The policy challenge of coexisting undernutrition and nutrition-related chronic diseases

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Abstract

The original focus on energy and protein needs for combating malnutrition gave way to UNICEF promoted concerns for maternal care and complementary feeding in association with longer-term breast feeding. Nevertheless the World Food Summit's drive to halve malnutrition rates by 2015 was not accelerating the fall in malnutrition prevalences. The UN's Standing Committee on Nutrition's commission highlighted the crucial role of maternal nutrition and low birthweights, the need for a life cycle approach to prevention and the current global effects of maternal/fetal and childhood malnutrition in amplifying the impact of the new epidemic of obesity and chronic diseases. The emphasis on poverty reduction and free market solutions is too crude and national interventions geared to protecting the vulnerable, promoting equity with major community involvement in integrated multifaceted programmes are needed. The same principles apply to overnutrition and specifically to the avoidance of the current pandemic of the metabolic syndrome. An intergenerational amplification of diabetes is now emerging as overweight but poorly fed micronutrient deficient girls enter pregnancy and produce ever more susceptible children. So new strategies are now needed as recognized by economists but not by doctors and nutritionists! Economy, agriculture, food processing and marketing policy changes are crucial in determining patterns of food consumption because the costs of foods and their availability, rather than policies centred on individual responsibility for consumer choice, are the keys to making coherent public health advances.

Keywords: malnutrition, fetal nutrition, obesity, food policy.

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In 1990 WHO published its first report following an Expert Technical Consultation on the nutritional problems of the world and how appropriate diets could prevent adult chronic diseases. I had the privilege of chairing the Expert Consultation and produc-

ing the draft document for the meeting. The WHO TRS 797 report (World Health Organization, 1990) became one of the best-sellers for WHO but was not followed by the development and implementation of a coherent WHO and FAO policy programme. This in part stemmed from the objections of the US government to our inclusion of a sugar limit based on the prevention of dental caries, this objection having been stimulated by the World Sugar Organisation which subsequently operated through the International Life Sciences Institute (ILSI), first to block all initiatives and then to negate where possible the original findings. By the end of the decade, however, Dr Derek Yach had become the leader of the Chronic Diseases Division in WHO and he decided to reconvene a technical consultation in 2001 to reconsider the issues set out in the 797 report. He foresaw the substantial industrial response and decided to develop the first ever WHO process of open consultation on the draft of the new report and the background documentation prior to the submission of the TRS 916 report (World Health Organization, 2003). This was then to be followed by the development of a proposal for a global strategy (World Health Organization, 2004a), which needed to go to the Executive Board for approval before it was submitted to the World Health Assembly in 2004. Unfortunately at that stage, the decision was made not to include undernutrition in the analysis but the global strategy recommendations that were finally adopted at the 2004 World Health Assembly (World Health Organization, 2004b) proposed the development of coexisting strategies to combat both malnutrition and adult chronic diseases.

Can policies for combating childhood malnutrition be linked to the new Global Strategy for Chronic Disease?

Six years ago, I was privileged to be asked to chair a commission for the Standing Committee on Nutrition (James *et al.*, 2000). The issue was to consider why progress on reducing childhood malnutrition was so slow. At that time we highlighted

1. the fundamental link between childhood malnutrition, dominated by stunting, and the prevalence of

low birth weight (LBW) and poor maternal care and nutrition;

2. that animal protein, rather than plant-based, supplements increases in food intake were the nutritional means for combating growth stunting once clean water and appropriate sanitation were available to reduce the risk of infections;

3. that the widespread prevalence of iron deficiency was being neglected and could in part relate to limited animal protein intakes;

4. that poverty reduction was not a realistic means of rapidly combating malnutrition, its prevalence depending more on societal action to promote the status of women, their education and nutrition and health before and during pregnancy;

5. the fundamental link between poor fetal nutrition and the child's enhanced susceptibility to chronic disease when adult;

6. that these problems needed to be tackled on a life cycle approach;

7. that the UN system sometimes amplified the difficulties of nutritionists and public health workers in the developing world by not engaging in a coherent interagency strategy of support and often recruiting for UN positions the few experts left within a country.

During the course of this commission, we held a 3-day meeting in India to consider the problems of South East Asian countries and found ourselves dismayed by the poor understanding within the nutritional community of what was required for changing government policies and practices. Our concern was amplified by the recognition that in the slums of India, 12% of all adults were already diabetic, with a further 14% or more glucose intolerant; a large proportion of the urban population already displayed many features of the metabolic syndrome with escalating rates of cardiovascular disease. Thus in India and the neighbouring South East Asian countries there was extreme childhood malnutrition together with extraordinary rates of adult chronic disease.

It seems reasonable to conclude from our earlier analyses that the prevalence of LBW in Asia can be markedly reduced if young girls and women have sufficient intakes of animal protein, folic acid and vitamin B12, these components having been identi-

fied by Yajnik's group (Rao *et al.*, 2001) as being particularly linked to the very poor growth of lean tissues with relatively high body fat levels in babies who were often of low birthweights. Given the relatively newly recognized link between maternal and early childhood malnutrition and adult disease, it is imperative to move rapidly to combat maternal malnutrition because it appears at present that perhaps the majority of the world has been nutritionally imprinted or programmed to have an enhanced susceptibility to type 2 diabetes and other adult chronic diseases (James, 2002). Thus, by using the Millennium Goals for coping with maternal mortality and disease, as well as childhood malnutrition, we should be able to make a long-term impact on the susceptibility to adult disease.

The problem is that the linkage looks too complex with few intervention trials on maternal nutrition to allow a vivid claim for priority action when the impact of any improvement is likely to be very delayed. All governments are tuned to expect rapid results from any policy initiative. Furthermore the worthy aim of improving the well-being and education of young girls and mothers is fraught with huge cultural barriers in so many parts of the world. It is therefore a real challenge to work out how best to proceed.

Can coherent policies be developed to tackle both malnutrition and adult chronic disease?

The International Obesity Task Force's (IOTF) prevention group set out the underlying issues which needed to be considered when addressing the problem of overweight and obesity (Kumanyika *et al.*, 2002). Instead of simply considering an individual approach to educating mothers, and indeed the community, about the value of a good diet – an endeavour which has in general been unsuccessful for the last 50 years – we should recognize what every government policy maker understands when considering other fields. This approach has been set out by a banker, Derek Wanless (Wanless, 2004), for the British Chancellor of the Exchequer. Wanless noted that in the West the three biggest economically and medically overwhelming problems were smoking,

obesity and physical inactivity. These had to be tackled in the same way as other social and economic policy questions. He called for a coherent, multidimensional plan based on accumulated evidence and analysis, with impact monitoring of any initiative. A coherent, structured plan involving economic, regulatory and legal changes in policy could also be used to change public perceptions about cultural and social issues. Thus it should be clear by now that simply advocating a balanced diet and using health education as the principal means of changing societal behaviour has not been shown to work, despite all the routine enthusiasm for this approach.

It has, however, been known for decades that the intake of particular foods can be changed on a population basis by simply altering the relative prices of different commodities. Furthermore, practically all governments in the world have sustained multimillion or billion dollar programmes to promote agriculture and thereby alter food prices. Food prices have been dropping dramatically for several decades with major governmental subsidies of meat, fat and sugar production. The intense governmental promotion of these commodities has led to the establishment of food industries which, following the Second World War, recognized that it was legitimate and indeed desirable to devise food products which were as attractive as possible. Consumer taste panels then informed the food companies that combinations of foods high in fat, sugar and salt and refined to reduce their bulking qualities were highly attractive. Confectionery, soft drink and fast food companies therefore developed, particularly in the US, through intense free-market-based competition, and led to the development of huge industrial enterprises which rapidly became transnational. The companies' marketers then recognized that by suitable marketing they could change the preferences of entire populations and also appeal to any society on the basis that wealth and well-being were associated with consuming an American or Northern European diet. They then decided to increase their market share and sales by first focusing on children so that the children would become loyal to particular brands and food companies, and secondly by penetrating the markets of the developing world as a marvellous

method for progressively increasing their turnover on a year-by-year basis.

We may see these developments now as very regrettable, but it must be understood that our nutritional predecessors often consulted for these companies and formally recognized in government policy-making circles and in public that there were no good foods or bad foods, only unbalanced diets. Thus the naivety of the nutritional community bears a heavy responsibility for the failure of any government to counteract these disadvantageous trends. We are now in a position where the industries involved in the food chain, whether in agricultural technology, food production, processing, manufacturing or retailing, are all huge political players. They are far more powerful than the tobacco industry and in practice have discovered the value of using the same techniques, i.e. obtaining political influence through selective party funding, recruiting pliant nutritionists, scientists and doctors, and employing major public relations companies to cope with the media. So unsurprisingly, they are able to gain access at short notice to government ministers and indeed to presidents and prime ministers. They also continue to be instinctively defensive when challenged, although in practice they constitute the one industrial sector with a guaranteed future if they can adapt appropriately.

Technological advances and changes in social and governmental approaches to traffic policies and urban design, together with the promotion of mechanization and computerization, also now mean that very few people are required to undertake physical work to earn their livelihoods. The environment in which people now live is so altered that the facilities and inducements to be physically active have been drastically restricted.

It is therefore not surprising that in most of the world overweight and obesity rates are now described as pandemic, i.e. affecting more than 50% of most populations. The presumed substantial but unquantified reduction in physical activity has certainly been accompanied by a transformation in the food chain. Yet it is only in the last 2 years that the fast food, confectionery and soft drink industries have been seen to be an intrinsic part of the problem in inducing obesity and all its complications. Now, given the wide-

spread publicity, they want to be part of the solution rather than the cause of the problem so the issue is how to cope with their reasonable demands for engagement in the new emerging political process.

Developing an effective national and global strategy for preventing chronic diseases

First, we must focus on the big strategic questions. There need to be changes in a whole variety of governmental and societal areas based on the crucial fact that the causes of both poor fetal nutrition and adult chronic diseases have developed because of the actions of or the compliance of many government departments and sectors other than health. Thus to consider rectifying these problems through an individualized approach or through a health-based strategy is to misunderstand the issues.

The principal drivers, reducing physical inactivity and overeating, need to be identified. Safe walkways, play areas and cycle paths immediately adjacent to housing need to be developed so that car usage becomes the lowest priority. Individualized approaches to activity, e.g. with pedometers are immediately acceptable and involve the public but will probably have limited impact. More important in developing countries is the need for explicit policies to maintain cycle paths, sidewalks and public transport and to minimize the growth of car use through a variety of taxes, regulatory measures, traffic control and urban design. This is what is needed, for example, in China where already there are moves to restrict bicycles in favour of car use! Schools also need to transform their approaches in most countries to teaching different 'sport' activities, particularly for girls who often dislike and avoid competitive games. Schools and work sites, particularly when publicly owned, need to transform their facilities to encourage walking, cycling and the use of public transport.

The needs for altering diets are more controversial. There has to be a severe and effective restriction of marketing (not just advertising) to children, the specification of high quality meals in all public institutions including schools, hospitals, the military and prisons, as well as in kindergartens, workplaces and old peo-

ple's homes. Food labelling has to become mandatory and based, e.g. on a system such as the UK Parliamentary Health Committee's traffic light classification for high, medium and low energy-dense foods and drinks (House of Commons Health Committee, 2004). This scheme needs to be applied to all sold products, to supermarket shelves and to all catering outlets. Governments should consider restricting and heavily taxing on an hypothecated basis the availability of fast food outlets in city centres unless the customer sits down to consume the food. The US provides a vivid demonstration of what is well recognized by obesity experts, i.e. that consuming foods and drinks while walking, moving or being distracted by radio or television is an ideal means by which people overconsume and fail to recognize what they eat.

Global food trade

It is already apparent that the EU and USA, as well as Japan and Australia, ruthlessly manipulate world food prices to the detriment of farmers in developing countries. Pricing policies therefore need to change, with new mechanisms to counteract the billions of US and EU dollars/Euros which continue to cheapen fats, oil and sugar production and serve as a huge constraint on farming in the developing world. Current industrial strategies allow cheaper fats and sugars to be sold so that it is little wonder that obesity is now far more prevalent in the poorest sections of the community (Monteiro *et al.*, 2004). The post-Doha developments in food trade including exchanges at the World Health Assembly show that few nations have understood the potential implications of the phyto-sanitary clauses in the WTO agreements. These allow a restriction on trade for health reasons.

If countries put trade barriers and tariffs on fats and sugars then undoubtedly the US and EU will immediately intervene and appeal to the WTO on the grounds that a country had infringed the WTO rules. This will occur despite the US, in particular, having flagrantly disregarded the WTO rules by putting further massive subsidies into the farming industry. If a nation restricted all imports of unsuitable total fat

and sugar products and specified the fatty acid content of any fats permitted then it would be likely to be challenged through WTO. This challenge then formally becomes the responsibility of WHO and FAO to resolve. Given the WHO 916 report and global strategy, WHO and FAO could reasonably argue now that these commodities are unsuitable imports. WHO and FAO are the arbiters of public safety and they should invoke the findings of their expert committees to uphold the need for deliberate readjustment of trade, taxation and subsidy policies to counteract the decades of inappropriate manipulation of food prices and availability. This, then means that public health policies could have a major impact on food trade for the particular benefit of the poor.

Applying the concepts of structural change to rectifying fetal malnutrition

There is no analogous strategic approach to combating fetal malnutrition either in the affluent world or, more importantly, in the developing world. Given the conclusions of our commission and the outcome of the recent Mumbai and Brighton conferences on fetal development, the most depressing features of our current knowledge base is the absence of a coherent effort to undertake intervention trials either before or during pregnancy. Those who are concerned that they might do harm must recognize that their delay in undertaking studies is itself a policy of allowing tens of millions of children to be born with what the experts now consider to be a marked supersensitivity to diabetes and other chronic diseases. Of course, the education and status of girls and young women must be improved, and their health and nutrition enhanced before, as well as during and after pregnancy, but the question is how is this to be done?

Improving animal protein intakes in Asian mothers and children

There are two major problems. The first is the recognition that most Indians are vegetarians and their vegetarian diets continue to be eulogized by many senior nutritionists. However, in practice, these vegetarian diets often lack the expected vitamin content

because these vitamins are destroyed by the prolonged cooking techniques used to combat the widespread fecal contamination of the water supply. Within India the emphasis on vegetarianism arose because of religious objections to meat eating, so the failure of the Indian government to promote meat-eating as a way of improving maternal well-being, combating iron and vitamin B12 deficiency and selectively promoting childhood growth, is probably understandable. It may also stem from the fact that the Brahmin caste has traditionally ruled India and it is the Brahmins who have an intrinsic objection to all meat sources. Hindus can eat any meat other than that from cattle, and Muslims can eat any meat other than that from a pig as long as it is slaughtered appropriately. The challenge therefore in India and other South Asian countries is how to produce lean animal protein at prices which the poorest members of the population can afford, and use suitable promotional techniques which take account of religious sensitivities. There seems currently to be almost no effort being made in this direction. We need coherent leadership in the nutrition and public health field on this issue in South East Asia.

To overcome the principal economic and religious objections there needs to be a focus on poultry production and fish farming. The added benefit of promoting fish (which is becoming a scarce global commodity) is that, with appropriate husbandry and species selection techniques, fish can also provide a valuable source of the essential n-3 fatty acids, which must be in extremely short supply in the South East Asian, particularly Indian diets. The problem of fish production in India relates to the limited sources of water and their frequent fecal contamination. However, the Indonesian experience of having fish farms linked to the sewerage system provides a vivid example of how to manage both operations in a mutually beneficial manner. The advantage of raising chickens rather than pigs, sheep or cattle, is that they are a much more efficient means of limiting the use of cereal crops which could otherwise feed man directly. Goat production can also make efficient use of plant residues. Clearly cattle, sheep and pig production should be limited as much as possible as they are inefficient converters of plant food.

The pandemic of obesity and chronic disease

There is now overwhelming evidence from WHO reports and new analyses that cardiovascular disease, cancers and diabetes are far greater problems in the developing than in the developed world (Ezzati *et al.*, 2002). Weight gain, hypertension, high blood cholesterol levels and a lack of vegetable and fruit intake as well as excess weight gain and physical inactivity now constitute the greatest global burdens even taking account of tobacco's terrible impact (Ezzati *et al.*, 2002).

New data from India, for example, show that the process of urbanization is accompanied by a remarkable increase in the body mass index (BMI) once the population migrates from the extreme nutritionally disadvantaged circumstances of the villages into the city slums. Their BMIs increase by 4–5 units and the prevalence of abdominal obesity, even at BMIs of 23 and 24, i.e. within the supposed WHO normal BMI range, is very high. Diabetes rates are escalating, as well as hypertension and coronary artery disease rates. The dietary transition accounting for these effects is remarkable with sugar and fat intakes rising rapidly and with very limited vegetable and fruit intakes. This explains why the majority of Indians are not only iron deficient and anaemic but also have widespread folate deficiency.

Developing national strategies for prevention

Politicians will not change their policies, given the intense lobbying by industrial interests unless the political pressure on them through the combination of public involvement, press criticism and professional consensus is sufficient to stimulate them to work out how to help companies to adapt while implementing a public health plan. Policy-making has to be developed first without the participation of industrial interests, because they inevitably want to alter or slow the required processes. There is also evidence that if government only is involved in this policy process then covert manipulation by civil

servants or industrial lobbying almost will always triumph, or the minister or senior civil servant will get distracted by other everyday problems. In our commission report we therefore called for an independent institution in each country which would report to parliament on the progress being made in dealing with the major public health problems of the country. Without an independent institution which relates to government, the public and the private sector, very little progress is likely to be made.

Politically it is evident that following the various world summits on children and on the Millennium Goals, very little has been achieved. WHO and FAO signed documents with ministers or even prime ministers, but very little action ensued and often neither the public nor the professional communities within a country were even aware that the accords had been signed. There is therefore a need for a new political dimension to public health on a global basis. This can only come through the coordinated action of medically based non-governmental organizations (NGOs) such as the World Heart Federation, the International Diabetes Federation, the International Paediatric Association and the IOTF/IASO. This coordinated initiative is now badly needed.

Conclusion

A new strategic approach to economic and social policy affecting agriculture, food processing, marketing and retailing as well as world trade is needed. Nothing is likely to develop without the explicit framing of appropriate national nutrition policies by independent academically based or related NGOs. To allow industry to enter into voluntary arrangements or to develop their own networks across the globe is a recipe for disaster and the evidence already exists that allowing governments with the UN to deal with these issues on their own is almost always completely ineffective. We are therefore confronted, as academics, with an extraordinary nutritional and public health challenge if we are to make a significant impact on the problems which now confront us.

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