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Understanding the relationship of maternal health behavior change and intervention strategies in a Nicaraguan NGO network

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Abstract

Few studies of community interventions examine independent effects of investments in: (1) capital (i.e., physical, human and social capital), and (2) management systems (e.g., monitoring and evaluation systems (M&E)) on maternal and child health behavior change. This paper does this in the context of an inter-organizational network. In Nicaragua, international non-governmental organizations (NGOs) and local NGOs formed the NicaSalud Federation. Using Lot Quality Assurance Sampling (LQAS), 14 member organizations took baselines measures of maternal safe motherhood and child health behavior indicators during November 1999 and August 2000, respectively, and final evaluation measures in December 2001. In April 2002, retrospective interviews were conducted with supervisors and managers in the 14 organizations to explore changes made to community health strategies, factors associated with the changes, and impacts they attributed to participating in NicaSalud. Physical capital (density of health huts), human capital (density and variety of paramedical personnel) and social capital (density of health committees) were associated with pregnant women attending antenatal care (ANC) 3+ times, and/or retaining ANC cards. The variety of paramedic personnel was also associated with women making post-partum visits to clinics. Physical capital (density of health huts) and social capital (density of health committees and mothers' clubs) were associated with child diarrhea case management indicators. One safe motherhood indicator (delivery of babies by a clinician) was not associated with intervention strategies. At the management level, NicaSalud's training of members to use LQAS for M&E was associated with the number of strategic and tactical changes they subsequently made to interventions (organizational learning). Organizational learning was related to changes in maternal and child health behaviors of the women (including changes in the proportion using post-partum care). As the latter result would not have occurred without NicaSalud, we conclude that this inter-organizational network provided added value by instigating organizational learning.

Keywords: Networks; NGOs; Safe motherhood; Community; Child health; Social capital; LQAS; Nicaragua

Introduction

Approximately 529,000 women died globally in 2000 because of pregnancy-related causes (Weil & Fernandez, 1999; Zahr & Wardlaw, 2002). Although access to

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obstetric care is a major way of lowering maternal mortality (Tinker & Koblinsky, 1993), research in developing countries indicates many barriers to care (Chapman, 2003; Weil & Fernandez, 1999). Even when perinatal services are available, women do not always use them. The challenge is to promote appropriate behavior to use services in the presence of danger signs.

Similar behavior change challenges exist for mobilizing mothers to treat infant and child diarrhea. In developing countries a variety of obstacles, including beliefs, impede women from treating infants and children in a timely manner or from seeking appropriate help (Goldman, Pebley, & Gragnolati, 2002). Changing human health behavior is indisputably a difficult task and can be complicated by cultural and logistical barriers (Chapman, 2003; Goldman et al., 2002; Pillai et al., 2003).

Evaluations of health services have tended not to assess associations between behavior change and the strategies that comprise a health intervention. Such analysis is important as it can indicate strategies that ought to receive investment and those which should not. Even rarer are evaluations that examine the impact of a network organization on its members' effectiveness in achieving behavior change (Alter & Hage, 1993). If networks add value above and beyond what is achieved by a single organization, then networks can be important strategy for enhancing community health programs in developing countries. This latter point is important to consider since network secretariats are being used more frequently to build the capacity of member organizations to plan and manage health interventions (Laukamm-Josten et al., 2000; Leburg et al., 2001; Vargas, Valadez, Manda, & Mobley, 2003). *Instead, evaluations of health behavior change in developing countries* have tended to compare the differences between final evaluation values of behavior indicators and their baseline values. Occasionally, control groups are included in the evaluation design to eliminate competing interpretations of results (Campbell & Stanley, 1963; Valadez & Bamberger, 1994).

The two objectives of this paper are to assess: (1) the association of three categories of strategies—physical capital, human capital, and social capital—of a community health program for safe motherhood and child survival with the behavior change achieved by the program, and (2) the added value of a strategy using a network of organizations, which established administrative systems for M&E and organizational capacity building to aid managers to make tactical changes in their strategic interventions and created a context in which organizational learning was easier. This second objective assesses the association of organizational learning with behavior change. As some work has already shown, networks can be beneficial to member organizations (Alter & Hage, 1993). For example, networks can build the capacity of their members and standardize administrative systems such as M&E systems. If networks add value above and beyond what is achieved by a single organization then networks can be an important strategy for enhancing community health programs in developing countries. The example used for this analysis is the NicaSalud Federation located in Nicaragua.

Eight international NGOs established a *network* (NicaSalud) in 1999 to coordinate their response to the aftermath of Hurricane Mitch. NicaSalud's eight international non-governmental organizations (INGO) commenced work in 1999 in Mitch-affected areas. Local NGOs (LNGO) commenced work in 2000. Emergency-related activities ended during October 2001. INGO catchment areas tended to be bigger and have budgets about four times larger than LNGO (Valadez, Campos, & Vargas, 2005). Organizations working in the same municipality did not have overlapping catchment areas. Organizations worked as three regional subnetworks.

The eight INGO and six LNGO members of NicaSalud implemented diverse safe motherhood and child survival interventions. The final evaluation report assessing NicaSalud's work (Campos, Valadez, & Vargas, 2002) indicated considerable behavior change among the mothers in the communities in which NicaSalud worked. For example, in 1 year the proportion of mothers who delivered their babies with a trained clinician increased by 16 percentage points in LNGO catchment areas; the increase in INGO areas over 2 years was 18.5 percentage points. Post-partum visits increased 42 percentage points in 1 year in LNGO areas and 37 percentage points in 2 years for the INGO. In some instances, the LNGO started with much lower proportions than the INGO, making large increases possible.

Definitions

Community health interventions use at least four generic strategies to achieve client behavior change:

1. Mass communication, as in radio programs, fairs, movies or videos, and plays.
2. Investment in physical capital, as in the building of community health huts, equipping health workers with scales for use in growth monitoring, or traditional birth attendants with clean birth kits.
3. Investment in human capital, as in training different kinds of paramedical personnel (*parteras, brigadistas, promotores, etc.*) and having them or health professionals give health education talks to women in their communities during pregnancy and after birth, and/or carrying out house visits and/or community visits