

RESEARCH IN HEALTH EDUCATION

W. T. JONES M.D.

HELENE GRAHAME

*TUC Centenary Institute of Occupational Health
London School of Hygiene and Tropical Medicine
University of London*

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As one of the primary instruments of preventive medicine, health education must be increasingly concerned to promote real health as well as to reduce behaviour-induced disease. This working objective is arbitrarily adopted: that health education should be concerned with establishing or inducing changes in personal and group attitudes and behaviour that promote healthier living.

1. The Contemporary Scene

Specific interventions for limited, well-defined and predictably attainable ends have been the main achievements of health education in the past. Single or limited decision(s) allowed the individual to attain the required health goal, and no sustained behavioural change from any pre-existing pattern was necessary (Central Health Services Council and Scottish Health Services Council, 1964). More recent health education problems are of a different order, and require the initial fore-swearing of unhealthy behaviour, or its renunciation, or sustained modification of behaviour (Office of Health Economics, 1969).

The boundaries of health education are broad and imprecise. In general the field is more characterized by its good intentions and energy than by its scientific and intellectual rigour and objectivity. Uncritical and unsupported presumptions abound, principles often prove to be prejudices, and there is little factual evidence to support activities and claims. Among contributory factors to the under-development of health education are: the failure of epidemiologists to define the behavioural causes of the major diseases of unhealthy behaviour; doubts about the contribution of the behavioural sciences; the imprecisions of communication processes; and the essentially empirical and pragmatic bases of education.

Until health education is based on more unassailable information, fewer unsupported deductions and a more sceptical assessment of objectives, its methods and achievements are unlikely to attract the interest of scientific workers.

The paucity of intelligence information and its deficiency in content and depth have been important causes of the failure of much health education in practice. The reorganization of local government and the National Health Service (NHS) offers many potential opportunities for the development of health education, but there are fundamental needs which will have to be met if these hopes are to be realized. Among them are the needs for more information, more knowledge and more application of such knowledge.

2. Need for More Information

For the purpose of discussing health education, the term "intelligence information" would appear to be appropriate (Knox, Morris & Holland, 1972). There are several categories of this type of information; the most familiar relate to the vital statistics, complemented by the mortality, morbidity and disability experiences of a given population. For the ordering of priorities in health care, data are needed about human, physical and financial resources, and the policy constraints within which these are allowed to operate. For health education purposes, intelligence information is also required about voluntary and statutory community work, in order to explore the feasibility of additional opportunities for development.

It must be emphasized that the appropriate syntheses and their interpretations convert data into intelligence. These interpretations lead to analyses and then to the definition of objectives, the construction of hypotheses for future action and the testing or development of these by a number of different methods. Whether they are accepted as rational field procedures will depend on this testing; field procedures in their turn must be subjected to assessments of efficacy.

There are hopes that the integration of the NHS will allow deficiencies in intelligence information about the community to be overcome; potentially at least there are manifest opportunities for the improvement of its range and quality, particularly at Area Health Authority and Regional Health Authority levels. Much of this general information will be of use to health educators, but health education practice has special requirements that must not be overlooked. These relate to "soft" information about community attitudes to health, health knowledge and health behaviour patterns. Little attempt has been made to use such information for health care purposes, let alone for health education, but, in an increasingly participatory society, general health care planning will need to utilize this type of intelligence, and an early recognition of this feature in the planning of information sources would be beneficial to other spheres of interest also.

Data-processing systems can be of use to health education development and practice in their own right. The use of computers in developing immunization campaigns has been accepted, although the precise mechanisms of their effectiveness are uncertain (Galloway, 1963). It has been shown that simulation exercises for screening campaigns produced by these methods are useful (Knox, 1973), and it is feasible that similar applications could be devised for other health education programmes. Perhaps the most important use of data-processing mechanisms in health education is their capacity

to store, readily update and retrieve large masses of information about individuals and communities. From these appropriate data bases can be constructed the characteristics of groups which will allow the definition of target populations and the optimum methods of educational and/or information approaches, and the evaluation of any subsequent intervention.

The critical use of intelligence information and the systems that create it can greatly improve the future practice of health education. This promise will not be realized if there is no place for behavioural intelligence and behavioural knowledge. This is not an argument for the development of separate information systems for health education. The separation of health education from the main stream of the planning of future patterns of medical care in an integrated health service could leave it in a position of impotence, despite the possession of better information.

3. Need for More Knowledge

Deficiencies in knowledge are of a different order from the shortcomings of intelligence information. It is doubtful if, at present, many of the potential contributions from the behavioural sciences to health education are capable of quantification and statistical manipulation; nevertheless this unquantified body of observations is of practical use and should be accommodated to and utilized. After future investigation and development some of this "soft" (less reliable) knowledge may turn out to be "hard" (precise) intelligence information. Much of it could be utilized, albeit critically and after stringent analysis. The effects of it must be closely scrutinized, and where possible quantified deductions should be made about the contribution of each separate factor. In this way the body of dependable intelligence information will be enlarged.

4. Health Intelligence and Information Centres

Health education must be provided with the sources of information and knowledge that define the future objectives for its work and ensure it a place in the ordering of priorities of national health needs and resources. Intelligence information would probably be best provided by separate Health Information and Intelligence Centres (HIICs) concerned with the accumulation and analysis of all relevant national, regional and area health planning information and intelligence. From these syntheses will emerge, *inter alia*, guide lines for (i) the development of health education within and outside the NHS, and (ii) the direction of the health information activities of the Health Education Council (HEC) to the optimum choice of topics, targets, methods of operation, evaluation, and so on.

This argument has important provisos. Conventional variables of medical care measurement have not taken into account attitudinal and behavioural measurements during the process of decision making. If health education is to be provided with adequate intelligence upon which to base rational hypotheses, objective planning and valid estimates of effectiveness, then provision must be made by HIICs for the collection of "soft" behavioural data. Despite present scepticisms, failure to collect behavioural data will impair future decision making.

There are at least three major reasons why the intelligence

needs of health education should be recognized and incorporated within HIICs:

- i. to identify issues of contemporary relevance, including newly emerging problems. In alcoholism, for example, the identification of age and socio-economic target groups, their geographical location and regional variations, choices of alcohol, rates of consumption, changing public attitudes and tastes, and costs are all relevant to planning a health education response;
- ii. to define more closely topics and target populations that will respond to intervention whilst testing effective communication and educational methods and evaluating their success;
- iii. to define clear and authoritative policies based on adequate research and exploration of the numerous influences, including the financial, political and administrative matters that impinge upon policy definition.

5. Long-Term Planning

Emerging changes in health behaviour require a long-term planning activity to quantify, analyse and evaluate unfolding trends. Changing patterns of cigarette-smoking habits in women and recent work on the importance of carbon monoxide levels in cigarette smoke are contemporary examples. This is an operational as opposed to an academic assessment. An additional function of a long-term planning activity will be the monitoring and interpretation of the implications of such trends as the changing age distribution of the population, the increasing number of working mothers, more flexible working hours, and the growing proportion of young people in higher education and of aged and mentally handicapped people supported in the community. Adequate consideration must also be given to the use of health education for the control of group or community, as opposed to control of personally initiated diseases, such as those due to smoking or drinking. Numerous man-made environmental threats to health are in this newer category; the dissemination of information, accumulation of knowledge and alteration of attitudes and behaviour are equally essential to public acceptance of the necessity for the control of environmental hazards. Again, the central questions of the optimum choice of targets, the methods of approach, the ordering of priorities and the best use of scarce resources are raised and could be answered with information from HIICs.

6. New Contributions

Much of the material specifically reported as health education research is descriptive or narrative; attention is rarely paid to the design of the investigation, nor are the results and deductions subjected to critical analyses. This has deterred research workers of intellectual rigour and objectivity from involvement with health education. There is, for example, a significant absence of the use of epidemiological techniques in health education, and there are few current investigations by established epidemiologists with the specific purpose of using, testing and evaluating the utility of health education techniques (Rose, 1970; Reid, Brett, Hamilton, Jarrett, Keen & Rose, 1974).

Interest in examining and influencing the occurrence of contemporary epidemic diseases at the behavioural level is

minimal. This is an odd omission by epidemiologists, and reflects the attitude of mind of many medical research workers towards the exploration of diseases arising out of unhealthy behaviour of human beings. There has been modest progress in some topics towards the subdivision of the exposed population into target groups with differing needs and characteristics (McKinnell & Thomas, 1967) that offer varying opportunities for health education, and it would seem that considerable opportunities await research workers from epidemiology and related fields.

The behavioural sciences have already contributed much work on such topics as birth control¹ (Cartwright, 1970), smoking behaviour (Eysenck, 1965), cervical screening (Wakefield, 1972) and preventive dentistry (Richards & Cohen, 1971). Little information, however, can be readily transposed to other locations of practice with the expectation of demonstrable alteration of behavioural patterns. The control of diseases arising from unhealthy behaviour has long been hampered by the failure to appreciate that alterations in behaviour are rarely consequent on the changed attitudes that sometimes arise from knowledge. Research should be designed in which knowledge, attitudes and behaviour could be measured over a prolonged period to determine the extent to which behaviour is altered, the degree to which this alteration persists and the possibility of change occurring after some delay. Again, some description and quantification of behavioural patterns could throw new light on uncertain areas, even if it only produces a suggestion of a useful course for future intervention. However, although existing needs are urgent, and means that are already available must be utilized, it would be unrealistic to place more than modest hopes in the contribution that behavioural sciences can make in the immediate future towards major fundamental discoveries.

7. Utility of Mass Campaigns

A priority in health education research is an examination of the value of the mass health education campaign as a means of effecting behavioural change. In the past, successful campaigns have been those that required only a specific action response, e.g. an inoculation or an x-ray examination. With intensive publicity and personal persuasion these achieved a high response rate which has now become the accepted criterion of success. This criterion is unrealistic for the types of campaign now needed, which aim at sustained, even permanent, alterations in behaviour dependent on personal effort and with long-term rather than immediate benefit as their goal (C. Saatchi, personal communication, 1973). The optimum criterion of success of this type of effort presents problems of analysis and evaluation of considerable magnitude, and has still to be generally agreed. The success rate of 33% obtained by some anti-smoking clinics (Fee & Benson, 1971) may be the best that can be obtained, but may not be acceptable on a cost-effectiveness basis², since such campaigns are the most costly weapons in the health education armamentarium (Health Education Council, 1973). What is required is an in-depth examination to determine acceptable measures of achievement for future campaigns with habit-changing objectives.

¹ See also "Control of Human Fertility" (*Br. Med. Bull.* 1970, vol. 26, no. 1).—Ed.

² See Williams, pp. 252–256 of this Bulletin.—Ed.

To date, failure to define a specific target group has squandered campaign resources on large numbers of recipients who could not, or need not, respond (Health Education Council, 1973). It is probable that much education on venereal disease is in this category. It is essential to determine target groups, using survey and epidemiological techniques and statistical analyses of a more sophisticated nature than have been used so far (J. W. Dale, L. R. Samways, S. Poole and M. Alexander, 1973³). Too little regard has been paid to careful and detailed prior investigation of subjects and targets; simplistic examination of existing evidence based on available statistical information has often proved inadequate.

An objective and critical investigation of audience response must precede the final design of the communication content of a campaign, and should be based on knowledge gained from painstaking field-testing of the content and methods to be used on a representative sample of recipients.

There is little substantive evidence of the effectiveness of mass health education campaigns, in changing long-term behaviour or in altering personal goals. This represents one of the major problems in health education. As a method it is voracious of money and manpower (Hobson, 1970) and can dominate the total pattern of health education effort, distorting existing work of more certain efficacy; yet it is seen as a rapid and presumably effective means of influencing large numbers of people.

In view of these doubts there would seem to be an urgent need for a model campaign to assess the use and value of the whole campaign concept. By using a range of contemporary and proved techniques, methods and media, a topic such as cigarette smoking should be chosen after careful planning and pre-testing, and evaluated by accurate and agreed indices. This experiment would be costly and, despite the drawbacks, would be best mounted in a limited geographical area. It would need to be of a realistic duration (probably not less than two years) and close monitoring of responses to changing circumstances during that period would be required. Until appraisal of this type has been completed, doubts about the utility of campaigns and reluctance to invest adequate resources will persist, while there will be no factual evidence to support their rejection.

8. Government Intervention

The major problems in health education today are likely to require for their solution both individual personal action and an environment that provides supportive restraints or encouragement. In the short term there are some problems where the biggest single advances might be achieved by political action, whether it is by legislative intervention, the allocation of resources, or financial support for educational campaigns. However, little progress can be made until politicians and administrators are made specific targets for health education (as they are in the developing countries) and are provided with scientific information on which to base their responses. The failure of government to respond to the challenges of modern preventive medicine, particularly in those areas where only legislative intervention can provide the necessary means towards the end, requires examination by an authoritative study group. In England and Wales in the 19th

³ Research reports available from the Medical Research Division, Health Education Council, London

century, the need for clean water (Chadwick, 1844) was investigated in this manner, and apparently insuperable obstacles were overcome; recently the problem of clean air (Royal College of Physicians of London, 1970) has responded to this approach. It may be difficult to persuade government to involve itself in such an investigation, but it should be possible, at relatively small cost, for another institution to undertake the inquiry. It requires an examination of the total area of preventive medicine, of which health education is only a part, in the context of contemporary life and times, and must include the definition of priorities and the resources required to meet their needs. One such priority is dental health, where fluoridation of public water supplies, still considered highly controversial, could effect substantial benefit (Chief Medical Officer, 1973). Political will to cut through the inter-meshing roles of local government, health authorities and water boards has been diminished by the strident opposition of the anti-fluoride group and general public indifference. Support for legislation to secure fluoridation of water supplies is likely to be achieved only when the public is convinced that it is a major factor in preventing dental caries.

Research into the complex issues involved in increasing duty on tobacco and alcohol is required. Efforts have already been made by government to intervene in the area of cigarette smoking by the limitations on the promotional activities of tobacco companies and by the introduction of warnings on cigarette packs. Neither of these activities has had a significant effect on cigarette consumption in Great Britain (Russell, 1973) or elsewhere. On the other hand, evidence that increases in the duty on tobacco leads to a temporary but significant reduction in its consumption suggests that a change in smoking habits could be effected by these means (Russell, 1974). If the will to intervene by taxation is present, there is historical precedent in the case of duty on alcohol (Trevelyan, 1944), and the introduction of a progressive and differential duty on the more harmful forms of tobacco should be possible. An annual increase in duty over a decade, during which duty would rise at an inflation-adjusted rate, would allow smokers time to adjust their habits or to switch to safer ones.

A study of total government responsibility in tobacco and alcohol control is required, involving a comprehensive assessment of the numerous interlocking influences—fiscal, economic, administrative, political, health, employment and social—leading to legislative intervention. This could achieve more, by shaping the behaviour of the individual within his environment, than efforts to change the individual's behaviour.

9. Additional Needs

A vicious circle of ignorance, disinterest and under-provision characterizes contemporary practice of health education. Only research and investigation into methods of practice and the fundamental content and methodology will break this cycle. There are, however, certain areas where existing knowledge is sufficient to allow immediate developments by improved professional training and the modification of delivery systems, as in the provision of family-planning services (Bone, 1973). Here, future work must primarily be concerned with the assessment of alternative experimental systems of service and the development of effective communication approaches to disparate age and social groups. Equally, there are other areas which require little further research.

For example, the educational needs of patients with permanent disabilities and of those who have been rehabilitated require definition of optimal places and methods. Experiments on a trial and error basis, with educational additions to conventional clinical therapeutics, would seem to be required.

There remain a large number of topics, some involving specific aetiologies such as cigarette smoking, and others of multifactorial origin, such as coronary heart disease, where much definitive research work is necessary. Here contributions will be required from the medical sciences, e.g. epidemiology and toxicology; the behavioural sciences, e.g. social and clinical psychology; and the applied sciences, e.g. engineering. The results of these works will need to be synthesized and many inquiries will need to be ab initio multidisciplinary, as in home accidents. Even so, contributions will be required from areas where the rigorous application of scientific method and inquiry are inapplicable or inappropriate, such as the preparation and testing of mass communication messages, or the preparation, testing and evaluation of school health education programmes.

10. Health Education in Schools

Most people agree that the greatest hopes for achievement in health education lie in influencing children at school. Schools are failing to provide effective health education, in part because of the lack of trained personnel and inadequate resources, but also because of the absence of action research⁴. Recent curriculum reform projects for older children have included aspects of health education using methods involving children in analytical and decision-making processes (Schools Council, 1972), but such curriculum experimentation is lengthy, expensive and needs more support. Research and evaluation are essential steps in discovering the optimal method of educating children.

11. Use of Non-Medical Personnel

The limited resources available to health education necessitate an exploration of the use of non-medical aides. A first step should be to investigate the feasibility of using indigenous workers (Simonds, 1970) for a successful approach to the social groups who fail to utilize health services. Other carefully monitored experimental projects could determine how the demand for information about health services and health education can be developed in centres providing advisory services for consumers (Consumers' Association, personal communication, 1973).

12. Cigarette Smoking

Recent increases in tobacco consumption require intensified efforts to alter smoking behaviour (Chief Medical Officer, 1973). The need for continuous monitoring in health education is no better exemplified than by the necessity to keep abreast of contemporary knowledge, attitudes and behaviour in the field of smoking. Such monitoring would guide development, provide some understanding of the reasons for recent failures, and ensure that emerging opportunities based on changes in public knowledge are seized.

⁴ The results generated by the research are used to influence the situation being researched, the change being monitored by the researcher.—Ed.

The special characteristics of target groups at risk—for example the adolescent, the pregnant and the middle aged—and their different smoking patterns require closer identification and the development of a variety of approaches based on increased knowledge. In particular, more needs to be known about the motives and attitudes of women smokers, whose consumption is increasing (Todd, 1972), who are less likely to use alternative forms of smoking, and may find it more difficult than men to give up cigarettes. Anti-smoking campaigns in schools have been largely ineffective in preventing childhood experimentation, and children at school who have not yet established smoking habits are another important target group (Jefferys, Norman-Taylor & Griffiths, 1967).

The optimal balance between encouragement and arousal of fear (Higbee, 1969), the use of mass media, the nature of communications, and the reinforcement and the opportunities presented in general practice, maternity and child welfare clinics and hospitals, all require examination.

13. Nutrition

As standards of education and social sophistication rise, new approaches to advice and information, and regular reviews of the content and methods of teaching about nutrition, are demanded. Dietary patterns are probably passed from one generation to another, and require further study. *Public interest in diet and slimming, reflected in coverage by the mass media and the advertising of slimming foods, suggests that behavioural change is of limited duration, many people lapsing and ceasing their slimming activity. The closer definition of the components of this phenomenon could identify further opportunities for intervention.*

In recent years a number of slimming clubs have been established; these commonly rely on some form of group therapy, supported by detailed, accurate information. Their success and popularity are, in part at least, results of the commitment and motivation of members. An objective study of their methods and achievements could show if their success is transferable to other topics and people, such as smokers and alcoholics.

14. Exercise

The value of physical exercise as a prophylactic against coronary heart disease is accepted, although the necessary levels and frequency of energy expenditure are still under inquiry (Morris, Chave, Adam, Sirey, Epstein & Sheehan, 1973). More information about the spectrum of energy demands of a very wide variety of occupations would help define more closely which occupational groups need most persuasion to undertake additional exercise to a prophylactic level.

Some study of the extent to which physical education in schools could encourage continuing activity in post-school life is opportune. After the age of thirty-one, less than 10% of males and 2% of females take any form of physical recreation (and this includes dancing); at this age, television viewing accounts for the major leisure activities of over 25% of both sexes (Sillitoe, 1969). The value of present work in schools should be reassessed, and the provision of exercise facilities for adults in schools outside school hours should be investigated.

15. Coronary Heart Disease

There are several factors, suspected or established, in the aetiology of coronary heart disease which arise out of unhealthy behaviour. The uncertainty about the weighting to give to each makes a clear and effective approach to the public difficult. The heart disease prevention project (Rose, 1970) is designed to answer some of these questions, and is a large-scale intervention experiment in Great Britain, using health education techniques with an adequate design and provision for assessment.

Detailed knowledge of the health behaviour of middle-aged people of different socio-economic groups and of the complex cultural bases of regional variations is relatively unknown, and should be explored.

16. Home Accidents

The discrepancy between the epidemiological knowledge about road accidents (Rushbrook, 1973) and ignorance about home accidents (Backett, 1965) is striking and the absence of convincing epidemiological work is a severe handicap. It allows only the most general of target groups and situations to be approached, apart from limited specific situations.

There has been some exploration of the interrelated influences present in the fairly conventional man-machine system of the home. Home ergonomics has been the subject of detailed studies (Grandjean, 1973), and multidisciplinary investigations of the type developed for road accidents could be readily developed. (Some idea of what is possible in this field is provided by the work of the HEC's Medical Research Division.) This approach would seem more rewarding for the future than are current exhortations.

Application of epidemiological techniques would lead to a clearer definition of target groups and situations. For example, in the accidental poisoning of young children in the home it has been shown that there are certain specific times and situations that are of much higher hazard to the vulnerable child (Consumers' Association, 1973).

17. Cancer Education

The public are gradually coming to accept that earlier diagnosis and treatment are likely to increase the possibility of survival from cancer (Wakefield, 1972). On the other hand, many of the public misapprehend the medical definition of "survival" and equate it with "cure". Epidemiological evidence does not wholly support the equation of extended survival with early diagnosis, and the over-all dangers of inadequate communication require a re-examination of this segment of cancer education. Should new, accurate and specific diagnostic methods and effective treatments come into general use in future, these would require a health education effort of a specific action type similar to the mass radiography campaigns. Public co-operation in this more hopeful situation could be more difficult to obtain if scepticism results from present misunderstandings.

The achievements of the Manchester Cancer Education Campaign, one of the few well-documented examples of a health education campaign in Great Britain, are worthy of wider understanding (Wakefield, 1972). Health education

still has to tackle one of society's most dreaded taboos—death. How much mental ill-health is due to dreads and fantasies of dying is unknown but, by its very nature, the event must be a potent generator of ill-health as a result of the way

society handles it. The present authors are manifestly unqualified to enter the theological, moral and ethical aspects of the problem, but it is clear that a study of this field of health education is overdue.

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