Do we learn our lessons from the population-based interventions?

Since the 1970s a great number of community-based or population-based intervention studies have been carried out, for prevention of cardiovascular diseases, but also for prevention of other related chronic diseases.\(^1\) The basic idea is that the intervention is targeted to the total population living in the community or in a defined area.

The principles and methods of evaluation have been developed and discussed along with those projects.\(^2\) Commonly the evaluation is concerned with the outcome. Here different levels of objectives have been used: mortality, incidence, risk factors, health behaviours, etc. At the same time it is most useful to understand how and why the programme has worked, so that possible success can be replicated. This process evaluation is concerned with assessing changes in the intervening variables and calls for a theoretical framework of the intervention.

The evaluation study design is another issue. A true experimental design would have a number of communities to be allocated randomly into intervention and control communities. This is seldom possible and one might also ask how much this could comply with the basic idea of community intervention: broad community participation and comprehensive community organisation that have to come from bottom up approach. Instead, quasi-experimental designs have often been used with a reference community, or sometimes with the national changes as comparison. In a number of studies no comparison community has been used, in which case process evaluation becomes crucial.

Other evaluation issues deal with target population and time frame. Different age limits have been used. Older age groups are more relevant for disease rates in the near future. When the interest is on lifestyle changes and long term public health perspective, younger age groups are preferred. Shorter time period of the evaluation may not be enough to show the effects of the intervention. Longer follow up may dilute the actual effect. Furthermore, the ideal assessment period probably varies for the different end points: mortality, incidence, risk factors, behaviours, etc.

The paper by Lindholm and Rosén\(^1\) in this issue argues that target risk factors should be preferred as outcome measures, instead of mortality or morbidity. The arguments behind this are sound: the medical evidence on reduction of, for example, smoking rates, LDL cholesterol levels and blood pressure levels is overwhelming. Thus, if we can convincingly show an effect on these indicators, we can be assured that useful prevention has been served. Sample size calculations, for example, in the WHO MONICA project show how considerably large populations are needed to demonstrate significant changes that may need many years and a major change in risk factors.\(^3\) Thus with a smaller community it is unrealistic to detect statistically significant effects on disease rates despite effective intervention.

Discussion has also taken place whether cross sectional, independent population samples or cohort design should be used in the assessment. Obviously independent samples will assess the magnitude of changes in the whole population better than follow up of a cohort, but the cohort approach can give more information on the type of changes that have actually taken place.

The paper of Lindholm and Rosén\(^1\) gives useful contribution to some aspects of evaluation of the population-based interventions. However, many other questions remain. One of the most crucial questions that has persisted over the years is how to actually evaluate the intervention. Obviously assessment of possible effects is meaningful only if we can be sure that a proper intervention has taken place. This relates both to choosing appropriate theoretical frameworks and to having enough intensity in the intervention.

Many reviews have pointed out the problem of too small a dose of these interventions—in relation to their stated ambitious aims.\(^4\) Many commercial marketing campaigns would be happy with a smaller change in their market share than many health programme evaluations can even detect.\(^5\) And yet they use considerably greater sums of money for their campaign.

The question on the proper assessment of the input of the programmes is extremely important for the public health implications. Negative or meagre results of some community-based interventions are often interpreted as proof that population-based interventions are not effective, while the real reason may be that actually very little happened in the community.

In addition to the intensity or dose of the intervention, even more difficult is to assess the quality or type of the intervention.\(^6\) A population-based community intervention typically uses a whole range of intervention modalities ranging from media campaigns and health service interventions to community organisation, environmental and policy changes. Despite efforts, not much progress has taken place concerning assessment of these aspects.

It would be highly desirable that discussion and work around the issues on evaluation of population-based community intervention programmes would continue and further development will occur. Despite many critical comments modern public health is so much dependent on the changes of the major, well established cardiovascular disease risk factors. In addition to national policy decisions and actions, numerous local, regional and national programmes will be implemented to change lifestyles and they need to be well evaluated. Development in our measurement concepts and tools would be important so that we could better learn our lessons—and ultimately serve better heart health and public health of our populations!

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