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144 *Estimating Coverage from routine* maternal and child health services and immunization
 thesis. London: London School of Hygiene & Tropical Medicine, 1986. *coverage in Panama. Bull PAHO 1982;16:329-40*

8800 *Medical care in developing countries.* Nairobi: 9 Cesar CLG, Walker GJA. Diversity in provision and utilization of maternal and child health care in an urban area of Brazil. *Ann Trop Paediatr 1986;6:167-74*

Health care and the utilization of health facilities in 10 Ray CS, Todd M. Report on evaluation of immunization coverage and disability survey in Buhera District, Manicaland Province, 1985 (1986, unpublished)

South Africa. *Soc Sci Med 1983;17:563-70* 11 Guyer B, Atangana S. A programme of multiple-antigen childhood immunization in Yaounde, Cameroon: first year evaluation 1975-76. *Bull WHO 1977;55:633-42*

Centre: its patients and services 1970-71. *Ghana Med J 1972;25:266-73*

8 Huezio CM, Monteith RS, Naar H, Morris L. Use of

Understanding behaviour:

The key to successful health education

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INTRODUCTION

Human behaviour and the equivalent terms actions and practices play an important role in the prevention, control, treatment and rehabilitation processes of most health problems (Table 1). It is a common complaint that the members of a community ignore advice and continue to practise health damaging behaviours even if they know that they are harmful. It is easy to condemn the community and put the blame on traditional beliefs or backwardness. The real reason for failure is often that the health education contains irrelevant infor-

Table 1. Some important behaviours for the promotion of health

- Adoption of health promoting behaviours, e.g. breast feeding, weaning, oral rehydration, latrines, child spacing, hygiene practices, tooth brushing, taking malaria prophylaxis, etc.
- Reduction of health-damaging behaviours, e.g. smoking, bottle-feeding, excessive alcohol consumption, accidents
- Utilization of health services, e.g. ante-natal, child health, immunization, family planning, screening programmes
- Recognition of early symptoms and prompt self-referral for treatment, e.g. leprosy
- Following of drug regimes, e.g. tuberculosis
- Actions to promote rehabilitation and minimize further disability
- Actions by individuals and groups to change and improve their surroundings

mation, promotes unrealistic changes, is directed at the wrong people and uses inappropriate methods¹.

In order to plan effective health education it is important to determine the factors which underlie a person's decision to perform or not perform a behaviour. This paper will describe an approach to understanding influences on behaviour and present a set of guidelines for planning health education programmes.

DEFINING THE BEHAVIOUR

A starting point is to define the behaviour in as much detail as possible. This involves specifying not only *what* the behaviour is but *who* is to carry it out and *when*. It is difficult to analyse vaguely-stated ideas such as 'sanitation' - but easier with more precise statements which define the type of latrine and construction materials. General terms such as hygiene practice and family planning refer to groups of behaviours, e.g. family planning could include vasectomy, female sterilization and taking the contraceptive pill. Hygiene includes the washing of hands, food preparation, clean storage of drinking water, and disposal of infants faeces. Each component behaviour will be influenced by different factors and should be considered separately.

A great deal can be deduced about the feasibility of changing a behaviour merely by describing it carefully. For example, customs and traditions are behaviours that have been carried out for a long time and have been handed down from parents to children. They will be more difficult to change than behaviours that have been recently-acquired and performed only by individuals. When we wish to consider introducing a new behaviour to a community the following criteria can be used to describe the behaviour.

How often should it be performed? (daily, every few days, occasionally, only once)

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Inspection of Table 1 shows that vaccination coverage was relatively high in Murambinda and in the south of the district. Murambinda, being the district hospital, attracted many patients from outside its catchment area. The outpatient department was organized in such a way that all under-fives were seen at a separate under-fives clinic, where they would be weighed and vaccinations would be given. By this means it was also possible to vaccinate children who only came for treatment.

The catchment areas with a low coverage of immunizations – Chiweshe, Nyashanu, Bangure and Kandenga – cover much the same area that was identified in the discussion of low outpatient attendance. It is the area where many Apostolics live, who do not allow medical treatment, including vaccinations. In a cluster sample survey of vaccination coverage in the district¹⁰ the commonest reason given for absent or incomplete immunization was religious beliefs; this reason was given by 29 (36%) out of 80 respondents.

To assess the extent to which coverage estimated from routine information reflects "true" coverage, a comparison has been made with the results of a cluster sample survey¹⁰. This comparison is not straightforward, as the age of children surveyed was 12–23 months (average approximately 18 months), whereas coverage estimated with routine information concerns children aged 12 months. In Table 1 measles vaccination coverage is 32%. At the survey, coverage in the 12–23 months age group was found to be 56%. On the basis of the age distribution at vaccination, which was recorded at the survey, it can be estimated that, with routine information, coverage is probably underestimated by approximately 25% for measles⁴. Coverage at age 12 months would thus be 43%. The underestimation is probably due to incomplete recording on the tally sheets, and to forms being lost before analysis. The finding of underestimation by 25% contrasts with results in Cameroon¹¹ that routine information overestimated coverage by 1–29%; and in Panama⁸ that coverage was underestimated by 13–18%. The extent of over- or underestimation of coverage will obviously be influenced not only by the quality of the reporting system for vaccinations, but also by the quality of the population data. Perhaps it is surprising that one can get such good estimates with data that would appear so liable to error.

While analysis of routine data cannot provide the depth of information available from coverage

surveys, it does have certain advantages. It can provide rates for all health service delivery points in a district, whereas cluster surveys only provide estimates for the whole district based on a sample. Analysis of routine data can also directly involve health care workers in a consideration of how well they are doing in comparison to others in the same district, and consequently the medical assistants and nurses obtain an indication of the importance of collecting and recording routine data. Coverage surveys can be relatively expensive to undertake but can provide an independent check and thus assist not only in the evaluation of coverage but of the routine information system as well.

CONCLUSIONS

From readily available routine data an estimate can be made of coverage of health services. Interpretation of the results should take account of biases and deficiencies. Analysis by catchment area of health facilities can give a detailed picture of different levels of coverage within the district.

In this case study relatively underserved areas for outpatient care were identified. Distance and religious beliefs were suspected to be the main barriers in the utilization of outpatient services. This has implications for contacting religious leaders and for the planning of new health centres. Antenatal care was found to have insufficient coverage in the district. A survey may be needed to identify reasons for this. Religious beliefs also appear to be associated with low vaccination coverage. Standard EPI cluster sample surveys are recommended to evaluate coverage as well as the routine information system.

Overall it may be concluded that analysis of routine data by catchment area may provide information that can be very useful in the management of district health services.

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REFERENCES

- 1 Agritex. *Buhera, Chiweshe ward, report of a socio-economic survey, 1982/83*. Harare: Ministry of Agriculture, 1984
- 2 Central Statistical Office. *Report on demographic socio-economic survey, communal lands of Manicaland Province*. Zimbabwe national household survey capability programme, report no 2. Harare: Central Statistical Office, 1984
- 3 Borgdorff MW, Borgdorff PJ, Trommel JMW. A tuberculin survey in Buhera district. *Cent Afr J Med* 1985;31:215–9

How complicated is it to carry out? (very simple, requires learning new skills)

How easily does it fit in with existing practice? (totally incompatible, some incompatibility, fits in with existing practices)

How similar is it to existing practice? (completely new, some similarities)

How much does it cost, either in time, money or resources to carry out the behaviour?

Will beneficial effects be observed in the short term? (within a few weeks, months, years)

Does the behaviour fit in with a felt need of the community? How much impact will the behaviour have on health? (a great deal, some, very little)

MODELS OF BEHAVIOUR

Sociologists, psychologists and anthropologists have proposed a range of different theories and models to try and explain the many factors that influence behaviour. This paper describes a simplified approach to understanding behaviour called "BASNEF" which is straightforward to apply. It should be seen as a checklist for programme planning rather than a complete description of the complex processes which underlie a person's actions.

The BASNEF approach draws on the PRECEDE model of the American health educator Lawrence Green² and the "Theory of Reasoned Action" developed by the psychologists Ajzen and Fishbein³. The latter theory is an application of Value Expectancy Theory and represents a significant improvement on the earlier Health Belief Model which has been widely applied in health education. The BASNEF model (the name is an acronym for the component parts: Beliefs, Attitudes, Subjective Norms and Enabling Factors) adapts the above two parent theories to fit the special needs of health education in developing countries.

VALUE EXPECTANCY THEORY

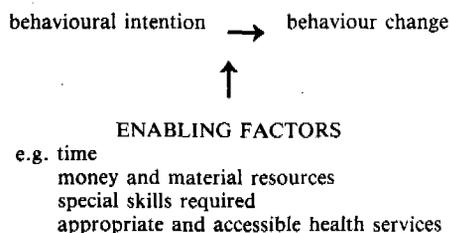
According to Value Expectancy Theory people will only perform a given behaviour if *they themselves* see that it will provide some benefits, e.g. if they see breast feeding to bring about mostly good outcomes they will breast feed. If they see breast feeding to bring about mostly bad outcomes they will not breast feed. In Value Expectancy Theory it is the person's own judgement of what is a good or bad outcome that matters. The approach described below involves understanding how members of the community (e.g. the pregnant woman or elderly person) *themselves* look at their situation.

We often look at actions from our own point of view as health workers and place too much emphasis on health and medical factors as a reason

for action. The community may consider other values as equally or more important such as economic survival, status, prestige, physical beauty, attractiveness to the opposite sex, conforming to moral or religious orthodoxy, family honour, etc. depending on the values of the prevailing culture. What may seem to us as irrational behaviour on the part of the community can involve deliberate and rational decisions based on the community's own perceptions of their situation and needs.

BEHAVIOURAL INTENTION AND ENABLING FACTORS

It is wrong to automatically put the blame for a failure of a health education programme on a lack of interest or motivation. A person may intend to perform a behaviour but still not do so. This is because of the influence of Enabling Factors such as time, money, equipment, skills, available services etc.



Enabling factors for a mother to give oral rehydration solution to her child with diarrhoea would be: time, containers, salt and sugar and knowledge of how to prepare and administer it. Enabling factors for a latrine programme would be money, essential components, e.g. slabs, and the necessary construction skills. For a family planning programme there would have to be availability of contraceptives, accessible family planning services and the necessary skills for using the particular method.

ATTITUDE AND BELIEFS

Attitudes and beliefs are frequently confused by both lay and professionals. Ajzen and Fishbein suggests that the term attitude should be used for a person's judgement of a behaviour as good or bad and worth carrying out. This judgement will depend on the beliefs he has about the consequences of performing it. If he believes that performing the behaviour will lead to mainly good outcomes, then his attitude will be favourable. If he believes that performing it will lead to mainly bad outcomes then the attitude will be unfavourable.

person's beliefs about the consequences of performing the behaviour → ATTITUDE towards the behaviour i.e. judgement of behaviour as good or bad

A person will normally hold a range of beliefs about the possible consequences of performing a particular behaviour, for example:

- my building a pit latrine will result in:
 - being seen to be progressive
 - not being able to afford a bicycle
 - improving the health of my family
 - greater privacy than going to the bush
 - foul smells close to the house
 - a nuisance from flies
 - gaining approval from the chief

A person may believe that performing the behaviour leads to some good outcomes and some bad ones. Whether the overall judgement (i.e. attitude) of the behaviour is favourable or unfavourable will depend on how strongly the person believes the likelihood of the different outcomes. It will also depend on the values placed by the person on the different possible consequences, in the latrine example, towards health, privacy, owning a bicycle, foul smells, flies, appearing progressive, etc. A particular consequence may be perceived as a bad one by one person, but acceptable (and even an advantage!) by another.

different possible consequences that person believes could arise from performing behaviour → overall ATTITUDE (judgement) towards behaviour as good or bad

extent to which each consequence is seen to be good or bad

SUBJECTIVE NORM

A person will be influenced by the various persons in his or her social network as shown in Figure 1. Some people will want the person to perform the behaviour, others will not. The term subjective norm is used by Ajzen and Fishbein for the overall perceived social pressure.

Beliefs about whether significant people wish person to perform behaviour → SUBJECTIVE NORM (perceived social pressure)

A person may have to balance out conflicting pressures from different people, some of whom may be in favour and others may be against. The overall social pressure will depend on a person's

perceptions of the wishes of the persons who have the most influence, i.e. are most significant in his or her network. For example, a person may believe that her friends and the health worker wish her to build a latrine but her father and husband do not want her to build a latrine. She is likely to conform to wishes of those most important to her.

FORMATION OF THE BEHAVIOURAL INTENTION

Whether or not a person forms a behavioural intention to perform a behaviour will depend on his judgement of the consequences of performing the behaviour, i.e. attitude, and the overall pressure from those around him, i.e. subjective norm. A person may judge the proposed behaviour favourably but may perceive that those important to him do not want him to perform the behaviour. A person may not have a favourable attitude towards the behaviour but be pressured by those around him to perform it.

Whether or not the person's own judgement can overcome the influence of those around him will

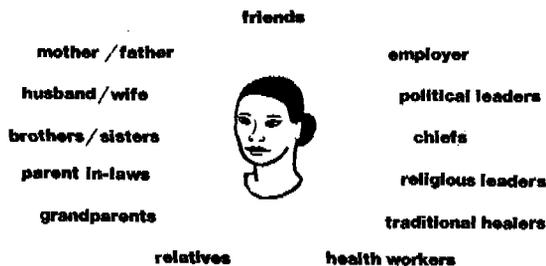


Figure 1. The influence of other people on an individual's behaviour

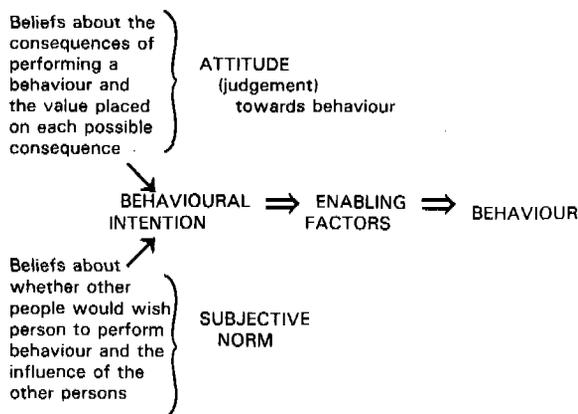


Figure 2. Summary of BASNEF model for understanding behaviour

depend on the individual's strength of will and susceptibility to pressure. There can be considerable cultural pressure on individuals to conform to family and community influence.

USING BASNEF TO PLAN HEALTH EDUCATION

Applying the BASNEF approach as shown in Figure 2 involves examining the behaviour from the perspective of the community. This is not as easy as it sounds as, even if you come from the same culture as the people. A medical training can distance health workers from how ordinary people feel and think. A simple questioning of typical members of the community or even ancillary staff, such as cleaners and porters, can yield considerable insights. Well chosen questions to individuals and groups at the beginning of a health education session can also provide information on underlying factors. If resources are available this questioning could be carried out more systematically as an organized survey or 'community diagnosis'.

Once sufficient background information is available on the various factors in the BASNEF model, making decisions on health education approaches involves the following steps:

(1) Before devoting time and energy to promoting a behaviour, make sure that it will actually benefit the community. This may seem obvious but, unfortunately, it is still common to find health educators wasting effort trying to persuade people to give up harmless behaviours or adopt behaviours for which there is little evidence of health benefits.

(2) Define the behaviour in question in as much detail as possible and consider what enabling factors would be required by a motivated person to undertake the action. Even at this stage it is possible to identify behaviours that are unrealistic to expect people to change because they are complicated, require enabling factors such as time, money and skills that are not available, are incompatible with the culture and present practices. Can the proposed behaviour be changed to make it more acceptable, cheaper and easier to carry out?

The first priority is to ensure that your health education programme provides the enabling factors required. This could involve community organization programmes aimed at improving living conditions such as income, housing, water supply, agriculture and sanitation. It may be necessary to improve the situation of women to give them

the additional time required to carry out the behaviour. Appropriate technologies can be explored, e.g. efficient low cost pumps, ovens etc., which reduce cost. Health services should be reviewed to ensure that they are accessible and more appropriate services, e.g. mobile clinics and home visits, introduced where necessary. Any special skills required should be demonstrated to the community.

Tackling enabling factors can involve moving well beyond the traditional range of activities for health services. This often requires working with field personnel from other services such as agriculture, rural development, adult education and co-operatives. It may be necessary to challenge vested interests at the local level and even become involved in action at a national level to influence government policies.

(3) If the enabling factors are all readily available then the block may lie in the social pressure on the person, i.e. subjective norm. It is unreasonable to expect a person, no matter how convinced, to go against the wishes of those around him in the community. Giving advice to the individual at the clinic will be insufficient and it will be necessary to go into the community and involve the whole family and other significant persons in the health education. A valuable strategy is to involve key influential persons or "opinion leaders" from the community at the outset, for example as recipients of demonstration latrines.

(4) The issue of changing beliefs and thus a person's attitude has deliberately been left until last. This is because the blame for failure has often been put on "bad beliefs" and health education programmes often fail to take into account the enabling factors and social pressure described above. If the community believes that performing the behaviour will lead to unfavourable outcomes it is important to determine why. It may be possible to modify the proposed behaviour change to make it more acceptable. If this is not possible and there is clear evidence of health benefits from changing the behaviour, then it is ethical to promote a favourable attitude. This could involve health education messages which minimize the perceived likelihood of those outcomes that the community consider undesirable, and strengthens those beliefs which link performing the behaviour to outcomes that the community consider desirable.

If it is just the individual who holds a particular belief then it might be possible to influence the belief by discussions only with that person. More often, however, the belief is also held by others in the community as part of their shared culture. It is then necessary to direct effort at groups of people rather than individuals.

It is important to find out how a particular belief has been acquired in order to understand its origin and predict how easily it might be changed. A belief might have been formed from an individual's or community's personal experiences: they may have visited a latrine and found it smelly; tried a folk remedy and found it apparently led to an improvement in health; they may have attended a clinic and found long queues; seen a child receive measles immunization and subsequently catch the disease (e.g. through poorly kept vaccines), etc. However, it is difficult to change those beliefs which have arisen through a person's direct experience. It might be possible to convince a person that the experience has been misinterpreted by organizing a practical demonstration.

The study of medical anthropology⁴ provides valuable insights into how particular beliefs can be part of wider belief systems such as religions and traditional medical systems. If a belief is part of a wider system of beliefs it can be very difficult to change, for example a pregnant woman in the Indian sub-continent might hold the belief that she should not eat eggs because of wider notions of hot/cold states of the body and foods. A person also develops beliefs from what he or she reads or hears from other persons. It is difficult to change beliefs which have been held for a long time (e.g. since childhood) or have been acquired from highly credible sources in the community.

It is possible to generalize about which beliefs will be the easiest to change. If the benefits of a behaviour can clearly be shown in an observable demonstration (e.g. that a well-designed latrine does not smell, immunization is effective, oral rehydration therapy prevents death) then the community are more likely to be convinced. Another valuable strategy is to find out who are the credible and respected sources of information in a community and involve these opinion leaders in your health education. It is usually easier to influence those beliefs which have only been acquired recently, are held by individuals and not by the whole community, come from sources that are not highly respected and are not part of a religion or traditional medical system.

Table 2. Characteristics of effective health education

Promotes actions which are realistic and feasible within the constraints faced by the community
Builds on ideas, concepts and practices that people already have
Repeated and reinforced over time using different methods
Adaptable, and uses existing channels of communication – for example, songs, drama and story telling
Entertaining and attracts the community's attention
Uses clear simple language with local expressions and emphasises short term benefits of action
Provides opportunities for dialogue and discussion to allow learner participation and feedback on understanding and implementation
Uses demonstrations to show the benefits of adopting practices

CONCLUSIONS

The BASNEF model described in this paper can be combined with some basic principles of communication theory^{5,6} to produce the guidelines on planning health education programmes listed in Table 2. A well planned health education programme will be based on a sound understanding of the community and build community participation into the selection of priorities and objectives. It will concentrate on changing only those factors which are important for influencing changeable behaviours. Although the starting point for our analysis has been the individual person's behaviour, an understanding of the influences on behaviour can lead to selection of interventions that go beyond the individual to include programmes at the family, community and national level and encompass social and economic change. The purpose of any theory is to be of practical help in the planning of effective programmes. This theory should be adopted in the light of personal experience.

REFERENCES

- Hubley JH. Barriers to health education in developing countries. *Health Education Research* 1986;1:233-45
- Green, LW, Kräuter MW, Deeds SG, Partridge KB. *Health education planning – a diagnostic approach*. Palo Alto, CA: Mayfield, 1986
- Ajzen I, Fishbein M. *Understanding attitudes and predicting social behaviour*. New Jersey: Prentice Hall, 1980
- Foster EM, Anderson BG. *Medical anthropology*. New York: John Wiley, 1978
- Rogers EM. *Diffusion of innovations – third edition* New York: The Free Press, 1983
- Hubley JH. Principles of health education. *British Medical Journal* 1984;289:1054-6