical activity and diet England 2016.
11. Cross-Government Obesity Unit (2008) Healthy weight, healthy lives: A cross-government strategy for England.
12. Department of Health (2010) 5 a day health benefits.
13. Pollard CM, Miller MR, Daly AM, Crouchley KE, O'Donoghue KJ, et al. (2008) Increasing fruit and vegetable consumption: Success of the Western Australian go for 2&5 campaign. Public Health Nutr 11: 314-320.
14. Cecchini M, Warin L (2016) Impact of food labelling systems on food choices and eating behaviors: A systematic review and meta-analysis of randomized studies. Obes Rev 17: 201-210.
15. Thow AM, Downs S, Jan S (2014) A systematic review of the effectiveness of food taxes and subsidies to improve diets: Understanding the recent evidence. Nutr Rev 72: 551-565.
16. Thow AM, Jan S, Leeder S, Swinburn B (2010) The effect of fiscal policy on diet, obesity and chronic disease: A systematic review. Bull World Health Organ 88: 609-614.
17. Welsh JA, Lundeen EA, Stein AD (2013) The sugar-sweetened beverage wars: Public health and the role of the beverage industry. Curr Opin Endocrinol Diabetes Obes 20: 401-406
18. Frazer K, Callinan JE, McHugh J, van Baarsel S, Clarke A, et al. (2016) Legislative smoking bans for reducing harms from secondhand smoke exposure, smoking prevalence and tobacco consumption. Cochrane Database Syst Rev 2: CD005992.
19. Gilmore A (2017) The impact of smokefree legislation ('the smoking ban'): Evidence from research. Institute for Policy Research, University of Bath.
20. Adda J, Cornaglia F (2010) The effect of bans and taxes on passive smoking. Ame Econ J: Applied Economics 2: 1-32
21. Carpenter C, Postolek S, Warman C (2011) Public-place smoking laws and exposure to environ- mental tobacco smoke (ETS). Ame Econ J: Econ Policy 3: 35-61
22. Anger S, Kvasnicka M, Siedler T (2011) One last puff? Public smoking bans and smoking behaviour. J Health Economics 30: 591-601
23. Jones A, Laporte A, Rice N, Zucchelli E (2011) A model of the impact of smoking bans on smoking with evidence from bans in England and Scotland, University of York, Health, Econometrics and Data Group.
24. Shetty K, DeLeire T, White C, Bhattacharya J (2009) Changes in U.S. hospitalization and mortality rates following smoking bans, NBER Working Paper 14790.
25. Evans W, Farrelly M (1998) The compensating behavior of smokers: Taxes, tar and nicotine. Rand J Econ 29: 578-595
26. Farrelly M, Nimsch C, Hyland A, Cummings M (2004) The effects of higher cigarette prices on tar and nicotine consumption in a cohort of adult smokers. Health Econ 13: 49-58
27. Leicester A, Stoye G (2017) Factors associated with the presence of domestic energy efficiency measures in England. Wiley 32: 2.

28. Logan RFA, Patnick J, Nickerson C, Coleman L, Rutteret MD, et al. (2011) Outcomes of the bowel cancer screening programme (BCSP) in England after the first 1 million tests. Gut 61:1439-1446.
29. Rosen R, Smith A, Harrison A (2006) Future trends and challenges for cancer services in England: A review of the literature and policy. The Kings Fund.
30. Massat NJ, Dibden A, Parmar D, Cuzick J, Sasieni PD, et al. (2016) Impact of screening on breast cancer mortality: The UK program 20 years On. Cancer Epidemiol Biomarkers Prev 25: 455-462.
31. Public Health England (2016) NHS screening programmes in England 2015 to 2016.
32. Royal College of Obstetricians and Gynecologists (2016) Progress in cervical screening in the UK, scientific impact paper No. 7.
33. Godlee F (2016) Statins: We need an independent review. BMJ 354: i4992
34. Boseley S (2016) Statins controversy led 200,000 Britons to stop taking pills, says study.
35. Chobanian AV (2009) The hypertension paradox-more uncontrolled disease despite improved therapy. N Engl J Med 361: 878-887
36. Centers for Disease Control and Prevention (2014) High blood pressure in the United States.