

Improving Health Outcomes through Community Empowerment: A Review of the Literature

Glenn Laverack

*Department of Social and Community Health,
School of Population Health, University of Auckland,
Auckland, New Zealand*

ABSTRACT

This paper reviews the literature on how empowerment can lead to an improvement in the health status of an individual, group, or community. There is a broad body of literature on empowerment, and this review has been designed to identify material, particularly case studies, that can be included within the following 'empowerment domains': Participation; Community-based organizations; Local leadership; Resource mobilization; Asking 'why'; Assessment of problems; Links with other people and organizations; Role of outside agents; and Programme management. The paper discusses the results of the literature review and provides examples, from both developed and developing countries, of how each of the 'empowerment domains' has led to an improvement in health outcomes. The results of the review should be of interest to the planners and practitioners of health, population and nutrition programmes that have a particular focus on empowerment.

Key words: Power; Empowerment; Health outcomes; Domains; Review literature

INTRODUCTION

Empowerment, the means to attaining power, is described here in the broadest sense as the process by which relatively powerless people work together to increase control over events that determine their lives and health. Most definitions give the term a positive value that embodies the notion of empowerment coming from within an individual or group (1,2). The essence of empowerment is that it cannot be bestowed by others but must be gained by those who seek it. Those who have power or have access to it, such as a health practitioner, and those who want it, such as their clients, must work together to create the conditions necessary to make empowerment possible. In this paper, the term 'practitioner' has been used for describing the range of population, health and nutrition professionals, who in their everyday work,

have an opportunity to help empower individuals, groups, and communities.

Community empowerment is a process that involves continual shifts in power relations between different individuals and social groups in society. It is also an outcome and, in this form, can vary, for example, as a product of the redistribution of resources and decision-making authority (power-over) or as the achievement of an increased sense of self-determination and self-esteem (power-from-within) (3). But it is most consistently viewed in a programme context as a process in which individuals, groups, and communities progress towards more organized and broadly-based forms of social action. This is a rather linear interpretation of what is a very dynamic process but it does help clarify the way in which different people, who have a shared interest, can come together to progressively gain more power. This can be to address the underlying social, structural and economic conditions that impact on their health or their immediate needs, such as improving access to recreational facilities (4) or improving the condition of rented housing (5). In a programme context, the role of the practitioner is to create opportunities to help others gain more power-over the determinants of health, and this often involves a process of capacity-building.

Correspondence and reprint requests should be addressed to:
Dr. Glenn Laverack
Director of Health Promotion
Department of Social and Community Health
School of Population Health, University of Auckland
Private Bag 92019
Auckland
New Zealand
Email: g.laverack@auckland.ac.nz

The link between empowerment and health outcomes

In the literature on community psychology, empowerment is seen to enhance individual competence and self-esteem which, in turn, increase perceptions of personal control which has a direct effect on improving health outcomes (1). This argument can be extended to include an individual's connectedness with other people and their participation in groups and communities of interest who wish to gain more power with the intent of bringing about changes in their external environment (6).

In the literature on community health, empowerment is generally viewed as a process beginning with individual action and then the development of small mutual groups, community organizations, partnerships, and ultimately social and political actions (7,8). Power is seen as a finite entity. Communities can only possess X amount of power (control over resources and decision-making) to the extent that another group has an absence of an equivalent amount. It is, therefore, a 'win/lose' situation. Power is also resource dependent in that it can be used as a lever for raising the position of one person or group, while simultaneously lowering it for another person or group (9). The literature on community health recognizes that many inequalities in health are a result of power relations that have an effect on the distribution of resources and the development of policy. People attaining the power they need to redress inequalities can bring about social and structural changes, and community empowerment is often the process they use to do this (10).

Community-based empowerment initiatives that lead to improvements in health outcomes have focused largely on environmental changes. These often have an immediate impact on behaviours that are measurable during the time period covered by the intervention (11). The evidence shows that community action has been able to lead to sustained changes in the social and organizational environment that is linked to improvements in health, for example, abuse of alcohol and prevention of injuries. Community action in Surfers Paradise in Australia led to increased regulation of licensed alcohol premises and the implementation of policies and a code of practice for bar staff and as a consequence-reduced alcohol-related violence (12,5). Community action at Piha in New Zealand led to bans on public drinking resulting in fewer injuries and incidents of crime and an improved sense of well-being (14). Elsewhere, community-action projects on alcohol regulation have resulted in training of bar staff, shortening of hours of operation of licensed premises, increased age-verification checks, and highly visible drink-driving enforcement resulting in reductions in injuries (15) and in drink-driving by those aged 18-19 years (16).

MATERIALS AND METHODS

There is more evidence to show the pathways through which the link between empowerment and health outcomes occurs and, within a programming context, the pathways have been identified as the domains of empowerment. The domains represent those aspects of the process of empowerment of the community that allow individuals and groups to organize and mobilize themselves towards social and political changes.

The use of domains has become an established part of empowerment strategies (17,10), and the methods and materials used in their identification are discussed in a previous study (19). The study reviewed the relevant literature with particular reference to the fields of health, social sciences, and education for programmes which sought to achieve the same empowerment goals: to bring about social and political changes. The identified domains were categorized from a textual analysis of the literature, and two independent researchers cross-checked the validity of data using a confusion matrix approach (20). The domains were later checked against the historical literature on community development and the emerging literature on community capacity-building to ensure their face-validity (21).

The study identified nine empowerment domains: Participation; Community-based organizations; Local leadership; Resource mobilization; Asking 'why'; Assessment of problems; Links with other people and organizations; Role of outside agents; and Programme management. The domains cited are robust and provide a useful means to unpack the complex concept of community empowerment into the pathways through which it has a proven link to health outcomes.

This paper discusses an extensive review of literature carried out to identify material, including case studies, that show the link between each domain and specific health outcomes. A range of measures of health outcomes were used in the review, including mortality, length of patient stay, quality of life, perceptions of pain, the ability to function day to day, and so on.

A literature search was undertaken of the following electronic databases: Medline, Sociofile (sociological abstracts), PsycINFO (psychological abstracts), ERIC (education resources), CINAHL (Cumulative Index of Nursing and Allied Health), EMBASE, databases of the World Health Organization, and the Cochrane database of systematic reviews. Searches were limited by year of publication (1992-2005) in the English language and used combinations of key words, such as empowerment, 'health promotion', participatory and 'empowerment

education', and specific health outcomes, such as depression, hypertension, asthma, and obesity.

The search strategy also included a hand search of grey literature, such as unpublished reports and project evaluations, and discussions with researchers and practitioners and also with authors of relevant papers, relevant organizations, and discussion lists to identify additional studies, including ongoing research.

The search results were reviewed for material concerning the process of empowerment and/or capacity-building and links to health outcomes. A further analysis of content, methodology, and source was carried out to classify the literature into papers that were theoretical or ideological in nature. Finally, the selected papers were classified into the nine domains of empowerment.

RESULTS

The results of the review are here discussed under each domain, and the case-study material is used for illustrating the depth and breadth of empowerment approaches and their influence on health outcomes.

Participation

Very few studies could measure the health benefits of community participation. However, individuals do have a better chance of achieving their health goals if they can participate with other people who are affected by the same or similar circumstances to build inter-personal trust and trust in public institutions (22). For example, the use of participatory learning exercises in women's groups in a poor rural population in Nepal led to a reduction in neonatal and maternal mortality (23). The women in the intervention clusters had antenatal care, institutional delivery, trained birth attendance, and more hygienic care, which led to an improvement in birth outcomes. By participating in groups, they were better able to define, analyze, and then, through the support of others, articulate and act on their concerns regarding childbirth. The participation strengthened social networks and improved social support between women and between women and providers of health-services delivery.

Social support is generally accepted as an important determinant of and as having a beneficial effect on health, both at home or in the community; for example, people can better cope with stressful events by sharing problems (24-26) and this can lead to empowerment (27). The concept of social support overlaps with social capital, social inclusiveness, social exclusiveness, and social cohesion. These concepts fundamentally address a sense of connection to a 'community' and the involvement and

trust between its members manifested through customs, rituals, and traditional groupings. Participation in groups that share interests can help individuals compete for limited resources and increase the sense of personal control in their lives. The link between psychological empowerment in patients and health has been demonstrated in several recent studies (28-30).

Community-based organizations

Community-based organizations include youth groups, committees, cooperatives, and sports associations which are the organizational elements in which people come together to socialize and to address their broader concerns. Community organizations provide the opportunity for their members to gain the skills and competencies necessary to allow them to move towards achieving health outcomes. In a programme context, these skills include planning and development of strategy, management of time, team-building, networking, negotiation, fund-raising, marketing, and writing of proposals. An example of this is provided from a national programme designed to address health needs of women in Samoa, Polynesia. The Samoan Government created a community-based self-help system based on neighbourhood support and nursing care that operated through women's committees. The Government supported the development of these community organizations through resource-allocation and building the prestige, skills, and competencies of their members. The women were shown to have an improved ability to organize and mobilize themselves around issues, such as raising resources to build sanitary and health facilities in their communities (31), which could lead to improved health status.

Local leadership

Leadership requires a strong participant-base just as community organizations and groups require the direction and structure of strong leadership to move towards achieving health outcomes. The selection of appropriate leadership can be seen as a pluralistic approach in the community, one where there is an interplay between positional leaders, those who have been elected or appointed, and reputational leaders, those who informally serve the community (32). The dominance of one leader may result in them using their power-over the community or groups within the community to manipulate situations to their own advantage.

An example of the role that local leaders can play in influencing health is of one community wishing to obtain assistance from an outside organization to help provide irrigation pipes and an electric pump to improve the supply of water. Not all the community members, especially

groups of low-income women, were satisfied with these developments. The water supplied was too expensive for them, and the pipes were laid to better serve family members of the village leader. They could not complain because to contradict the leader could mean serious consequences for livelihoods of poor families; for example, the village leader provided temporary employment during harvest and distributed flour for making bread to poorer residents. The village leader was able to use his power-over others in the community to manipulate the distribution of health-enhancing resources. The consequence was that the poorer women had to spend more time to walk to a source of water for drinking and irrigation and had less time to look after their families (33).

Communities consist of competing power relations between individuals and between and within groups. The delivery of health-enhancing inputs within a programme context does not guarantee that those with the power-over others, such as local leaders, will choose to use their control of the limited resources to benefit individuals and groups that suffer the worst health inequalities.

Resource mobilization

Individuals, groups, and communities have the ability to raise resources from within, including land, food, money, people skills, and local knowledge, and from without, for example, financial assistance, technical expertise, 'new' knowledge, and equipment. The ability of the community to mobilize resources from within and to negotiate resources from beyond itself is an indication of a developed organizational ability. There is little evidence to suggest that this alone will allow the community to gain social and political power. There is evidence to suggest that resource mobilization, improved literacy, and education, particularly for women, can lead to improved health outcomes in developing countries (34,27).

An example of the link between resource mobilization and improved health is the use of swimming pools in remote Aboriginal communities in Australia. These reduced ear, nose and throat infections (36) and provided an overall improvement in the well-being of the community (37). The public swimming pools invariably operated at a loss, and costs were borne or subsidised by the Government because it was seen as a recreational facility which promoted the health of the population. The communities had access to only limited resources but were expected to raise finances to maintain the pool. The communities started to raise additional internal resources on a small scale through fund-raising and pool-entrance fees and to raise external resources through seeking small government funding. In this way, their ability to

mobilize resources had an effect on its health through the continued use of the swimming pool (10).

Asking 'Why'

This domain involves the ability of the community to be able to critically assess the contextual causes of their powerlessness and poor health. Asking 'why' can be described as '... the ability to reflect on the assumptions underlying our and others' ideas and actions and to contemplate alternative ways of living' (32). This process of discussion, reflection, and action has been termed 'critical awareness' and 'critical thinking' and forms the basis for a number of approaches for learning and social change (38).

Another example is the Resource Sisters/Compañeras programme which used an approach of critical thinking to develop the skills of women from the community to facilitate peer-support groups and to address the health issues of its members (39). The programme was implemented in an inner city area in Florida which had a predominantly African American population and high rates of low-birth-weight babies and infant mortality. Support groups or 'mothers' circles' were formed as a forum to listen to the concerns of women who were also encouraged to openly discuss their problems and share experiences. The facilitators set problems for the women to address in order for them to explore the root causes of their poverty and the morbidity and mortality of their children. The groups were well-attended and were felt to increase cohesion in the community in an atmosphere that encouraged active listening and peer support. The participants mostly focused on their immediate problems and at first struggled with understanding the broader contextual issues underlying their powerlessness. Over time, the women began to understand that social determinants and structural health issues, such as under-resourced health and education systems in their neighbourhoods, linked their poverty and poor health.

Generally, small groups focus inwards on the needs of their members but as they develop into community organizations they must be able to broaden their focus outwards to the environment that creates those needs in the first place, or offers the means (resources, opportunities) to resolving them. Wang and her colleagues discussed the application of one approach with small groups using a simple exercise called 'Photovoice' (40). Photovoice is a participatory strategy that can be used by people for creating and discussing photographs as a means to bring about greater personal and community control. It is an approach that engages people in conceptualizing problems, defining goals, training, critical reflection

and dialogue, and influencing policy. Wang and colleagues used this approach in the Yunnan women's reproductive health and development programme for giving their clients—women in rural communities—cameras to visually document their life conditions as they saw them. These images were then used for stimulating a dialogue to share ideas and experiences, facilitated by the practitioner, to promote critical thinking and to identify the causes of their powerlessness. This process of empowerment involves the education and training of clients by the practitioner who provides answers to their questions and access to supporting sources of information.

In this programme, the clients were encouraged to develop a strategy for action to resolve the identified problems towards greater control. This involved presenting their concerns in a visual way to policy-makers which led to the establishment of day-care centres, midwifery programmes, and scholarships for rural girls. The vivid visual images allowed the women to better advocate for change and led to an improvement in the reported levels of self-esteem and confidence observed through their increased participation in the programme.

Assessment of problems

Assessment of problems is often a necessary first step for people to be able to identify the common problems of their members, solutions to the problems, and actions to resolve the problems. Addressing health outcomes does not necessarily start with the community tackling health problems but may cover a range of personal, social, economic and environmental factors. The key issue is that health practitioners must be prepared to listen to what the members of the community want. They may not necessarily like what they hear, but they must be committed to moving forward and building upon these issues. The motivation to improve one's health must come from within the community and cannot come from an outside expert. Programme inputs, such as education and training, can play a role in improving health outcomes but these must always support the problems that have been identified by the community members as being relevant and important to themselves (41).

An example is a health programme in India working to improve the lives of rural women in Gujarat. The women firstly requested and then received cooking stoves that would reduce the level of smoke in their small airless huts. Finding a solution to this initial problem led them to go on and identify other health-related problems in their community, including poor maternal and child-health facilities and the gynaecological training of health workers (2).

Links with other people and organizations

Links with other people and organizations include partnerships, coalitions, and health alliances formed to address community-health needs. Links with others demonstrates the ability to develop relationships outside the community, often based on mutual interests. The development of partnerships is an important step towards empowerment and can also lead to an improvement in health outcomes by pooling limited resources and by taking collective action.

The Asian Health Forum in Liverpool, England, identified a large number of cases of depression and isolation among Asian women in the area. A government health practitioner who was working with the local women held discussions with them to identify their needs and then approached a leisure centre to arrange swimming lessons. This arrangement would ensure privacy; for example, windows would be blacked out and the lessons run by other women. The alliance, between the Asian women and the leisure centre, was able to organize weekly lessons and to secure funding for a female instructor. The lessons were very popular, and timings had to be reorganized to avoid conflict with other pool activities and to accommodate the young children of the Asian swimmers. The lessons had a health benefit to the women by helping to reduce weight but mostly through an improved feeling of well-being brought about by the regular exercise. Eventually, the health worker was able to delegate some responsibilities for the lessons to the alliance, and their interest slowly moved to other sports activities and an increase in the choices available to Asian women (4).

Another useful account of how small rural communities have started to empower themselves and improve their health is by forming cluster communities. A cluster community is defined as '... voluntary alliances between two or more communities to address common problems, needs and interests'. In Iowa, USA, the communities were faced with concerns common to many rural populations: a lack of health resources and a decline in employment caused by sweeping social and economic changes in society. To succeed, the clusters initially remained small-scale but soon became legal entities and developed links with private and public organizations to help raise funds and to provide health-enhancing services (42).

Role of outside agents and programme management

Population health and nutrition practice are traditionally professionally-led; for example, it is the practitioner or their agency that chooses individuals, groups, and com-

munities that they will work with and the methods to be used. The initiation of the empowerment process and the enthusiasm for its direction and progress are also often professionally-led. Practitioners, who are in a position of relative power, work to help others, who are in a relatively-powerless position, to gain more control.

Individual control, in part a consequence of the position of people in structural and social hierarchies, has been shown to have an influence on their health and well-being (as discussed earlier). In a programme context, the issue becomes how much control the outside agent (the practitioner or agency) gives to the community for its design, implementation, management, evaluation, financial control, administration, and reporting. The community must have a sense of ownership of the programme which, in turn, must address their concerns.

An example of this is provided by the Health Authority in Oldham, England, which established a 'local voices' steering group with the purpose of involving local people in health activities. The group was made up of representatives from different departments, community trusts, and government agencies in a poor-housing area. The group decided to employ an independent consultant to carry out a participatory needs assessment within the community whose members were canvassed door to door and invited to attend meetings to express their concerns. Child-care facilities and transport were arranged, and meetings were held at times that would be convenient to the community. Large meetings were often followed by small group discussions to elicit further information from the community about what they felt affected their health. These initial discussions led to the development of a questionnaire, which was administered, on a door-to-door basis by trained interviewers. This process involved a relationship between different representatives working and living in the community to coordinate the activities of an outside agent, the consultants, to provide a specific technical input (43). The important issue is that the agents could collect information in a way that was acceptable to all representatives and that allowed the community members to take the necessary action to effect change.

DISCUSSION

The study has demonstrated the relationship between empowerment and health outcomes through each of the 'empowerment domains': Participation; Community-based organizations; Local leadership; Resource mobilization; Asking 'why'; Assessment of problems; Links with other people and organizations; Role of outside agents; and Programme management. It provides a literature review

as an introduction to what is a complex issue. More research is needed to establish the evidence for links between empowerment and improvements in the health status of individuals, groups, and communities.

The author has used a 'domains approach' for addressing this issue because it offers the advantage of being able to unpack the complex concept of empowerment into its different areas of influence. The 'empowerment domains' also provide a focus for further research where the evidence for a link between empowerment and health outcomes is uncertain, for example, the link between participation and health. It is hoped that the paper will provide greater clarity for practitioners regarding the link between empowerment and health outcomes.

ACKNOWLEDGEMENTS

The author acknowledges the important contributions made by Kirsten Havemann, Dr. Susan Rifkin, and Dr. Chris Bullen.

REFERENCES

1. Wallerstein N. Powerlessness, empowerment, and health: implications for health promotion programs. *Am J Health Promot* 1992;6:197-205.
2. Rifkin SB. A framework linking community empowerment and health equity: it is a matter of CHOICE. *J Health Popul Nutr* 2003;21:168-80.
3. Laverack G. Health promotion practice: power and empowerment. London: Sage Publications, 2004: 47-8.
4. Jones L, Sidell M, editors. The challenge of promoting health. Exploration and action. London: MacMillan, 1997. 41 p.
5. North York Community Health Promotion Research Unit. Community health responses to health inequalities. Toronto: NYCHPRU, 1993:1.
6. Zimmerman MA, Rappaport J. Citizen participation, perceived control, and psychological empowerment. *Am J Community Psychol* 1988;16:725-43.
7. Jackson T, Mitchell S, Wright M. The community development continuum. *Community Health Stud* 1989;13:66-73.
8. Labonte R. Empowerment: notes on professional and community dimensions. *Can Rev Soc Policy* 1990;26:64-75.
9. Clegg SR. Frameworks of power. London: Sage Publications, 1989:1.

10. Laverack G. Public health: power, empowerment & professional practice. London: Palgrave Macmillan, 2005:58-9.
11. Carr A. Community project workers scheme crime prevention projects: evaluation report. Wellington: Community Development Group, Department of Internal Affairs, Government of New Zealand, 2000:1.
12. Homel R, Hauritz M, Wortley R, McIlwain G, Carvolth R. Preventing alcohol-related crime through community action: the Surfers Paradise Safety Action Project. *Crime Preven Stud* 1997;7:35-90.
13. Hauritz M, Homel R, Townsley M, Burrows T, McIlwain G. An evaluation of the Local Government Safety Actions Projects in Cairns, Townsville and Mackay. Report to the Queensland Department of Health and the Criminology Research Council. Brisbane: Griffith University, 1998:1.
14. Conway K. Booze and beach bans: turning the tide through community action in New Zealand. *Health Promot Int* 2002;17:171-7.
15. Holder H, Saltz R, Grube J, Voas R, Gruenewald P, Treno A. A community prevention trial to reduce alcohol involved accidental injury and death: overview. *Addiction* 1997;92:S155-S71.
16. Wagenaar A, Murray D, Toomey T. Communities mobilizing for change on alcohol (CMCA): effects of a randomized trial on arrests and traffic crashes. *Addiction* 2000;95:209-17.
17. Laverack G. Using a domains approach to build community empowerment. *Commun Dev J* 2005. (www.oup.co.uk/journals/cdj/advance, accessed on 11 March 2005).
18. Jones A, Laverack G. Building capable communities within a sustainable livelihoods approach: experiences from Central Asia. 2003. ([http://www.livelihoods.org/lessons/Central Asia & Eastern Europe/SLLPC](http://www.livelihoods.org/lessons/Central%20Asia%20&%20Eastern%20Europe/SLLPC), accessed on 1 September 2003).
19. Laverack G. An identification and interpretation of the organizational aspects of community empowerment. *Commun Dev J* 2001;36:40-52.
20. Robson C. Real world research: a resource for social scientists and practitioner-researchers. Oxford: Blackwell, 1993:222.
21. Labonte R, Laverack G. Capacity building in health promotion. Part 1: for whom? And for what purpose? *Crit Public Health* 2001;11:111-27.
22. Brehm J, Rahn W. Individual-level evidence for the causes and consequences of social capital. *Am J Polit Sci* 1997;41:999-1023.
23. Manandhar DS, Osrin D, Shrestha BP, Mesko N, Morrison J, Tumbahangphe KM *et al.* and MIRA Makwanpur Trial Team. Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomised controlled trial. *Lancet* 2004;364:970-9.
24. Geyer S. Some conceptual considerations on the sense of coherence. *Soc Sci Med* 1997;44:1771-9.
25. Wilkinson R. Unhealthy societies: the afflictions of inequality. New York: Routledge, 1996:4-5.
26. Wissmann JL, Tankel K. Nursing students' use of a psychopharmacology game for client empowerment. *J Profess Nurs* 2001;17:101-6.
27. Wallerstein N. Empowerment and health: the theory and practice of community change. *Commun Dev J* 1993;28:218-27.
28. Lupton BS, Fonnebo V, Sogaard AJ, Fylkesnes K. The Finnmark intervention study: do community-based intervention programmes threaten self-rated health and well-being? Experiences from Batsfjord, a fishing village in North Norway. *Eur J Public Health* 2005;15:91-6.
29. Everson SA, Lynch JW, Chesney MA, Kaplan GA, Goldberg DE, Shade SB *et al.* Interaction of workplace demands and cardiovascular reactivity in progression of carotid atherosclerosis: population based study. *Br Med J* 1997;314:553-8.
30. Odedina FT, Leader AG, Venkataraman K, Cole R, Storm A. Feasibility of a community asthma management network (CAMN) program: lessons learnt from an exploratory investigation. *J Soc Admin Pharmacy* 2000;17:15-21.
31. Thomas P. Empowering community health: women in Samoa. *In: Pencheon D, Guest C, Melzer D, Muir Gray JA.* Oxford handbook of public health practice. Oxford: Oxford University Press, 2001:Chapter 9.
32. Goodman RM, Speers MA, McLeroy K, Fawcett S, Kegler M, Parker E *et al.* Identifying and defining the dimensions of community capacity to provide a basis for measurement. *Health Educ Behav* 1998; 25:258-78.
33. Earle L, Fozilhujaev B, Tashbaeva C, Djamankulova K. Community development in Kazakhstan, Kyrgyzstan and Uzbekistan. Oxford: INTRAC, 2004. 36 p. (Occasional paper no. 40).
34. Pokhrel S, Sauerborn R. Household decision-making on child health care in developing countries: the case of Nepal. *Health Policy Plan* 2004;19:218-33.

35. Bratt JH, Weaver MA, Foreit J, De Vargas T, Janowitz B. The impact of price changes on demand for family planning and reproductive health services in Ecuador. *Health Policy Plan* 2002;17:281-7.
36. Carapetis JR, Johnston F, Nadjamerrek J, Kairupan J. Skin sores in Aboriginal children (letter). *J Paediatr Child Health* 1995;31:563.
37. Peart A, Szoeki C. Recreational water use in remote indigenous communities. Cooperative Research Centre for Water Quality and Treatment. Canberra: Australian National University, 1998:2.
38. Shrestha S. A conceptual model for empowerment of the female health volunteers in Nepal. *Educ Health* 2003;16:318-27.
39. Rudner-Lugo N. Empowerment Education. A case study of the resource sisters/companeras program. *Health Educ Q* 1996;23:281-9.
40. Wang C, Yi WK, Tao ZW, Carvano K. Photoservice as a participatory health promotion strategy. *Health Promotion Int* 1998;13:75-86.
41. Syme L. Individual vs community interventions in public health practice: Some thoughts about a new approach. *Vichealth Newslett* 1997; 1 (2): 2-9.
42. Korsching PF, Borich TO. Facilitating cluster communities: lessons from the Iowa experience. *Commun Dev J* 1997;32:342.
43. Smithies J, Webster G. Community involvement in health. Aldershot: Ashgate Publishing Limited, 1998:156-7