Community Participation and Social Patterning in Cardiovascular Disease Intervention

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Inger Brännström

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Inger Brännström, Department of Epidemiology and Public Health, Umeå University, S-901 85 Umeå, Sweden.

This study addresses health policy and public health in the field of cardiovascular disease (CVD) on the local level in Sweden. The overall aim is to contribute to the assessment of structural and social conditions within public health by analysing participation processes and outcome patterns in a local health programme. The northern Swedish MONICA study served as a reference area. The research strategy has been to integrate quantitative and qualitative methodologies and, thereby, focus on different aspects of the health programme under study.

The mortality rate was excessive in the study area of Norsjö relative to both provincial and national figures over a period of more than 10 years. This finding formed the basis for a ten-year comprehensive and community-based health programme towards the prevention of CVD and diabetes.

Even in this seemingly homogeneous area it was found that socio-economic circumstances were associated with the public health. Almost half of the study population had hypercholesterolaemia (≥6.5 mmol/l), 19% of men and 25% of women were smokers and 30% and 29%, respectively, had high blood pressure. Age had a strong impact on all outcome measures. After adjustments for age and social factors it was found that the relative risk of having hypercholesterolaemia dropped significantly in both sexes during the six years of intervention. The probability of being a smoker was significantly reduced only in highly educated groups. No statistically significant change over time could be found for the risk of suffering high blood pressure. In the reference area of northern Sweden there were no changes over time for any of the selected risk factors. The likelihood of self-assessed good health decreased with increasing risk factor load, with the exception of hypercholesterolaemia, in all social strata.

The authorities, including the health and medical staff, were the main actors on the media stage. Men in manual occupations were least affected by the media coverage. The actors and the public as well as the media viewed the health programme as orientated towards individual lifestyles. Community participation was mainly defined by the actors based on the medical and health planning approach. Differences in interpretations, social interests, personal conflicts and ideological constraints among the actors at local level were observed. Some critical attitudes towards the organization and management of the health programme were also noted among the citizens. However, a majority of the public wanted the health programme to continue. The present study underlines the importance of considering age, gender and social differences in the planning and evaluation of CVD preventive programmes.

Key words: cardiovascular disease, diabetes, prevention, social factors, evaluation, social epidemiology
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ABSTRACT

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Key words: cardiovascular disease, diabetes, prevention, social factors, evaluation, social epidemiology
This thesis is based on the following papers:


These papers will be referred to by their Roman numerals I–VI.
GLOSSARY

At risk
In epidemiology, "at risk" describes the susceptibility of an individual or group of persons to the occurrence of some predictable event or disorder which may result in loss, difficulty or ill-health.

Behaviour modification
The process by which an individual's behaviour or response is shaped by means of positive or negative reinforcement of behaviour, or by reward or punishment through manipulation of the environment.

Community
A specific group of people usually living in a defined geographical area and exhibiting some awareness of their identity as a group.

Community participation (in health)
A social process which occurs in a defined geographical area, where citizens approach their health needs through active participation in practice as well as by taking part in the making of decisions about local health policy matters.

Confounding variable
A factor that distorts the apparent magnitude of the effect of a study risk factor. Such a factor is a determinant of the outcome of interest and is unequally distributed among the exposed and the unexposed.

Disease prevention
Disease prevention is normally used to represent strategies designed either to reduce risk factors for a specific disease or to enhance host factors that reduce susceptibility to disease.

Health education
Communication to enhance health and prevent or reduce ill-health in individuals and groups, by influencing the beliefs, attitudes, and behaviour of local or national authorities and of the community at large.

Health indicator
A variable that can be measured directly and provides a measure of one or more aspects of the level of health of a given community or population.

Health policy
A formal statement or procedure within institutions (including government) which gives priority to health or which recognizes health goals. It involves health services and sectors outside health services which affect health.

Health promotion
A combination of environmental, social, political, educational, economic, recreational and other types of activities designed to maintain health and prevent the activation and/or emergence of any disease process in individuals and groups.

Mass communication
Occurs when a small number of people send messages to a large, anonymous, and usually heterogeneous audience through the use of some specialized communication medium. Mass communication uses such diverse media as films, television, radio, newspapers, books, and magazines.

Odds ratio
The ratio of two odds to one another. The prevalence-odds ratio refers to an odds ratio derived cross sectionally, as, for example, an odds ratio derived from studies of prevalent (rather than incident) cases.

Prevalence
The number of cases of a given disease or other condition in a given population at a designated time.

Primary health care
Essential health care made accessible at a cost the country and community can afford, with methods that are practical, scientifically sound and socially acceptable.
Primary prevention

Seeks to prevent the initial occurrence of a disease or disorder.

Process analysis

Aims at elucidating and understanding the internal dynamics of how a programme, organization, or relationship operates. A variety of perspectives may be sought from people with dissimilar relationships to the programme's inside and outside sources.

Public health

One of the efforts organized by society to protect, promote, and restore the people's health.

Quantitative methods

Any research method that results in the data being expressed in numerical form.

Qualitative methods

Any research method which focuses on quality and unique characteristics. The result of a qualitative study is on nominal level.

Risk indicator

An attribute that is associated with an increased probability of occurrence of a disease or other specified outcome and that can be used as an indicator of this increased risk. Not necessarily a causal factor.

Standardization

A set of techniques used to remove so far as possible the effects of differences in age or other confounding variables, when comparing two or more populations.

Secondary prevention

Secondary prevention seeks to arrest or retard existing disease through early detection and appropriate treatment or to reduce the occurrence of relapses and the development of chronic conditions by means of, for example, rehabilitative measures or corrective surgery.

Social epidemiology

A specific branch of epidemiology which deals with social phenomena and sociological understanding.

Social indicator

A social indicator may be defined as a statistic of direct normative interest which facilitates concise, comprehensive and balanced judgements about major aspects of society.

Social inequality

Unequal opportunities and rewards for different social positions or status in a group or society.

Social networks

The number and types of social relations and links between individuals which may provide access to mobilization of social support for health.

Notes: Most of the definitions derive from:

1. THEORETICAL FRAMEWORK

1.1 Health, illness and disease

Throughout history, the concepts of health and disease have been placed in metaphysical and social contexts and therefore have acquired different meanings in different cultures and at different times. In Europe, in ancient times, disease was viewed as a problem for the individual to tackle by exercising mental and physical discipline. The Middle Ages were dominated by a fatalistic concept, according to which disease was "part of man's responsibility to Heaven, but was beyond his earthly power to control" (1. p. 44). In the 17th and 18th centuries, the idea gained currency in Europe that disease could be avoided by good sense and political efforts. The 19th century was characterized by patriarchal attitudes towards health and disease where religious traditions increased the tension between individual responsibility and public morality [1].

The 20th century’s definitions of health have been greatly influenced by a statement made by the World Health Organisation (1946) that "health is a state of complete physical, mental and social well-being, and not merely the absence of disease and infirmity" [2]. This defines health in a positive way, it extends the perspective from biology to the socio-economic circumstances and views health as a human right, but with emphasis mainly on the subjective level. This definition has, however, been criticised for its static approach to health [3].

The Health Field Concept was developed in the 1970s, mainly in a working document by Lalonde, the minister of national health and welfare in Canada [4]. Health was there related to four large areas: human biology, environment, lifestyle and health care organization. Lalonde's concept of health has often been interpreted as placing too much emphasis on the individual and on lifestyle [5].

The most important achievement of the first International Conference on Health Promotion was The Ottawa Charter for Health Promotion (1986), which was adopted as a consensus statement. The Ottawa Charter, in its first sentence, defines health in connection with the promotion of health: "Health promotion is the process of enabling people to increase control over, and to improve, their health" [6]. This definition, by using the words "increase control over", implies a certain shift in power.

In Sweden, as, indeed throughout much of the western world, there are basically three views of disease. The first is based on what, from the medical angle, may be considered as deviant - a "disease" - and this is often seen as an objective approach. The second approach emphasizes the individual's personal experience of his malady, "the illness". The third considers that many people have diseases and chronic suffering which society cannot regard as disease. Thus, we have both a private experience of disease and a public explanation of it. The concepts of "illness" and "disease" are therefore related but are not equivalent nor are they each others' direct opposites. "Illness" may exist without "disease" and vice versa [7]. The concept of "public health", although often used in the international literature, did not make its major break-through in Sweden until the 1980s [3]. At the present time, in Swedish health policy documents, "health" is viewed as a resource for the individual and "public health" as an aim for the community [8].
1.2 Health Policy and Public Health

In Europe, health policy, in a historical perspective, has had two main aspects. In Britain, public health work, with a critical attitude to the social system, developed as a reaction to social and other injustices in the community in the early 19th century. The second main aspect, that of the role of public health work in protecting the community, has expanded during the present century [9]. With the publication of the Swedish Calendar in 1747 it became possible to spread health information to homes. Two years later came the establishment of the Swedish Table Search Office (Tabellverket) which was to become very important in early attempts at charting living conditions in Sweden [10]. Popular education, through the early Swedish organisations and the trade union movement also became an important means of promoting non-material values and sound living habits among the workers, at the same time as the workers were striving towards the collective goal of class consciousness [11].

Medical historians dealing with health developments in Sweden during the 19th century also show how the public authorities and medical scientists were fighting the serious problems of that time, with high rates of infant mortality and prevalent contagious diseases like cholera, pulmonary tuberculosis and other infectious diseases [10]. During the last century, for instance, the central authorities responsible for health and hospital care in Sweden expanded their activities, the number of hospitals more than doubled and the number of hospital beds increased tenfold. On the basis of Florence Nightingale's work, the training of nurses began in Sweden.

The first decades of the 20th century saw the development of a broad preventive medicine programme aimed against tuberculosis and other infectious diseases. Improvements in diet and housing and the raising of hygienic standards, together with various advances in medicine, all helped to reduce morbidity and mortality rates in the population, not least infant mortality. In northern Sweden, which is the area studied in this thesis, studies were done as early as 1930 concerning the relations between diet and certain diseases. These studies reported, inter alia, serious shortcomings with regard to the composition of diets, faults in the preparation of food and, not least, an excessive consumption of coffee [12]. These early studies in social medicine greatly promoted an understanding of the serious problems regarding health and living conditions in northern Sweden among the authorities. Moreover, Gunnar and Alva Myrdal, in their book, "Crisis in the Question of Population" (1934), envisioned health care in Sweden as included in social policy reforms, with emphasis on the demographic aspects [13]. Maternity and child health care also developed greatly in Sweden between 1930 and 1950, when 65% of pregnant mothers and 90% of the children enjoyed the advantages of organized health examinations [10].

During the 1970s and 1980s, the international health policy objectives were reformulated, since experience had shown that little progress had been made in the efforts to provide equal health opportunities for people throughout the world. A decisive element in the review of the strategy for public health work was the "Alma-Ata Declaration", published in 1978 [14]. Like the World Health Organisation's Programme of Aims, "Health for All by the Year 2000" which was published a few years later, this Declaration emphasized the need to involve populations, both individually and collectively, and give them a more direct influence in health
work [15]. Integrated in a reformist ideology of welfare the Swedish health and hospital legislation takes the same line [16]. Public health, thus, became one of many urgent issues concerning the individual and the community;

"Peace and a clean environment, welfare and a good start in life, a decent job and social interaction; all these are basic preconditions for health. They provide the framework within which people make major choices in their lives" (8, p. 13)

Public health work thus has to do with individual deliberations and decision-making, but is also concerned with knowledge, power, influence, control and participation in the building of society. Against this background we may view public health work on the community level as an interplay between "actors" at various levels and as part of the democratic process.

1.3 Participation and Public Health

Swedish and international documents concerning health policy increasingly emphasize the active participation of the general public in the planning and implementation of public health work. However, the contents of community participation are poorly defined in the literature. The interpretations are many and no consensus exists concerning the concept. Two democratic traditions are often mentioned: the representative tradition and the participation tradition. The representative democratic tradition regards participation primarily as a means for the citizens to choose political leaders and implement decisions. Participation becomes a means of attaining the desired goals. The tradition of participation, according to Pateman, regards the participation of the citizens as a goal in itself – that is, a conscious process of democratization [17]. However, an increased awareness of the limitations of community participation has recently been expressed by Stone, among others, who believes that community participation should now be realistically viewed as one of several tools in health development [18].

The Latin-American pedagogue Freire [19] has advocated various steps to increase awareness of the need for change in the community, as both an end and a means. Freire's pedagogical method may be described as dialogue, creative language. Anyone who is outside this dialogue, he says, will have difficulty in developing conscious action. Freire's pedagogical dialogue and his way of presenting problems have many similarities with the planning tradition which Friedmann calls "social mobilization" and which is based mainly on the principle that structural changes in society come from the people themselves [20].

There is now documentation of community participation as a political strategy integrated into national health programmes from many countries, e.g. Cuba and Nicaragua, where community participation has been the guiding principle and part of the ideology of the revolutionary process [21–22]. Sometimes there are reports of success, particularly in experiments in local participation, but often the situation turns out to be that community participation as a political strategy has failed in many countries, producing no more than symbolic participation [23–24]. Some experiences of community participation in Sweden indicate that this is rooted in the movements for popular education and democracy in the past century. The contributions of ordinary citizens in the framework of the popular mass movements intended to increase opportunities for the poorer and more vulnerable sections of the community to promote their own interests. Apart from their specific tendencies (trade union, political, co-operative, religious, temperance, and so on), the popular movements in their infancy had obvious
elements of popular education, cultural improvement and sound lifestyles in their collective activities [11]. In the terminology of today, this might be described as public health work.

Miller argues that the debate that began in Sweden after the reform involving redistribution and reduction of the number of municipalities in 1952, increased the risk that the citizens would participate less in municipal planning [25]. In the wake of the activities in 1967 conducted by protest groups, neighbourhood councils, the feminist movement, environmental movement and others, community participation became an openly formulated demand. While the Swedish popular movements operated as a tool for the less prominent groups in the community, the new community groups in the 1970s and 1980s had a much narrower basis for social recruitment. It seemed that success was better for those having good social conditions, higher education or other social advantages, who therefore would begin to play an active role, particularly in regard to town planning [26].

What then, is the experience of community participation in the field of public health? In Sweden, publications dealing with public health have expressed hopes for an active grass-root's participation in this field at any level since the end of the 1970s and these were manifested, as mentioned above, in the 1983 legislation concerning health- and hospital care [16] and again in 1991 in the national planning concerning health policy [27]. The Swedish authorities have also recommended, in various situations, the establishment of local bodies and consumer organisations with the aim of broadening community participation in the fields of public health and community services. It is not yet known whether such participation and influence has been broadened [28]. Both formal-legal rationality and professional integrity have been reported as the main obstacles to institutionalised user influence [29].

1.4 Social patterning in health

Various interpretations of the causes of inequalities in health have been advanced in the well-known report, "The Black Report" [30]. In the first place, the relation between health and social position may be "artefactual", i.e., - that differences are due to faults of method and measurement. Another explanation is that the relation is caused by natural and social selection - that disease in itself decides the social position of the individual. The third, or structural-materialist, kind of explanation emphasizes class differences with regard to health and the conditions for health. The fourth explanation stresses cultural-behavioural differences, as a result of a "culture of poverty". However, some of these explanations may interact. According to Macintyre the big challenge is to study the interaction between the structural and the cultural/individual explanations [31].

Today, knowledge of social factors and health has improved considerably and links between socio-economic conditions and cardiovascular disease (CVD) risk factors are emphasized in public health research [32]. Marmot et al. [33] explain the importance of this field of research from three angles. First, such research is desirable on general theoretical grounds: it is an attempt to explain how the organization of the community affects health and disease. Second, it is important from the viewpoint of research strategy, since it deepens our knowledge of the mechanisms that cause diseases and of any relationships between, for instance, social class and the risk of developing a disease. Third, such research is well motivated with regard to health policy.
During the past decade, a number of scientific theses and articles published in Sweden have focused the social stratification of ill-health [34-40]. However, we do not yet know very much how people in various social groups are able to use and take the best advantage of the health information provided by the community. If the effects of the preventive work were also socially conditioned, it is obvious that they would aggravate the inequalities and therefore be controversial from the viewpoint of public health policy. Special treatment for certain social groups must not be interpreted as a conscious discrimination against different educational or occupational groups, but rather as a consequence of special structural conditions.

According to Bourdieu, the living environment of a human being – that is, the culture to which people belong or their social class creates certain habits which determine life patterns. It is not only the level of education which people acquire (acquired capital) but also the way in which they use their knowledge (inherited capital) that plays a large role in their lives, as regards the choice of lifestyle and habits [41]. In this connection, childhood is of decisive importance since it provides a "cultural capital" which is carried into later life in the form of taste, language, thoughts, lifestyle and rules of behaviour as well as interest in music and other art forms.

This cultural capital provides a privileged position with regard to information – that is, the opportunity to remain well informed and to take advantage of the social system. Many of those in the social group with only limited "cultural capital" become aware of their possibilities too late and therefore misjudge their chance in life. The results of this are seen in the form of segregation – in housing, in the social services and on the labour market – although the general social benefits that are offered to all aim to improve conditions for the more vulnerable groups. Here there are obvious points of relevance, since traditional public health work is inspired largely by the idea of transfers of knowledge and attitudes.

There also exists the contrary idea: that a general improvement in the educational level strengthens the role of the citizens – that is, their ability and opportunity to take action to assert their rights. The official enquiry in Sweden into the exercise of power in society also asserts that the general improvement in the level of education has helped the public to assert their rights at the present time [42]. Highly educated people take the lead at an early stage, but subsequently the differences between the various social groups diminish and, in the final stage of the process, we find both highly and poorly educated persons on a higher level than that at which they started.

1.5 Previous studies of CVD intervention

Studies concerning the prevention of cardiovascular diseases have previously been divided into two main categories [43]. The first generation programmes, conducted in the 1960s, were based mainly on single risk factors, such as hypertension and hypercholesterolaemia. By means of screening procedures, which were restricted to men, high-risk individuals were selected for intervention programmes. The research programmes were designed and mainly carried out by medical staff. Evaluations were unifactorial and often advocated medical treatment in high-risk individuals. A review of the principal features of the preventive programmes for CVD is given in Table 1.
Table 1. Principal features of three generations of preventive programmes in the field of cardiovascular disease.

<table>
<thead>
<tr>
<th>Generations of prevention programmes</th>
<th>Scientific perspective</th>
<th>Prevention strategies</th>
<th>Evaluation strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>First generation, (-1970)</td>
<td>Clinical</td>
<td>High-risk strategy</td>
<td>Unifactorial</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Single medical outcome, restricted to men</td>
</tr>
<tr>
<td>Second generation, (1970-85)</td>
<td>Bio-epidemiological</td>
<td>A combined high-risk and large-scale population approach</td>
<td>Multifactorial Medical and behavioural indicators in population samples. Special reference to middle-aged men</td>
</tr>
<tr>
<td>Third generation, (1985-)</td>
<td>Socio-epidemiological</td>
<td>A combined high-risk and small-scale population approach</td>
<td>Intersectoral Medical and behavioural indicators in population samples directed to both women and men</td>
</tr>
</tbody>
</table>

The second generation programmes were large-scale, multifactorial, population-based programmes combining the high-risk approach with mass mobilization of the entire community, with particular reference to middle-aged men. The North Karelia Project in eastern Finland, which started in 1972, is one of the best known comprehensive community-based studies of this kind [44]. The multifactorial primary prevention programme in Gothenburg, Sweden, on coronary heart disease among the general male population may be seen as another example of the second generation trials [45]. Evaluation priorities, including morbidity, mortality from CVD and the prevalences of major cardiovascular risk factors, were focused to assess traditional biomedical trends.

From the second half of the 1980s, a third generation of CVD preventive programmes can be identified. The strategies of the third generation programmes are often small-scale, action-oriented and community-based, with a multiple risk factor approach. Unlike earlier large-scale and centrally-organized programmes, the third generation programmes focus on local intersectoral co-operation and emphasize existing local networks and structural phenomena. The Welsh Heart Programme, known as Heartbeat Wales, can be seen as one example of this public health approach [46].

To assess whether social stratification has been considered when outcomes of the above and other CVD prevention programmes have been reported, we examined all papers which had appeared in the MEDLINE data base from 1966 up to January 1992 and which were based on nine community-based CVD prevention programmes. These programmes were selected because they were internationally known and often quoted in the CVD literature and because they represent CVD prevention programmes from various continents. The searches in the literature data base were performed by using their project titles. The nine CVD control programmes selected are characterized in Table 2. They were compared with the total number of papers published in the field of CVD-prevention and general prevention respectively. The year of publication was also recorded.
Table 2. Summary of the nine selected cardiovascular community-based control programmes.

<table>
<thead>
<tr>
<th>Prevention program</th>
<th>Study population</th>
<th>Reference population</th>
<th>Starting year and evaluation period</th>
<th>Main outcome measures</th>
<th>Social stratification</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CHAD program in Jerusalem</td>
<td>Western Jerusalem, ages 35+</td>
<td>Neighbourhoods</td>
<td>1971</td>
<td>Mean values and prevalences of CVD risk factors. Net reductions of risk factors</td>
<td>Education</td>
</tr>
<tr>
<td>The North Karelia Project</td>
<td>North Karelia in eastern Finland</td>
<td>The county of Kuopio, Finland</td>
<td>1972</td>
<td>Mean values and prevalences of CVD risk factors. Net reductions of risk factors. Morbidity and mortality, knowledge and attitudes</td>
<td>Occupation and education</td>
</tr>
<tr>
<td>The Pawtucket Heart Health program</td>
<td>Pawtucket US</td>
<td>Reference city</td>
<td>1980</td>
<td>Mean values and prevalences of CVD risk factors. Knowledge and health education activities. Process evaluation</td>
<td>Education</td>
</tr>
<tr>
<td>The German Cardiovascular Prevention Study</td>
<td>Six regions of West Germany Random sample, ages 25–60</td>
<td>20% sample points in the rest of the country</td>
<td>1980</td>
<td>Odds ratios and prevalences of CVD risk factors by social class. Morbidity and mortality, health attitudes. Process evaluation</td>
<td>Occupation, education, income and household size</td>
</tr>
<tr>
<td>Heartbeat Wales</td>
<td>Welsh people Random sample, ages 12–64</td>
<td>Area in U.K. and nine health authorities in Wales</td>
<td>1985</td>
<td>Mean values and prevalences of CVD risk factors by social class. Morbidity and mortality, knowledge and attitudes. Process evaluation</td>
<td>Occupation</td>
</tr>
<tr>
<td>The North Coast Cholesterol Check Campaign in Australia</td>
<td>North coast region in Australia</td>
<td>None</td>
<td>1987</td>
<td>Mean values and net reductions of risk factors</td>
<td>Not reported</td>
</tr>
</tbody>
</table>
This resulted in 313 titles from the nine community–based studies during the review period. After the search statements "social class" or "socio-economic factors" or "social change" had been added, 37 publications (12%) remained. There was no major change in the frequency of such publications over time. The North Karelia Project accounted for the greatest number of titles (43%) that appeared in the MEDLINE data base. However, only 4% dealt with social factors according to the search profile. On the other hand, 29% of the papers from the German Cardiovascular Prevention Study and 21% from the Minnesota Heart Health Study were given such a search identification in the data base. Of 15,521 titles on the prevention of CVD in general, 4% dealt with social factors. The same percentage was found among the 335,062 papers in the field of prevention in general.

Findings from this search indicate that outcome measures in CVD control programmes have mainly focused on mean values, net reductions and prevalences of major risk indicators in population samples without considering social characteristics. In a survey of 64 CVD prevention projects in Europe carried out in 1992 it was underlined that "despite a general acknowledgement of socio-economic differences in CVD rates, only a few projects have tackled this issue directly" [47]. In general, the nine selected community–based programmes mentioned above, however, compared to other publications in the field of CVD prevention, have paid a great deal of attention to social factors.

The evaluation strategy in CVD prevention has also been broadened to a more process–oriented design. Thus, the role and nature of process evaluation design in intervention programmes have recently been reviewed by Nutbeam et al [48]. They conclude that process analysis should be a central component when any health education programme is evaluated. Accordingly, a broader range of methods is also suggested to assess socio-structural changes in community–based preventive programmes [49, 50].
2. THE STUDY AREA

Conditions of life and cultural standards influence our actions not only by shaping our view of ourselves and the world around us, but also by providing a framework for what we do [51]. Therefore, to describe the background an outline is given here of the conditions of living and cultural patterns that form and have formed people in the study area of Norsjö. In interviews and conversations with the inhabitants of Norsjö, three socio-cultural features of the local community have often emerged: a) a tradition of careful living, b) a strict work ethic and c) a pietistical religious tradition. Today this cultural inheritance is confronted by the restructuring process that is underway in Norsjö, as in other inland areas in northern Sweden.

2.1 The socio-cultural context of Norsjö

Norsjö is an inland municipality in the north of Sweden, in the province of Västerbotten (Figure 1). The municipality has an area of 1,753 km². The first settlement in this forested region dates from the 13th century, but archaeological discoveries and traces of ancient dwellings indicate that people lived there much earlier. On the oldest map of the area, from 1664, five farms are marked. Norsjö became a separate municipality and parish in 1834 [52]. Today (January 1993) the population is 5,314. It has declined by 2,000 since the 1960s partly because of migration and partly as a result of a low birth rate (Figure 2).

Figure 1. The Norsjö municipality is located in the province of Västerbotten in the north of Sweden.

Figure 2. Population development from 1960 to 1990 in the municipality of Norsjö.

Farming and forestry were the main occupations in the municipality for a considerable period. The novelist Sara Lidman gives many lively descriptions of the hard work that was a moral responsibility and a necessity for survival in this area at the end of the 19th century.
To toil and slave like a beast of burden. To struggle until you fall asleep while saying evening prayers so that you never stay awake to hear praise of the miracle-working saints. Work for the sake of eating and sleeping, that are life's only pleasures. 

(53, p. 240)

Throughout the decades mining has been a main occupation in Norsjö. Between 1943 and 1987 a 96 km long cable-railway between the mining area in Kristineberg and Boliden, where the ore is processed, moved 12 million tons of ore concentrates. Today, the cable-railway no longer transports ore but has become a tourist attraction and constitutes a feature of the area's industrial history. However, a main characteristic of the economic situation in the municipality today is that a large percentage of the population is engaged in manufacturing – the concrete, electricity, foodstuffs, timber, engineering and plastic goods industries. Thirty-four percent of all jobs are in industry. Most of the jobs for women are in health care services, offices and commerce. The proportion of men in gainful employment is 77% but for women the proportion, 72%, is below the average for the province of Västerbotten. The registered unemployment is 5.9% (July, 1993) among individuals aged 16–64 years. During the 1980s many people, mainly young women, left Norsjö to live and work elsewhere in Sweden. The lack of work and training opportunities for women were their reasons for migration [54].

Since the middle of the 19th century, the non-conformist churches and the temperance movement have been strong in Norsjö. In a general vote on the prohibition of alcohol in 1922, 93% of the Norsjö people voted for prohibition [55]. Over the years, temperance and careful living have been the general topics of conversation both in the homes and in political discussion in the municipality. The former disapproving attitude towards alcohol in Norsjö, as well as in the province, has been explained by the fact that people saw alcohol as strongly connected with harmful aspects of the modernization process [55]. In a local referendum in 1987, the inhabitants of Norsjö were asked to vote on whether or not a branch of the national wine and spirit monopoly should be opened in the municipality. In spite of a majority who voted against, the branch was opened in June 1993.

Sport as recreation, and even as a cultural tradition, has been, and still is, firmly established in the local community. Norsjö has also many self-taught musicians, craftsmen and writers. One of them is Torgny Lindgren, author and member of the Swedish Academy. In his stories there are traces of his cultural heritage and feeling for the local dialect, its clarity, feeling, colour and syntax:

Our life is built on co-operation with others. We create ourselves by sharing other people's lives. Without sharing, we do not exist. 

(56, p. 227)

Norsjö's first district medical officer took up his appointment in 1893. The first health centre opened in 1896 and had 8 beds [52]. The health care budget totalled 3,100 crowns a year and the staff comprised a physician, a nurse and a maidservant. The physician's report in 1893 stated that dysentery, diphtheria and pneumonia epidemics were common, Figure 3 [57]. At the beginning of this century, the "Spanish influenza" spread throughout Sweden and even to this locality. Tuberculosis, measles and whooping cough were also common and dreaded by the local population.
Figure 3. Medical annual report from 1893 of the province of Västerbotten.

Today, the people of Norsjö have access to a health centre, including a dental clinic and a nursing home. For 1993, the total budget for primary health care amounts to 6.5 million Swedish crowns and provides about 22 established jobs in the health services. There is also a physician's branch office in Bastuträsk, the second largest village in the area.

Politics in the municipality are characterised by consensus solutions over party boundaries, in close co-operation with local industry owners and leaders. Despite difficulties associated with migration and the threat of unemployment, there is optimism among the political leaders in the municipality and hope for modern small industries and for people with creativity, imagination and the determination to go on working and living in this district. The cultural norms of previous generations are gradually intermingling with new ideas, habits and approaches.

2.2 Points of departure

Cardiovascular disease (CVD) is a serious public health problem throughout the western world. Mortality statistics and other studies in Sweden showed that in the 1970s cardiovascular disease was more common in the province of Västerbotten than in the country as a whole [58–60]. An excess CVD mortality was also found in Norsjö relative to county and national figures over more than a ten-year period as shown in Figures 4a and 4b.

A two-day working seminar under the title "What can we do about CVD in Västerbotten?" was held in Västerbotten in 1984. The community diagnosis first presented in 1979 was also discussed [61]. A long-term (1985–1994) community-based programme on the prevention of CVD and diabetes throughout Västerbotten, with a specific intervention in Norsjö, was initiated. This thesis covers the first six years (1985–90) of the community-based prevention programme in Norsjö.

2.3 Prevention strategy

The main aim of the intervention process in Norsjö, as expressed in 1984 in official record notes, was to reduce morbidity and mortality of cardiovascular diseases and diabetes by influencing the three major CVD risk factors: high blood pressure, hypercholesterolaemia and smoking [62]. However, other factors of importance for CVD health, as well as for diabetes, were discussed, but not agreed on. The selected prevention strategy was a combination of a population-based and a high-risk strategy. The term "population-based" refers to an intervention that affects an entire population, while a targeted or "high-risk strategy" focuses on individuals at high risk for the disease. Figure 5 illustrates the path from input to output in the case of CVD prevention in Västerbotten and the specific intervention process in the study area of Norsjö.
The study area

Figure 5. From the initial phase of the project "Health Problems in a County - a Basis for Health Planning" in 1978 up to 1990 when the CVD intervention process in Norsjö had been in operation for six years. The description represents a further development of Figure 9.1 in a thesis by Rosén [61].

An initiating meeting in Norsjö was held in January 1985 with local representatives from some 100 voluntary organizations, lay opinion leaders, primary health care staff, politicians, researchers and journalists. The aims of the preventive programme were discussed. Moreover, it was considered that the strategy should involve individuals and public organizations in a process of change to be integrated into the everyday activities of boards, schools, work-places, organizations and primary health care and other organizations. A local co-ordination committee was therefore formed in order to initiate and co-ordinate the preventive measures. At the start, the group consisted of 13 people representing the primary health care services, the leadership of the municipality, industrial health services and various associations.

The introductory phase of the preventive process has been described in two popularized scientific reports [63, 64]. During the first two years of the preventive work, about 400 persons took part in the study circles dealing with primary prevention measures against diabetes and cardiovascular disease. However, study days for teachers and school personnel have continued to be arranged. The aims of the health programme have also been promoted in a series of "theme days" in the school programmes of health promotion. A welcoming attitude to the mass media's need for continuing information about the Norsjö Project was discussed at a mass media seminar in May 1985. At the start, priority was also given to co-operation with the food trade, the food production industry (mainly the local one) and the National Food Administration (Livsmedelsverket) in Sweden. Early in 1987 a food labelling system was introduced in the shops in Norsjö, where foods with a low-fat and/or high-fibre content were marked with a special heart symbol.

Annual health examinations, special study days, neighbourhood meetings and exhibitions have been arranged continuously by the primary health care services, in close co-operation with the dental health service and the local industrial health service. Moreover, through the activities of the municipal boards, which have contact with the population on a wide front, special
popularly-orientated efforts have been made, including campaigns to encourage exercise, "open house activities", changes in the composition of school meals, exhibitions concerning the environment and preservation of health, and so on. A locally-produced information sheet called "Norsjö News" was distributed several times a year to all households in the municipality. Local actors have arranged and produced public theatre and musical performances.

Against this background description, the following questions will be addressed: How interested was the public? What processes are involved when citizens participate? What are the consequences of community participation? Who takes advantage of such opportunities?
3. **AIMS**

This thesis addresses health policy and public health work in the field of CVD on the local level in Sweden. It focuses mainly on the extent to which a community–based preventive approach satisfies selective needs and attempts to identify critical key steps on the path from input to output. The overall aim is to contribute to the assessment of structural and social conditions of public health work by analysing participation processes and outcome patterns in a local health program.

Specifically, the aims are:

- to review conceptual and methodological components and suggest an evaluation strategy for a local intervention program (Paper I–II),

- to assess the role of key informants in the setting of objectives and implementing the health program as compared with public opinion (Paper III, VI),

- to assess the relationships of gender and social patterns to major cardiovascular risk factors and perceived health (Paper IV–V).
4. MATERIAL AND METHODS

This thesis is based on a multi-method research approach. The "triangulated measurement" has been chosen to analyse different aspects of the intervention process (Figure 6). This approach has recently been recommended in health promotion research in order to improve the ability to generalize and inferential strength of findings [5, 7].

![Figure 6. Perspectives in measuring participation and social patterning in health programmes at local level.]

In this thesis the research strategy has been to integrate quantitative and qualitative methodologies and, thereby, focus on different aspects of the health programme under study: a) a community participation approach which is a bottom-up perspective that aims to elucidate and understand perceptions of the public, b) a socio-epidemiological approach that permits judgments to be made about social circumstances and their associations with medical and health indicators as well as trends and c) a key-informant approach that is intended to highlight the programme from a top-down perspective aimed at understanding factors that promote or constrain participation in policy-making and health action, d) the social, cultural and political information of the study area constituting the background against which the summarizing synthesis may be viewed. To communicate findings from the various substudies to the staff concerned, health policy makers and to the general public, provides further opportunities for more knowledge, involvement, reconsideration and improvement of the preventive work while the research, aside from the academic reporting, is given practical application. This approach has received attention but few empirical studies are yet available [5, 50, 65–67). In the book entitled "Changing the Public Health", the situation is described as follows:

> Given thought, it is hard to imagine how one can carry out public health research which is purely qualitative or quantitative and still consider it relevant or useful. If the ultimate goal of research is to reveal meaning, then it must slip easily back and forth from one approach to the other.

(68, p. 19)

Process-oriented studies are considered particularly useful, since they enable the programme studied to be viewed as a demonstration-object [69]. There is no definite framework for carrying out combined process- and effect-studies [7, 70]. The choice of viewpoint and the design of the study are both decided by the nature of the problems to be dealt with as well as also by the structure of the field of study and the cultural patterns. Thus, the nature of the
Material and methods

The choice of viewpoint, the methods and the best time to collect the data depend on the problem at hand. The general outline and the sources of empirical data for this thesis are shown in Figure 7.

Paper I gives the background to the project in terms of mortality and also an overview of the initiation of the public health work in Norsjö. Paper II based on data base search and literature review examines concepts and research methods in studies of population-based preventive programmes with emphasis on participation and social stratification in health. Paper III examines the role of the media in matters of health policy, when data from senders (the media) as well as receivers (the public in the study area) are collated. Paper IV and V are based on health examinations in the study area and in Paper V compared with the reference area. Those studied were also asked to fill in a questionnaire in connection with the health check-up. Paper IV studies the social topography in the study area in relation to the classical risk factors for cardiovascular diseases and to the respondent's self-reported health. Behavioural changes and trends in medical outcome variables in various social strata, as well as perceived health, are reported in Paper V. Finally, data from the questionnaire also used in Paper III supplemented with semi-structured interviews and notes in the official records form the material for Paper VI. Paper VI summarises and contrasts the lessons learned from a top-down viewpoint – decision-makers, medical staff, health planners and researchers – with experiences reported from a bottom-up viewpoint: that is, opinions from the public. The descriptions of the material and methods given below follow the same order as in the substudies.

<table>
<thead>
<tr>
<th>PAPER</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Cause-of-death register</td>
</tr>
<tr>
<td>V</td>
<td>Descriptive data from the intervention process</td>
</tr>
<tr>
<td>III</td>
<td>Database search and literature review</td>
</tr>
<tr>
<td>III</td>
<td>Newspaper coverage in the press, radio and TV</td>
</tr>
<tr>
<td>IV</td>
<td>Cross-sectional questionnaire*</td>
</tr>
<tr>
<td>III</td>
<td>Health examination questionnaire**</td>
</tr>
<tr>
<td>IV</td>
<td>Health examination</td>
</tr>
<tr>
<td>V</td>
<td>Health examination questionnaire</td>
</tr>
<tr>
<td>V</td>
<td>Health examination questionnaire</td>
</tr>
<tr>
<td>VI</td>
<td>Northern Sweden MONICA study</td>
</tr>
<tr>
<td>VI</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>VI</td>
<td>Cross-sectional questionnaire*</td>
</tr>
<tr>
<td>VI</td>
<td>Notes in the official records</td>
</tr>
<tr>
<td>VI</td>
<td>Notes in the public health system</td>
</tr>
</tbody>
</table>

Figure 7. The substudies and the data collection used. Roman figures refer to the six papers in this thesis.

4.1 Background data – Paper I

This article attempted to illustrate the process from community diagnosis to community involvement by a case study from the north of Sweden. The community diagnosis processes on
three levels were illustrated: a) description of the health problem, b) analysis and formulation of the hypotheses and c) an intervention phase up to the first two years of the ten-year programme. Data for the descriptive analysis came from the cause-of-death register in Sweden. Data for the analytical and intervention steps were gathered during seminars with leading physicians, researchers, politicians, administrators, health- and social-workers and the general public. National and international experiences were analysed and summarized.

4.2 A theoretical approach – Paper II

In this article a review of concepts and theoretical issues concerning community participation/community involvement was carried out. Data for the review covered the years 1966–1988 in two data bases, MEDLINE and SOCA. The key words for the search of the literature were "community participation", "community involvement" and "community participation or community involvement". Particular attention was paid to methodological considerations in the evaluation of a community-based health intervention programme at the local level. A methodological review was made of the original articles from two well-known cardiovascular preventive programmes, the North Karelia Project in eastern Finland and the Minnesota Heart Health Program both of which appeared in the two data bases MEDLINE and SOCA between 1970 and November 1990. For an article to be included the key words: "North Karelia Project" or "Minnesota Heart Health Programme" had to occur in the title of the paper or in the abstract. A cross-disciplinary and problem-oriented research strategy was suggested for the assessment of a community-based preventive programme.

4.3 Mass communication and health promotion – Paper III

In this study we investigated, through content analysis, how the Norsjö Project was reported in all the Swedish daily news outlets and at the same time, via self-reported opinions from the public, to obtain a "momentary picture" of the news media's influence on changes in the lifestyles of individuals. This study comprised two data sources: a) content of the news output in the Swedish mass media and b) a cross-sectional questionnaire survey addressed to the public.

First, the content analysis investigated the nation-wide daily newspapers' reporting of the Norsjö Project, from February 1, 1985, through February 1, 1988, as well as the media coverage in national and local radio programmes and television programmes from February 1, 1985 through February 1, 1990. All the newspaper articles were retrieved from a news clipping service, which covers all the 198 daily newspapers in Sweden. We compiled the news items from Swedish radio and TV by examining relevant programme lists in the Swedish archives for sound and films and by ordering copies of selected programmes.

A coding method based on quantitative content analysis methods was used. A pilot study was performed prior to the development of the coding scheme. To increase the reliability of the content analysis, we devised careful coding instructions, and adjusted the code scheme several times before conducting a preliminary test. Each of the 257 newspaper articles and 63 stories on radio and television which dealt with the health programme was examined with respect to 23 characteristics (Table 3). Under the heading of "main content" we placed the content that
occupied most space in the text or programme item. Contents that were mentioned in the introduction, heading or picture text have, in an even choice between two areas, been given priority.

Table 3. List of variables.

<table>
<thead>
<tr>
<th>Mass medium</th>
<th>Main content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political affiliation</td>
<td>Details of partial content</td>
</tr>
<tr>
<td>Geographical distribution</td>
<td>Actors, named or anonymous</td>
</tr>
<tr>
<td>Date of publication, radio/TV programme</td>
<td>Persons/groups in text or picture text</td>
</tr>
<tr>
<td>Day of the week</td>
<td>Main actor</td>
</tr>
<tr>
<td>Size of picture (in the newspapers)</td>
<td>Specified actors</td>
</tr>
<tr>
<td>Placing of article (in the newspapers)</td>
<td>Initiator (in the newspapers)</td>
</tr>
<tr>
<td>Content of picture</td>
<td>Age of the person(s) concerned in the text</td>
</tr>
<tr>
<td>Persons in picture and their occupation</td>
<td>Age of person(s) appearing in picture or picture text</td>
</tr>
<tr>
<td>Other content in the picture</td>
<td>Sex of person(s) in text</td>
</tr>
<tr>
<td>Number of sq. cm. in text including heading–picture text</td>
<td>Sex of person(s) appearing in picture, picture text or caption</td>
</tr>
<tr>
<td>Areas concerned in the contents</td>
<td></td>
</tr>
</tbody>
</table>

In the qualitative content analysis, we paid special attention to the role of the general public in the text and pictures. All the texts in the radio and TV programmes were transcribed. To get a deeper knowledge concerning the picture content in the daily newspapers, we collected all published pictures about the health project in a "news-clip book". This was then used for a "qualitative picture polarization" in which they were compiled and grouped according to a time-axis, and a special picture-theme.

Second, the cross-sectional questionnaire survey was conducted in the spring of 1990, some five years after the community-based preventive programme began in Norsjö. In this study, we mailed a questionnaire to all adults aged 16–80 years in the study area (n= 4,111) and asked for their views about the ongoing health programme and the media. Responses were obtained from 65 per cent. The non-response was highest among the very young and those aged 70 years or more. Non-response analyses showed that the social class distributions were similar among responders and non-responders. As independent variables we used age, gender, marital status, social class and level of education. The self-reported media effect on health behaviour was used as one of the effect variables. Another effect variable concerned the question whether the public could recall the media news coverage of the health programme and, if so, to what extent. Data were interpreted within a framework of a three-dimensional power approach.

4.4 Gender and social patterning in prevention – Papers IV–V

Each year between 1985 and 1990 all the men and women aged 30, 40, 50 and 60 years in Norsjö were invited to take part in a health survey of major risk factors for CVD. Of 1,581 invited subjects, 1,499 (94.8%) participated (Table 4). The health surveys in Norsjö were performed annually in late autumn by the same group of trained nurses. The health examination included a questionnaire, blood test (after four hours of fasting) and a physical examination.
All subjects were invited to a follow-up talk with a district medical officer and a dietician. Those having high-risk for CVD or diabetes were invited to a re-examination and treatment, if necessary.

Table 4. Number of people aged 30–60 years invited to take part in health examinations in the study area (Norsjö) 1985–1990 and in the reference population from the Northern Sweden MONICA study in 1986 and 1990.

<table>
<thead>
<tr>
<th>Year</th>
<th>Intervention Area/ Norsjö Study</th>
<th>Reference Area/ MONICA Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Invited</td>
<td>Participants</td>
</tr>
<tr>
<td>1985</td>
<td>283</td>
<td>271</td>
</tr>
<tr>
<td>1986</td>
<td>272</td>
<td>260</td>
</tr>
<tr>
<td>1987</td>
<td>268</td>
<td>258</td>
</tr>
<tr>
<td>1988</td>
<td>262</td>
<td>251</td>
</tr>
<tr>
<td>1989</td>
<td>247</td>
<td>232</td>
</tr>
<tr>
<td>1990</td>
<td>249</td>
<td>227</td>
</tr>
<tr>
<td>Total</td>
<td>1581</td>
<td>1499</td>
</tr>
</tbody>
</table>

To account for general trends, as reflected by increasing public health activities at regional levels, the provinces of Norrbotten and Västerbotten in northern Sweden, with a total population of 510,000, serve as a reference area (Figure 8). This population is one of those studied in the WHO project, "Multinational Monitoring of Trends and Determinants in Cardiovascular Diseases" (MONICA). A total of 2,000 inhabitants from the reference area, aged 25 – 64 years, were selected from the population registers (250 persons were randomly selected from each of the age groups 25–34, 35–44, 45–54 and 55–64 years) in 1986 and 1990, respectively, and invited to take part in a screening examination for cardiovascular risk factors. Sixteen hundred and twenty-five persons from the reference area participated in the 1986 screening (81%), and 1,583 persons in the 1990 screening (79%), (Table 4). The Norsjö Study and the Northern Sweden MONICA Study were approved by the Ethics Committee on Research at the University of Umeå and the data handling procedures were approved by the National Computer Data Inspection Board.

In Paper IV, pooled data from the six cross-sectional surveys in Norsjö (1985–90) were used to analyse the association between various social strata and major CVD risk factors and self-
Material and methods

Defined health status. As a measure of association between social characteristics on the various outcome measures, odds ratios were estimated. Multiple logistic regression analyses were used to calculate the odds ratio when simultaneously adjusting for several potential confounders; gender, age, social factors and calendar period.

The six-year period was, in Paper V, divided into three two-year strata and time trends from the study area were compared with regional patterns in order to assess the development of the relationship between social position and CVD risk factors and perceived health status. Time trends were assessed in terms of age- and gender-adjusted odds ratios using logistic regression analyses. In Paper V the 1986 Northern Sweden MONICA Study served as reference point (OR=1.0). To enable comparison of time trends in odds ratios below and above unity we have graphically displayed the log odds ratios.

4.5 Lessons learned from a long-term CVD prevention – Paper VI

The intention of this paper was to describe and discuss some factors in the health professions, in politics and in the general public that promote or constrain community participation in health activities at the local level. The study comprised three sources of data: a) a questionnaire study to the public (the same data source as in Paper III), b) semi-structured open-ended interviews with key-informants and c) notes from official records.

The questionnaire was distributed to the public in the spring of 1990, five years after the health programme started. It was part of a cross-sectional survey of all adults (n=4,111) aged 16–80 years living in the municipality of Norsjö. The names of the subjects were collected from a population-based register. In this study, the analysis was restricted to the same ages as in the health examination (25–64 years), including a total of 1,687 subjects representing a response rate of 67% in these age groups. The age and gender distributions of responders are shown in Table 5.

Table 5. Age and gender distribution of subjects included in the Norsjö cross-sectional questionnaire survey 1990. Total number and per cent of invited for each age group and gender.

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of subjects</th>
<th>Percent response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>25–34</td>
<td>174</td>
<td>168</td>
</tr>
<tr>
<td>35–44</td>
<td>199</td>
<td>204</td>
</tr>
<tr>
<td>45–54</td>
<td>220</td>
<td>227</td>
</tr>
<tr>
<td>55–64</td>
<td>240</td>
<td>255</td>
</tr>
<tr>
<td>Total</td>
<td>833</td>
<td>854</td>
</tr>
</tbody>
</table>

The questionnaire consisted of 48 questions with precoded answer categories, including open-ended subcategories. The questions concerned three main issues: (i) self-defined health and
health action at the individual level, (ii) questions concerning the health programme and (iii) public opinion of the mass media coverage. Self-defined health status was measured by asking: How is your own health in general – i.e., "good", "fair" or "bad"? In the analyses "good" was classified as perceived good health while "fair" and "bad" was grouped as perceived ill-health. The cross-sectional survey to the public was approved by the Ethics Committee on Research at the University of Umeå and the data handling procedures was approved by the National Computer Data Inspection Board.

The interviews were designed as semi-structured open-ended interviews with 53 decision-makers, planners and medical staff in leading positions from different administrative and health policy-making arenas; the local community, the district, the provincial authority and from the national level, (Table 6). A total of 52 of the 53 actors were interviewed during November 1988 to January 1989.

Table 6. Key-informants invited to semi-structured open-ended interviews. Total numbers.

<table>
<thead>
<tr>
<th>Health policy-making and planning level</th>
<th>Key informants</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Politicians</td>
<td>Administrators</td>
</tr>
<tr>
<td>National level</td>
<td>3*</td>
<td>3</td>
</tr>
<tr>
<td>Provincial level</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>District level</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Municipal level</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Health programme co-ordination committee at local level</td>
<td>5**</td>
<td>7</td>
</tr>
<tr>
<td>Scientific reference group</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>16</td>
</tr>
</tbody>
</table>

* 1 politician from national level refused to be interviewed

** 1 of the members of the health programme co-ordination committee was also at district-level a politician

The interviews lasted from one to three hours, averaging about one and a half hours and they were audiotaped and transcribed. The interview guide contained 46 questions, on the following subjects: (i) perception of health problems, initiatives and priorities, (ii) community participation and non-participation, (iii) co-operation, conflicts and ideology faced in public health and (iv) the beliefs and attitudes towards prevention in general and towards the programme in particular. The information from the interviews was systematically coded regarding the issues of the study. The specific aim, in analysing the interview data, was to describe both consensus and extreme opinions and thereby to clarify the views of the actors concerning the health programme. In the result section of Paper VI, the respondents of the interview study were named "actors".
Notes were recorded from official records where the programme had been put on the agenda during the period Dec 1, 1984 – Dec 31, 1988. How many notes had been taken? What had they dealt with? On which level had they been taken? Records from the County council level, the district level and the municipality level were considered. The unofficial notes from the local health programme co-ordination committee were also included.
5. RESULTS

5.1 Background and theoretical approach – Papers I–II

Standardized mortality ratios (SMR) for the period 1969 to 1983 showed that mortality from cardiovascular disease was greater in the province of Västerbotten than in Sweden as a whole (Paper I, Figure 3). The results were similar in both sexes, in different age groups and for different time periods. When cardiovascular mortality in Norsjö municipality during the period 1969 to 1983 in the 15–74-year-age group was compared with the province of Västerbotten and Sweden as a whole, we found an increasing trend in Norsjö. This formed the basis for local discussions and reflections and demonstrated the need to involve the general population in Norsjö through co-operation with social and educational associations as well as individuals. Hopes for extensive community participation in planning and implementing the public health work were expressed and it was pointed out that the activities of the first two years had centred on explaining basic concepts to boards, schools, organizations and health care personnel, preparing local educational material on cardiovascular diseases and diabetes and increasing knowledge through health education as part of the change process.

There is little consensus in the literature regarding the content and the aims of community participation in health programmes. In a search of the literature covering more than 20 years (1966–88) in two data bases, MEDLINE and SOCA, we found that the concepts of "community participation" and "community involvement" had mainly been used during the second half of the study period (Paper II, Figure 1). It showed that the concepts were often used interchangeably and without stating their precise meanings. Despite the difficulty in defining the concepts of community participation or community involvement in health, we proposed in Paper II using them to mean a social process which occurs in a defined geographical area, where citizens approach their health needs through active participation in practice as well as by taking part in decision-making about local health policy matters.

Particular attention was paid to methodological considerations in the evaluation of public health interventions at the local level. The methodological examination of the two well-known comprehensive cardiovascular preventive programmes, the North Karelia Project and the Minnesota Heart Health Study, revealed that most of the scientific papers from these programmes dealt with individual behavioural and medical effects but that few had analysed the factors that are favourable or unfavourable for community participation in health development (Paper II, Table 1).

A theoretical framework for measuring the intervention process of change and the medical effects of a community-based preventive programme was suggested in Paper II (Figure 9). Here we noted the fact that community participation in health programmes is multidimensional and includes religious and cultural values, political ideologies and community radicalism. The three-dimensional power approach by Gaventa [71] was also discussed as an analytical model to better understand factors that promote or constrain health policy development and public health work at the local level.
5.2 Gender and social patterning of health – Papers IV – V

As was shown in Paper IV, women were more exposed than men to unfavourable working conditions. More women than men had a high strain job, with high job demands and a poor job control (Paper IV). In addition, more women than men felt their job to be passive, with low demands and control and 55% of the women who took part were unskilled manual workers (Social Class III) compared to 39% among men. However, there was a different pattern in social life. Men were more likely than women to be single, to have poor education and a low level of close emotional support. When the study and reference areas were compared (Paper V, Table 3), the proportion of people with a low level of education and poor social network was higher in the study area.

Pooled data in Paper IV from the six cross-sectional surveys in Norsjö (1985–90) showed that working conditions for men and social integration for women were important when making judgement about self-defined health. Thus, men with an exposed position at work and women with a poor social network had an increased likelihood of perceiving that they had ill-health (Paper IV, Table I–II). However, we were unable to find any significant sex differences in self-reported good health after adjustment for social characteristics. The chance that health was defined as good decreased significantly in both men and women as the CVD risk factor load increased. Moreover, an increased CVD risk factor load affected subjective health in all age groups (Figure 10). To assess whether social characteristics reinforced the perception of good health independently of CVD risk factors, hypertension, smoking and hypercholesterolaemia were entered into the multiple logistic regression model. This analysis showed that smoking and hypertension as well as being 60 years of age or having a poor social network significantly decreased the chance that the respondents perceived their health as good. No such association was found for hypercholesterolaemia (Paper IV, Table III).
In Paper V the CVD risk factor load was complemented with information concerning obesity. When contrasting none to one or more of the selected CVD risk factors (smoking, hypercholesterolaemia, hypertension and obesity) it was found that the chance over time (1985/86, 1987/88 and 1989/90, respectively) of having *none of the selected CVD risk factors* increased in all social strata – however, the increase was more marked among the socially privileged groups (Paper V, Figure 1). In the reference area from the northern Sweden MONICA Study no such development over time could be found. Overall, people in the study area had a less favourable perception of their health than those in the reference area (Paper V, Figure 1).

Almost half of the study population had *hypercholesterolaemia* (≥6.5 mmol/l). Data in Paper IV showed that age was significantly associated with hypercholesterolaemia in both sexes, although not among women of reproductive age. Post-menopausal women had a strikingly increased risk of having hypercholesterolaemia (Figure 11).
Figure 11. Odds ratios (OR) for three major CVD risk factors and perceived ill-health by age in men and women. The group of 30-year-old men was used as the reference group (OR=1.0). Pooled data 1985–1990.

Time trends in Paper V revealed that initially the prevalence of hypercholesterolaemia was higher in men than in women in the study area. The prevalence of hypercholesterolaemia indicated differences for most social strata where socially vulnerable groups were more likely to have hypercholesterolaemia compared to socially favoured groups. This pattern was also found in the reference area, however, less pronounced (Paper V, Table 5). After adjustments had been made for age and social factors it was found that the risk of hypercholesterolaemia dropped substantially and significantly among both men and women during the six years of intervention in the study area (Figure 12). In the reference area the cholesterol reduction in women was the only significant change between the baseline and follow-up year.

Figure 12. Changing trends in risk profile among men and women during the first six years of the cardiovascular disease intervention programme adjusted for age and social factors in logistic regression.
Twenty nine percent among women and 30% among men had **hypertension** (Paper IV). The risk of hypertension increased with age in both sexes, fivefold in men and fourfold in women (Figure 11). No other social characteristics were significantly associated with hypertension. The trend analyses in Paper V showed that the prevalences of hypertension decreased by year three and four of the intervention period in both men and women but returned to the initial level at the end of the study period. After adjustment for age and social factors no change in the risk of having hypertension could be found (Figure 12).

The proportions of **smokers** (regular smoking of cigarettes, cigarillos, cigars or a pipe) were 19% in men and 25% in women in the study area (Paper IV). The prevalences of smoking differed between most social strata (Table 7). This social pattern was also found in the reference area but was less pronounced. However, overall prevalences of **all tobacco use**, including the use of smokeless tobacco, were much higher in men than in women (Paper V, Table 4). Additionally, being 50 or 60 years of age in men doubled the risk, relative to 30–year–old men, of being a smoker. However, the risk of being a smoker was higher in younger women (Figure 11). Logistic regression analyses separately for both sexes in Paper IV showed that having a poor education or a low level of close emotional support was associated in women with a threefold increase in the likelihood of being a smoker (Paper IV, Table II). No significant associations were found in men between social factors and smoking (Paper IV, Table I). Time trends showed that the probability of being a smoker was significantly reduced only in highly educated groups. In the reference area the risk of being a smoker increased over time among those with a low level of education (Table 7).
Table 7. Time trends (1985–1990) in smoking and hypercholesterolaemia in terms of odds ratios by gender and age in the study and reference area. The northern Sweden MONICA study 1986 served as the reference area with an odds ratio of 1.0.

<table>
<thead>
<tr>
<th>Background variables*</th>
<th>Characteristics</th>
<th>Smoking</th>
<th>Hypercholesterolaemia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>INTERVENTION AREA/ NORSJÖ STUDY</td>
<td>REFERENCE AREA/ MONICA STUDY</td>
</tr>
<tr>
<td>SEX</td>
<td>Male</td>
<td>18.9</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>24.9</td>
<td>0.8</td>
</tr>
<tr>
<td>AGE</td>
<td>30</td>
<td>19.0</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>23.9</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>23.7</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>20.8</td>
<td>0.8</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
<td>Married</td>
<td>21.2</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>24.5</td>
<td>0.9</td>
</tr>
<tr>
<td>SOCIAL CLASS</td>
<td>I</td>
<td>18.1</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>21.1</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>25.9</td>
<td>1.2</td>
</tr>
<tr>
<td>EDUCATION LEVEL</td>
<td>High</td>
<td>15.6</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>21.7</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>24.2</td>
<td>1.3</td>
</tr>
<tr>
<td>JOB DEMAND</td>
<td>High</td>
<td>21.7</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>21.1</td>
<td>0.8</td>
</tr>
<tr>
<td>JOB CONTROL</td>
<td>High</td>
<td>19.0</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>23.9</td>
<td>0.9</td>
</tr>
<tr>
<td>EMOTIONAL SUPPORT</td>
<td>High</td>
<td>21.3</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>26.0</td>
<td>1.0</td>
</tr>
<tr>
<td>SOCIAL NETWORK</td>
<td>High</td>
<td>21.6</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>24.1</td>
<td>0.7</td>
</tr>
</tbody>
</table>

*) Standardized for age, gender and age/gender respectively
 **) Test for trend within the intervention area.
5.3 Communication and participation processes – Papers III, VI

Paper III focused on the role of mass media in health promotion and the public opinion concerning the media coverage. During the three-year period of our investigation the Swedish daily newspapers published 257 articles about the health programme in Norsjö, of which 196 appeared in the four local papers. The total volume of text that the media devoted to the project corresponded to 63 pages of tabloid format. The name Norsjö appeared in 115 of 257 headlines. A total of 19 articles were printed on the front page. During the years 1985 – 1990 we found 63 broadcast radio and TV programs directly concerning the health programme. Fifty-eight of these came from local radio and TV stations. Time devoted to the stories was 7 hours.

Medical personnel, especially on the local level, together with other people in positions of authority, were the main actors (Paper III, Table 2). This pattern was evident over the years. Findings from this study also showed that men by themselves compared to women appeared in three times as many articles, were mentioned in headlines or shown in pictures twice as often as women. Men figured twice as often as women in the radio coverage and dominated totally in the television output concerning the project. People aged 21 – 60 years mainly appeared in the text and pictures (Paper III, Table 4). In general, the public in Norsjö played a limited role in the media coverage, as regards both text and pictures. In the media, we saw the subordinate role of women coming out in the text and pictures, while men in the medical profession had the opportunity to discuss the overall issues. Women were given more concrete and personal roles.

Dietary and organizational questions were the most common subjects in the daily newspapers and half of all the radio and TV programmes focused mainly on dietary habits and health examinations (Paper III, Table 3). The negative effects on health of drinking alcohol, smoking and insufficient exercise were rarely mentioned in media reports. Nor did the connection between health and structural conditions, such as unemployment, migration and the problems of sparsely-populated areas receive much attention. The mass media data were also related to the ideological debate including, in particular, the question of preventive care as opposed to curative care. For example in anonymous letters to newspaper editors, fears have been expressed by the citizens that the health programme may encroach on the curative care that people in the study area need. The influence of the mass media on the local population was related to Social class and education. Thus, the group at most risk of high morbidity and mortality from cardiovascular diseases – males in Social class II (manual workers) – reported that they had been the least affected by the media (Table 8).
Table 8. Media effects on health behaviour by gender, age, education and social class according to cross-sectional questionnaire. In percent.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Social class</th>
<th>Primary school</th>
<th>Secondary/ High school / College</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>16-29 years</td>
<td>I</td>
<td>51.5</td>
<td>64.4</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>51.4</td>
<td>66.7</td>
</tr>
<tr>
<td>30-80 years</td>
<td>I</td>
<td>45.5</td>
<td>58.2</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>46.1</td>
<td>60.2</td>
</tr>
</tbody>
</table>

Policy formulation and public health activities on the community level can be seen as an interplay between "actors" at the various levels and as part of the democratic process. Therefore, Paper VI adopted a contrast analysis of information gathered from decision-makers and professionals (actors), official record notes as well as from the inside through the eyes of the citizens.

The main aim of the health programme, according to the protocol data in Paper VI, was to reduce morbidity and mortality from cardiovascular diseases and diabetes and primarily to influence the traditional CVD risk factors, high cholesterol, smoking and high blood pressure, in the population as a whole. Data from both the actors and the public also showed that cardiovascular diseases were viewed as serious health problems in the study area. However, other serious threats to health, such as degenerative diseases of the back, accidents, environmental threats, unemployment and social problems were also mentioned.

*I still believe that the greatest health problems among the people are unemployment and uncertainty in everyday life.*

*(actor on the local level)*

Six observations on transforming health policy plans into practice with the aim of mobilizing community participation in CVD health programmes were summarized in Paper VI. First, the right of definition concerning this health programme has, in accordance with Swedish health planning policy, and in tacit agreement with the views of the general public, mainly remained with the actors (Paper VI, Table 4). Second, the health programme was seen by the actors, as well as by the public, as orientated towards individual lifestyles. Third, community participation was defined by the actors mainly based on the medical and health planning approach and, thereby, as a means to transform health policy plans into reality by transmitting health knowledge and increase consciousness among the citizens for the need for changing lifestyles. However, participation as a means of identifying problems and promoting local democracy was hardly represented among the actors. Fourth, according to the public's self-reporting, more than half of the subjects in this study changed their lifestyles to some extent in accordance with the aims of the programme. The data in Figure 13 suggest that men aged 25–34 years who felt unwell were least affected.
Figure 13. Changes in health behaviour by gender and age according to perceived health status after five years of the health programme.

Fifth, this programme was characterised by a consensus among the actors. However, some uncertainty as regards interpretations, different social interests, personal conflicts and ideological constraints among actors at the local level were observed. Some critical attitudes towards the organization and management of the health programme were also found among the citizens when, for example, one third of the respondents emphasized that people developed fixed ideas concerning health during the intervention period. The community-based health programme did not increase the opportunities for the citizens to influence the health care system or the decision of the municipality. On the other hand, very few agreed that the health programme was controlled from above or that it took too much attention from the staff involved or financial resources. Finally, after five years of community-based CVD prevention, a majority of the public still wanted the prevention programme to continue (Paper VI, Table 7).
6. GENERAL DISCUSSION

6.1 Methodological considerations and experiences

*To adequately further our understanding of community programs, more basic research is needed to investigate the relations between the process of change, the target of change and both short- and long-term outcomes.*

(65, p. 247)

An interdisciplinary and multi-method approach is a central ambition for this thesis. When the research traditions of any particular branch of science are to be shared, conceptual and other difficulties arise. Academic reporting differs considerably between disciplines, not only in content but also in form and manner of expression. The various approaches to the practical and decision-making processes in public health work also provide a possibility for studying areas of public health work that too seldom receive attention [5].

Elander claims that research with more or less practical applications has a big potential, but it also raises a number of dilemmas [72]. The potential lies in the fact that such research is frequently based on questions concerned with the community, which open possibilities for exciting and interesting contacts between researchers and the field. However, the research results are rarely simple and unambiguous. The expectations for practical "usefulness" are great. This may make the researcher avoid the theoretically interesting questions in the hope of obtaining practically useful effects in the short term [72].

In research with practical applications, the scientific criteria of a particular branch are mingled with external criteria. Can one stay close to the research field and at the same time maintain an objective distance to the phenomena under study? Are there any alternatives when one is seeking additional knowledge about the complex relationships in health programmes? Patton shows the way when he states that the face-to-face interaction is necessary for a deeper understanding of processes of change that include people's social environments or an organization's political context [69].

When developing a research design, we found it important to stay close to the field. Thus, during the initial phase of this thesis, an unstructured background observation approach was used. Diaries and recordings of conversations and events were kept to learn about the insider's viewpoint and about the current conditions of everyday life. This approach also gave us more knowledge about the socio-cultural preconditions in that area [69, 73]. A mutual understanding developed of the preconditions for research, on the one hand, and everyday necessities on the other hand. Field visits gradually decreased during the last two years of the research process. Instead, the contacts consisted mainly of feedback activities.

6.2 Validity

The cross-sectional health examinations

The annual health examinations in Norsjö, including medical examinations and questionnaire studies, were carried out by a primary health care team. The cross-sectional health
examinations from Norsjö and the northern Sweden MONICA surveys follow the general trend in the community compared with regional trends.

Studies of individual risk factor changes in Norsjö in relation to social patterns will supplement the cross-sectional studies. Thus, participants included in the 1986 health examination in Norsjö were re-examined in 1988 and 1991 (Figure 14). These panel studies make it possible to follow a given individual during two and five years. By comparing development trends in the risk factor pattern during the first years of the project (1986 – 1988) with a later period (1989 – 1991) and with the material for the five-year period, we can study the results of the prevention programme in Norsjö over longer periods.

<table>
<thead>
<tr>
<th>Individual time</th>
<th>Programme time</th>
<th>PANEL STUDIES &quot;Individual&quot; health effects</th>
<th>CROSS-SECTIONAL STUDIES &quot;Community&quot; effects</th>
</tr>
</thead>
</table>

Figure 14. Study design for panel (forthcoming studies) and cross-sectional studies (this thesis).

The yearly cross-sectional studies in Norsjö between 1985–1990 had a very high participation frequency (91–96%). The Northern Sweden MONICA studies for the years 1986 and 1990 have been used as the reference material with which results from Norsjö have been compared. Overall, clinical physical and medical examination of subjects in the study area were the same as the survey procedure used in the northern Sweden MONICA study [74]. The data were stored on computer by locally-trained staff in collaboration with the research team.

In the literature, the concept of "social class" has been defined in various ways. The dictionary definition of "class" is "a collection or division of people or things sharing a common characteristic, attribute, quality, or property" [75]. The authors of "The Black Report", in which trends in inequalities in health in Great Britain are analysed, discuss the concepts of "social class" in terms of groups who share similar types and levels of resources [30]. Most of the social class measures in the epidemiological literature are founded on occupational classifications, education or income [76]. As a foundation for the social classification in this thesis, we used information about the main occupation or profession of the respondents, education as well as self-defined social integration, marital status and work stress. In the study years 1985–1988 in Norsjö, classification of occupation was done subsequently by means of
telephone interviews with the respondents and interviews with key-informants, since information about occupations was lacking in the questionnaire data from the years mentioned.

The classification of occupational data was done according to Statistics Sweden – the socio-economic classification [77]. Here we may comment on the social classification used in Papers IV and V. Skilled and unskilled manual workers totalled 68% in the Norsjö material and 50% in the reference population from the Northern Sweden MONICA Studies, 1986 and 1990. In Papers IV and V, two classes of manual workers (Social Classes II and III) were used and one group representing self-employed persons, such as professionals and farmers (Social Class I). Social Class I, thus, includes all groups outside the worker-collective, which, of course, means that it does not have a marked upper class profile. It may therefore be discussed whether the assistant non-manual employees at lower level (code 33) should have been included in the group of skilled manual workers, Social Class II, instead. In the local community of Norsjö, this would not be self-evident. According to the socio-economic classification, code-group 33 includes occupations such as computer-operator, guide, interviewer, cartographer, clerk, corporal, etc. We consider this group of non-manual employees at lower levels to have a closer social link with other non-manual employees (our code) than with the group of skilled manual workers. In the Norsjö material (1985–90) 14 men (2%) and 48 women (7%) would have been included in Social Class II if this group of assistant non-manual employees at lower levels totally had been included into Social Class II. Corresponding data from the northern Sweden MONICA studies 1986 and 1990 were 55 (3%) and 172 (11%), respectively.

The importance of distinguishing farmers from other self-employed persons has also been discussed, since farmers have a lower mortality than other self-employed persons [78]. We also considered this alternative classification. The Norsjö material included a total of 33 farmers among 1,499 subjects – that is, 14, 10 and nine for the study years 1985–1986, 1987–1988 and 1989–1990, respectively. However, we decided to classify the farmers as self-employed (Social Class I), since we had no data for all years concerning the area of the farm. Naturally, one can also discuss this breakdown. But as the number of farmers was relatively small, implications are marginal.

The questionnaire study

The cross-sectional questionnaire study of 1990 included a total selection (n=4,111) in the 16–80-year age group from the Norsjö study area. The questionnaire study addressed to the public was performed in January 1990. Paper III, in which the population's views of media were studied is based on an analysis of the entire study population, because the media coverage naturally includes all age groups. The response frequency of the total study base was 65% (Paper III). Non response analysis of the total sample showed that 32.8% did not reply and additionally 2.4% could not be reached or were too sick to participate. In Paper VI, the 25–64-year age group formed the study base, since the annual health examinations comprised these groups. The response frequency of the sub-sample in Paper VI was 67%. Participants in the 25–64-year age group used in paper VI is shown in Table 5 (section 4.5). Three reminder-letters were sent out during the period February 1990 – May 1990. Despite these letters and notices in the local press, we could not achieve a higher reply frequency. This limited the analytical work. Therefore, in studies III and VI, where these data were used, we could not stratify the material to the extent that was planned.
Content analysis of mass media coverage

As a basis for the analysis of our media data we used the coded text from newspapers, radio and television. In order to study any possible missed articles in the newspaper material, we made a special examination covering 12 months – three months per provincial newspaper (there are four daily newspapers in the province). The respective control-month was obtained by a random selection of one month per local newspaper and year. The control search was done by a person outside the research group who was specially allocated for this purpose. The control search revealed 13 articles, one of which had not been included in the previously collected material. In the main search we found 18 articles for the specified control months. We believe that the newspaper material was almost complete and formed a basis for the content analysis of the daily newspaper coverage. Our resources did not permit a similar analysis to identify missed radio and TV material.

A reliability check was done regarding newspaper data and radio/TV data. Fifteen daily newspaper articles and 10 radio/TV items were coded anonymously by two independent coders. At the first reliability check, we obtained a 77% agreement in the category called "content areas" and 73% in the "main content area". Defects in the coding scheme, mainly in the form of too comprehensive categories, were corrected and the second reliability check on new articles was thus performed. This check showed an 84% agreement in the "content areas" and 93% in the "main content area". The two deviating interpretations of the main contents that were made included the same kinds of interpretation mistakes – that is, one of the coders noted the health programme in general in selecting the main content while the other coder noted more specified matters of the health programme. Consequently, the coding scheme had to be further corrected. The result of the trial coding of the radio and TV material showed a high degree of agreement (94%). However, minor adjustments were made in the picture-coding of the material.

Quality and credibility of qualitative analysis

A credible qualitative study should include at least three elements: a) appropriate methodology, b) credibility of the researcher and c) assumptions and paradigm-orientation [69]. How were these elements handled in our study? In Paper VI, we expressed the interview questions in such a way as to facilitate a natural dialogue with the respondents. Two taped trial interviews with actors, a politician and a health planner in a leading position, were performed and analysed. The questionnaire scheme was then adjusted to make the questions truly open-ended. The interviews began with uncontroversial questions about the current situation, such as "If a colleague visited you today and asked you to tell him/her about the Norsjö programme, what would you say"? Then followed questions about the past, such as "The Norsjö health programme will soon have been underway for four years. Tell us how the whole thing started. In your view, what was the background and who started it?" The interviews ended with future-oriented questions like "What do you expect from the Norsjö programme, say, up to the mid-1990s, as regards activities/areas of involvement?" We consider that the interview material is of high quality and forms a comprehensive documentation – which, however, we only use part of in Paper VI. We intend to further develop the analysis of the interview material in forthcoming reports.

In qualitative studies the researcher is the instrument. An interviewer from the research team who had no previous personal contacts with the interviewees performed all the interviews. This was done to minimize, as far as possible, the evaluator effect. An additional researcher...
participated in interviews with actors on the national level. However, the interview questions and other preparations were devised by the research team as a whole. After the interviews, the interviewer's experiences were discussed. The analyses of the interview material for Paper VI were done by the research team as a whole. The main events in the prevention process (priority-setting, problem-framing, participation, non-participation etc.) were identified and analyses concentrated on these questions. The consensus, as well as extreme views concerning the phenomena, were documented and analysed.

6.3 Implications for prevention of CVD

The results in this thesis indicate that, even in a local and seemingly homogeneous community like this, health and health related habits are somewhat unequally distributed. No straightforward proposals are yet available for improvements in the co-ordination and support of equal opportunities for health which would increase the efficiency of preventing CVD. Consequently, the experiences gained from this study suggest more research rather than establish new guidelines. However, some general reflections concerning five critical areas of CVD-prevention on the local level are discussed below.

Time

According to Swidler [51], culture influences our way of life not only through values and attitudes but also, indeed, by creating a repertoire of habits to help us achieve some important goal in life. This learning process is gradual and closely related to the social environments of the family and society. Our data have shown (Papers I and VI) that a community-based preventive approach requires long-term inputs of decisions, personnel resources, knowledge and links with the local community, to mention only a few.

Knowledge

Any preventive programme is also affected by limitations and changes in the knowledge and views of the scientific community. This has been apparent in the community-health programme under study, where the relevance of cholesterol screening has been questioned and doubts raised as to whether screening for CVD designed for men is applicable to women's health [79]. Although these new signals from the surrounding environment were still observed after five years' intervention activities among the public in Norsjö, a majority was still bound in favour of continuing the health programme. Accordingly, a critical question for continuing the work in Norsjö, as in every prevention process, is whether the task of stating definite goals for health policy can be combined with a flexible prevention strategy which would take into account new knowledge, changes in the people's needs and in their expectations concerning the area of health.

The society

As discussed in this and other local prevention and health promotion programmes in Sweden [80] social and structural conditions must be accounted for when assessing the impact of public health efforts. Health programmes, aiming to influence individual lifestyles may promote individual health, possibly, however, at the expense of widening health inequalities in
society. Moreover, little is known as to how far a combined population-based and high-risk strategy for prevention may hinder such a development. According to our data, although the media reporting reached most of the Norsjö people, it had least effect on those groups who perhaps needed such information most. One such group consisted of male manual workers who generally are at great risk of cardiovascular diseases. On the other hand, the significant reduction in hypercholesterolaemia in all social strata over the years in the study area demonstrates the potentials of the third generation of CVD-prevention programmes. Our data, however, also showed that the probability of being a smoker was significantly reduced only in highly educated groups. Smoking behaviour may, thus, be more difficult to influence by a community-orientated strategy. Moreover, in the media output very little space was paid to smoking behaviour. A selected preventive strategy might more effectively influence health habits in socially vulnerable groups.

Community participation

It can be maintained that the initiative and pressure for developing local support structures in the field of prevention must come from below – through active community participation. Thus, community participation has been acknowledged as essential to the development of health and health-related issues. However, few reports concerning its application are available [81]. The initial process in the health programme studied in this thesis covered several years during which the nature of the problem, and particularly its solution, were outlined in the professional and political arenas. However, in the prevention strategy selected, the dialogue between authorities, organizations and the public was emphasized. In their coverage of the Norsjö health programme the media only carried on a limited critical and investigative debate about the risk of cardiovascular diseases and diabetes in the community.

The data in this thesis also illustrated the traditional ideological conflict that has characterized preventive work throughout history – that between medical treatment, on one hand, and public health interventions, on the other. This was partly reflected in statements made by the people of Norsjö to the mass media, particularly in anonymous letters to newspaper editors. The public, for example, expressed fears that preventive care was taking up too much of the medical staff’s time and energy, and that the sick people in Norsjö might then be at a disadvantage. We found that the co-operation between the authorities and professional groups in Norsjö was fairly good, but our interview data also showed personal and ideological conflicts between the professional actors concerning the implementation of the prevention process. Thus, communication between laymen, professionals and decision-makers at different levels of society seems to be a key component in health intervention whether it focuses on the individual, on system factors, or whether it addresses the process of restructuring the community.

Health policy and planning

Health interventions should be part of the political agenda at all levels of society, among health planners, legislators and price policy-makers, thereby influencing the everyday life of "ordinary" men and women. Thus, there is much to indicate that health programmes aiming to change the health behaviour of individuals – not least for the sake of credibility – must simultaneously strive for long-term improvements in service and in people’s general living conditions, particularly among socially vulnerable groups. Moving beyond the individual, the preventive process is a challenge for developing local democracy.
7. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Intersectoral action, community involvement and appropriate technology have been suggested by the World Health Organization as cornerstones in all health strategies [15]. These goals have also been set for CVD—prevention programmes [82]. Such programmes have thus developed from unifactorial and clinical to intersectoral involving a wide range of community interests (Paper V). The importance of active participation of the entire community has also been recognized for disseminating health information among the public [81]. Appropriate technology in CVD—prevention has meant an emphasis on the major risk factors for CVD (smoking, cholesterol and high blood pressure) by a comprehensive community—based approach. In Norsjö these international goals have been adopted.

7.1 General conclusions

Problem framing and initiation

In the 1970s the highest heart disease mortality rates in Sweden were noted in the province of Västerbotten with its 250,000 inhabitants. In one of its municipalities, Norsjö, the mortality rate was excessive relative to provincial as well as national figures over more than a 10—year period. Other serious health problems were also discussed among the professionals, decision-makers and the public, such as degenerative injuries of the back, accidents, environmental threats and social problems.

Various measures including those for prevention of CVD and diabetes in Norsjö, were decided on by the County Council, supported by local public authorities, mainly by the primary health care sector in Norsjö. The public, as well as the professionals and decision—makers, considered that the initiatives for the health programme had not come from the citizens themselves. The preventive approach consisted of two parts: a general 10—year Västerbotten Project and the Norsjö health programme. The aim of the prevention strategy was to involve both individuals and organizations in community in a process of change, mainly focusing on major risk factors for CVD: high blood pressure, hypercholesterolaemia and smoking. The health programme was viewed as directed towards individual health habits by the actors and the citizens as well as by the media.

Health policy and community participation

Media reporting made the prevention efforts visible to a broad public. Some of the contents in the news were commented on in depth: dietary habits, health examinations and organizational issues. Health and medical staff were the main actors in media and the coverage was mainly restricted to middle—aged men. Women, children, young people and pensioners were less salient in the news. The personal portraits given prominence in the media bore witness to changing lifestyles. Structural questions, such as the significance of work, education and social relations, were accorded less attention by the media. When ordinary people appeared in the news it was as exemplary models of the spirit of the health programme.
Moreover, the tendency of the press to focus on personal portraits of people who have achieved changes in their life-styles marks the importance of individual responsibility in health matters, but this may mean at the same time that our collective responsibility is relegated to the background. Some of the professionals and decision-makers expressed fears that sick people received too little attention from the health care staff and 20 per cent of the general public emphasised that sick people felt neglected and suffered from lack of care.

The professionals and decision-makers viewed community participation mainly from a medical and health planning perspective and, thereby, as a means to transform health policy plans into reality through information to change individual lifestyles. Participation as a means of identifying problems and promoting local democracy was hardly represented among the professionals or decision-makers at all.

**Gender and social patterning in CVD prevention**

The results showed differences in social patterns between men and women in that women were more exposed than men to unfavourable working conditions. Thus, more women than men had a high strain job and felt their job to be passive. Among women, 55% who took part were unskilled manual workers (Social Class III) compared to 39% among men. In social life there was a different pattern. Men were more likely than women to be single, to have poor education and a low level of close emotional support. When the study and reference areas were compared, the proportion of people with a low level of education and poor social network was higher in the study area.

Almost half of the study population, both men and women, had hypercholesterolaemia. Age was significantly associated with hypercholesterolaemia in both sexes, although not in women of reproductive age. Postmenopausal women had a strikingly increased risk of having hypercholesterolaemia. The prevalence of hypercholesterolaemia indicated differences in most social strata. This pattern was also found in the reference area, although it was less pronounced. After adjustments had been made for age and social factors it was found that the risk of hypercholesterolaemia dropped substantially and significantly in both sexes during the six years of CVD intervention in the study area. One fifth (19%) of men and one quarter (25%) of women were smokers and social factors were associated with smoking in women but not in men. The risk of smoking was greatest in young women and in older men. Having a poor education or a low level of close emotional support was associated with a threefold increase in the likelihood of being a smoker in women. Overall prevalences of all tobacco use, including the use of smokeless tobacco, were much higher in men than in women. The probability of being a smoker was significantly reduced only in highly educated groups. Hypertension increased with age in both sexes, fivefold in men and fourfold in women. No other social characteristics were significantly associated with hypertension. No statistically significant change over time could be found for hypertension. In the reference area of northern Sweden there were no changes over time for any of the selected CVD risk factors.

People in the study area had a less favourable perception of their health than those in the reference area. Men with an exposed position at work and women with a poor social network had an increased likelihood of perceiving ill-health. There were no gender differences in perceived good health after adjustment for social characteristics although age seemed to play an important role in self-defined good health. Furthermore, smoking and hypertension, as well as being 60 years of age or having a poor social network, significantly decreased the chance
that the respondents perceived their health as good. No such association was found for hypercholesterolaemia. The initial social gap in perceived health in the study area also remained during the six-year intervention period. When gender, age and social factors had been accounted for there was no clear change in perceived good health over the years.

Co-operation and constraints

The health examinations have been an integral part of the community-based health programme and thereby been an arena for health communication. The municipality of Norsjö, which is responsible for environmental protection, leisure time activities and social welfare, has also extended its network of contacts among adult education organizations, clubs and other local associations, and the general public.

Although co-operation between the local authorities was said to be good, there were differences of opinion and interpretations related to social interests, personal motivations and ideological dimensions. Here two patterns were identified: one which emphasized individual responsibility for health and the other which stressed collective solutions provided by the community. It was also noted that the actors from the municipality and from the primary health care sector were mutually sceptical of each other. Although most of the intervention activities were planned and implemented by the local authorities, the public did not consider that the health programme was top-steered or that it was too expensive. However, some critical attitudes towards the organization and management of the health programme were expressed by the citizens. For instance one third emphasized that people in general developed too fixed ideas concerning health matters during the intervention period. The public also reported that they had not increased their power to influence health policy matters during the intervention period. However, the majority favoured the continuation of the preventive programme.

7.2 Suggestions for future research

While completing the work with this thesis, a framework for continued research has been developed. Thus, during the course of a six-year research programme we will combine the social-epidemiological, general medical and health economics aspects within multidisciplinary studies of the structural, social and economic preconditions for public health, with emphasis on community participation [83]. Three overall fields of research have been identified:

Gender and social stratification in public health

This thesis has shown that the ability to obtain knowledge and utilize information for one's own need is socially and gender-stratified. As discussed in Paper IV and V, a discussion has been going on in recent years as to whether experiences gained in the field of CVD from studies mainly performed in men are applicable to women [79]. Therefore, in the continuing work of analysing the Norsjö material, supplemented with data from the annual health examinations in Västerbotten, we now plan to study in more detail the interaction effects between social strata and outcome variables, mainly on women's health. The reference material consists of the northern Sweden MONICA Project's cross-sectional studies performed 1986, 1990 and 1994. The research programme is also based on the material from the re-
examinations (panels) of previous participants. This will enable an assessment of the promoting role of the health examinations as well as of their possible stigmatizing effect.

Living conditions, cultural norms and public health

The collective normative system involves and even determines what we do or refrain from doing [51]. With an increasing degree of internationalization we now receive impressions from and are influenced by several subcultures at the same time. These extend our frames of reference but they also expose us to conflicting ways of understanding, interpreting and evaluating conditions and connections. There are clashes in patterns of thought. This thesis also illustrates the importance of extending the social analysis in a public health programme by qualitative health studies.

What characterizes the relationship between the living conditions of the individual, cultural norms and health behaviour? In a future substudy we plan to relate living conditions (work, housing, education, family patterns, life events) and cultural norms (popular concepts, moral views, attitudes) in a small community (Norsjö) to long-term lifestyles of the individual that are important to health. Interviews were carried out in 1986 and 1989 with four selected groups who had participated in the first health examinations (1985) in Norsjö. In 1994–1995 we plan to do a new series of interviews and health examinations covering these subjects in order to describe the local public health work in Norsjö in a 10–year perspective.

Who sets the criteria for success in a public health programme?

This thesis has illustrated the need for accounting the commonday practice among health policy makers. Who decides about the criteria for success in a public health programme – the citizens, the politicians or the medical professionals? The answer to this question of policy development involves competition and depends in part on which parties have access to formulate the problems and have a strong voice to form public opinion.

Therefore, in a multidisciplinary study we plan to go further and examine those criteria for success in public health work which the three groups – the citizens, the politicians and the medical professionals – consider relevant and to relate these criteria to the normative system of the respective groups. This method entails that in interviews the three groups are confronted with hypothetical scenarios in which the consequences or the result of a public health programme are presented – for instance, data from Norsjö. The respondents should then evaluate each scenario – for instance, must mortality decline (death be deferred) if the project is to be given a high rating? Can the beneficial effects justify increased differences between groups? What is the relationship between favourable and harmful effects in the field of prevention?
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