

The contribution of distance education to health promotion in Chile

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Summary

The objective of this paper is to present the distance education's contribution to developing health promotion in Chile, through evaluation of a postgraduate certificate program for professionals, and a training course for nurse technicians working in primary healthcare, with an 8-month follow-up after program completion. The program methodology was participatory, interactive and reflective, with mentoring support, exercises, group work and discussions as well as content pertinent to the needs of practice. The evaluation was quali-quantitative with an analysis of the student profile, the implementation process, outcomes at the end of the training and impacts on workplace changes. The results showed a high rate of student approval (87 and 76%), good academic performance and a high level of satisfaction with the methodology and knowledge delivered. The participants' final projects were adapted to local work places realities and were implemented by 62.6% of technicians and 43% of professionals, in addition to changes in work practices that favor health promotion. The level of fulfillment of participants' expectations was very high and the most frequent barriers to implementing the final project were lack of time and personnel, along with minimal support from management and low prioritization of health promotion. This study shows the effectiveness of a distance training model for professionals and technicians that can reach the most remote parts of the country, where there is no access to presential training, with an educational program centered on work activities and current health challenges.

Key words: primary healthcare, health promotion programs, Chile, training, competencies

INTRODUCTION

The Pan American Health Organization (PAHO/WHO) has encouraged an initiative to revitalize primary healthcare (PHC) with a focus on equity (PAHO, 2007, 2010) and developing the competencies of healthcare personnel through the use of information and communication technologies (ICT) (Nebot *et al.*, 2009; PAHO, 2010).

The subject of health promotion training has had a significant progress during the last years, particularly into

academic fields and among the health services sector (Arroyo, 2009). The Galway Consensus Statement on domain of core competency in health promotion aimed to consolidate a core suite of skills, knowledge and abilities needed for effective health promotion practice and how best they can be achieved (Barry *et al.*, 2009).

There is an emerging literature on competencies required for health promotion practice in diverse social and cultural settings. Having qualified human resources

is essential to deliver quality health promotion actions, and this includes qualifications both from undergraduate and postgraduate studies, as well as technical and professional continuing education.

Models and programs from 14 countries of the Latin America Region have been documented and disseminated in a publication of Inter-American Consortium of Universities and Training Centers of Health Education and Health Promotion Personnel (CIUEPS), with the support of the International Union for Health Promotion and Education (UIPES) and Pan American Health Organization (PAHO/WHO). Among countries with an academic history in the subject is possible to mention México, Brazil, Cuba, Peru, Colombia, Puerto Rico and Chile (Arroyo, 2010).

In Chile, the Health Ministry (Ministerio de Salud, or MINSAL) has adopted the Comprehensive Health Care Model with a Family and Community Approach; one of its pillars is health promotion (MINSAL 2007, 2014). These change processes require new capacities that enable providers to respond to the current healthcare needs of the population. The socio-epidemiological reality of the country is characterized by an advanced post-transition with population aging, a predominance of cardiovascular diseases, cancer and mental health problems. This situation is aggravated by the lack of equity in healthcare (Vio et al., 2008).

Despite progress made by healthcare system reform and the national health promotion plan (Salinas et al., 1999, 2007), adaptation of PHC to this socio-epidemiological reality and formulation of government health promotion policies, there are still many issues to be addressed in the country.

In 2013, there were 54 652 primary healthcare workers in Chile, with an average density of 35.95 basic professionals (physicians, nurses and midwives) for every 10 000 inhabitants, while for Latin America as a whole, the average was 25 professionals for every 10 000 inhabitants, according to PAHO/WHO figures. The composition of this workforce for Chile was as follows: 32% high-level nurse technicians; 38% professionals (physicians, dentists, nurses, midwives, nutritionists, social workers, psychologists and others); 18% administrative assistants; and 12% service assistants (Brahm, 2014).

Primary healthcare centers serve 76% of the total population of the country through a national network made up of 2125 outpatient service establishments; 45% of these are family health centers (Centros de Salud Familiar, or CESFAM) and 55% are rural health clinics (Postas de Salud Rural, or PSR) (Gattini and Alvarez Leiva, 2011).

A strong primary healthcare center must have multidisciplinary health teams with the capacity to act in a comprehensive way in regard to health problems, develop

skills to interact with different community groups, and facilitate social participation processes and intersectoral action.

In this context, and considering how distance education has helped improve public service (Barrios et al., 2008; Umaña, 2013), the Institute of Nutrition and Food Technology (Instituto de Nutrición y Tecnología de los Alimentos, or INTA) at the University of Chile created the Continuing Education Program in Health Prevention and Promotion (Programa de Educación Permanente en Prevención y Promoción de Salud, or PROEPSA) to contribute developing the skills of PHC teams. The program's theoretical framework is built on a conception of continuous education centered on practice-based learning. The pedagogical approach is structured on the students' work activities, emphasizing interaction and reflection (Davini, 1995; Vasquez, 2007a, b; Medina Ferrer, 2013). Technical and pedagogical management of the program is based on a constructivist approach to education, which is understood as a social process of 'learning by doing' (Schön, 1987; Freire, 2004; Tremblay et al., 2014).

The conception of health promotion as a discipline for study and practice is considered a political and social process that encompasses not only actions aimed at bringing about change in individual behavior for a healthier lifestyle, but also actions designed to modify social and environmental conditions, in order to mitigate their impact on health.

PROEPSA supports a network of professionals and technicians distributed over a wide geographic area who exchange experiences and build practice-based knowledge with an integral approach to health promotion that emphasizes the social determinants of health (Jackson et al., 2013). It is worth noting that INTA has developed health promotion training programs since 2002 for a variety of recipients, with different durations and formats (Salinas and Vio, 2011a, b; Salinas et al., 2014). The postgraduate certificate program described in this paper is the 10th version, while the training course is the 2nd version.

The objective of this article is to present the evaluation of the distance education program for PHC workers; the program consists of a postgraduate certificate for professionals and a training course for high-level nurse technicians. Participants in both programs were located throughout the country and follow-up was conducted 8 months after completion. The expectation is that distance education will address the problem of unequal access to personnel training for people in remote parts of the country, strengthen healthcare teams by transforming their practice and contribute to improving PHC and local public policies from a health promotion and equity perspective.

METHODS

The study consisted of a quali-quantitative evaluation of a training program for PHC workers. It includes an analysis of the student profile, the implementation process, results after completion of the training and the impact perceived by graduates 8 months after the program ended.

The educational methodology promotes interaction through study groups and supports individual learning by each student at their own pace and according to their own interests. To achieve this, the students are offered ongoing mentoring by 7 professors and 12 professional instructors, all of whom have experience with PCH and health promotion.

Subjects

There were 162 professional participants in the certificate program whose average age was 36 years and with 10 years of work experience on average in primary health-care. In the group, 79% were women and 40% were from

rural districts. Social sciences and education professionals (social workers, psychologists and educators) made up 38% of participants, while 62% represented the biomedical area (nutritionists, midwives, nurses, physical therapists, dentists and others). Everyone who participated had a university degree representing at least 4 years of study (Table 1).

In the training course, there were 172 technicians whose average age was 37 years and with an average of 9.7 years of work experience. In the group, 89% were women and 46% were from rural districts (Table 1). High-level nurse technicians received on average 2 years of training and work in all PHC programs (family health, dental health, children's health, women's health, adult health, nutrition, social assistance, pharmacy and others). These are the healthcare workers who are typically the first to come into contact with patients and the community.

The technicians had significantly less experience with distance education than the professionals. For 85% of the technicians, this was their first experience with distance education, compared with 31% of the professionals (Table 1).

Table 1: Profile of participants and academic results

	Postgraduate certificate for professionals N: 162	Training course for technicians N: 172
Gender*		
Female	79%	89%
Male	21%	11%
Age (average in years)	36	37
Work experience in PHC (average in years)	10	9.7
Previous experience with distance education**		
With experience	69%	15%
No experience	31%	85%
District		
Urban	60%	54%
Rural	40%	46%
Passed	87%	76%
Final grade		
Average \pm SD	5.4 \pm 1.2	5.3 \pm 1.6
Range	1.2–6.9	3.0–7.0
Final project topic		
Diet-physical activity	67	51
Tobacco and alcohol	10	19
Mental and sexual health, others	23	30

Training program for PHC professionals and technicians in health promotion. Chile 2013.

SD, standard deviation.

* χ^2 test = 6.4749, $p < 0.011$.

** χ^2 test = 73.9451, $p < 0.000$.

Intervention

The certificate program included 268 h and was offered over 8 months, from 25 June 2012 to 1 April 2013, with 15 learning units and a final project (Figure 1).

The training course was 120 h long and was offered over 4 months, from 1 August to 30 November 2013, with six learning units and a final project (Figure 1).

The pedagogical model was one of networked learning with a collaborative, active and participatory methodology that promotes open exchange of ideas, reflection and group analysis to build knowledge. Figure 2 outlines its objectives, content and resources.

Evaluation

The evaluation process included:

- Evaluation of learning through individual and group exercises, participation in discussion groups, knowledge tests and preparation of a final project. These activities were graded on a scale from 1 to 7; the minimum passing score was 4.
- Evaluation of the program, through surveys at the beginning and end of the program and follow-up; the variables are presented in Table 2. In addition, the certificate program students completed a mid-term survey, given its longer duration. The course included a test of knowledge at the beginning and end. Program management included continuous monitoring of the activities and use of the Moodle platform, version 2.6.3.

POSTGRADUATE CERTIFICATE FOR HEALTH PROFESSIONALS (268 hours)	TRAINING PROGRAM FOR TECHNICIANS (120 hours)
Module I – Introduction (2 weeks) <i>Unit 1:</i> Understanding the Online Platform	Unit I – Introduction (2 weeks) Understanding the Online Platform
Module II – Political and Conceptual Foundations of Effective Intervention in Health Promotion (10 weeks) <i>Unit 1:</i> Background and foundational concepts of health promotion <i>Unit 2:</i> Primary health care and the family health approach <i>Unit 3:</i> Health and nutrition in Chile <i>Unit 4:</i> Settings, strategies and levels of intervention in health promotion <i>Unit 5:</i> Evidence and best practices in health promotion	Unit II – Public Health Policies and Social Determinants of Health (2 weeks) Health status and epidemiological transition in Chile; social determinants of health and public policies for health promotion
Module III – Intervention Strategies in Specific Health Issues and Population Groups (10 weeks) <i>Unit 1:</i> Nutrition intervention strategies <i>Unit 2:</i> Physical activity intervention strategies <i>Unit 3:</i> Tobacco and alcohol intervention strategies <i>Unit 4:</i> Childhood, youth and elderly intervention strategies <i>Unit 5:</i> Social determinants of health and local public policy	Unit III – Conceptual Foundations and Intervention Methodologies (2 weeks) Background and foundational concepts in health promotion; intervention methodologies and contexts; health promotion in Chile
Module IV – Health Promotion Program, Planning and Evaluation (8 weeks) <i>Unit 1:</i> Participatory needs assessment and program planning <i>Unit 2:</i> Health promotion evaluation <i>Unit 3:</i> Advocacy and knowledge translation <i>Unit 4:</i> Health promotion in primary health care	Unit IV – Lifestyles and Health Promotion Organizations (3 weeks) Healthy eating, physical activity, alcohol and tobacco consumption, psychosocial protective factors, intervention strategies
Module V – Final Project (3 weeks) Design of a health promotion intervention program based at students' workplace; program conclusion and closing activities	Unit V – Health Promotion Methodologies and Tools (3 weeks) Communication, education and advocacy; social participation and intersectoral action; community work
Students' performance Evaluation: Exams, Individual and Group Exercises, Discussion Groups and Final Project Educational Program Evaluation: Initial, Intermediate, Final and Follow-up Surveys	
Unit VI – Primary Health Care and Health Promotion (2 weeks) Service delivery model; spaces and opportunities for health promotion; local networks, team work and high-level nurse technicians' role; health program planning	Final Project (2 weeks) Preparation of a health promotion action proposal for the workplace; program conclusion activities

Fig. 1: PHC training program syllabus. Chile 2013.

Statistical analysis

A descriptive analysis was developed of the variables for all of the training subjects according to indicators of the profile, performance and evaluation of the students. The number of cases and proportions were used for general results, as well as the median, standard deviation, minimum and maximum when appropriate. The χ^2 test was calculated to compare groups, using STATA 10.1 for Windows.

RESULTS

Academic performance

Table 1 shows the pass rates, with higher values for professionals than technicians (87 and 76%, respectively), but these differences are not significant. The reasons for failure were poor performance or deferment. The average final grades were 5.4 and 5.3, respectively.

In both groups, the most common topics for the final projects were healthy eating and physical activity (67%

of professionals and 51% of technicians), followed by tobacco, alcohol, promotion of mental and sexual health and other specific areas, mainly in relation to children. In terms of methodological spaces, the technicians focused on educational work in their health centers while professionals valued work with educational establishments and at the community level in their districts.

Final survey

According to the results of the final survey at the end of the training, both groups positively evaluated the usefulness of the content and the educational methodology (referring to the academic activities, educational materials and interaction). This survey had a rate response of 92.9% in both cases. The teaching activities that consisted of individual exercises and group discussions and exercises were assessed as positive (close to 90%), as were all the educational materials (guides, classes, readings and others). The interaction receiving the highest marks was working

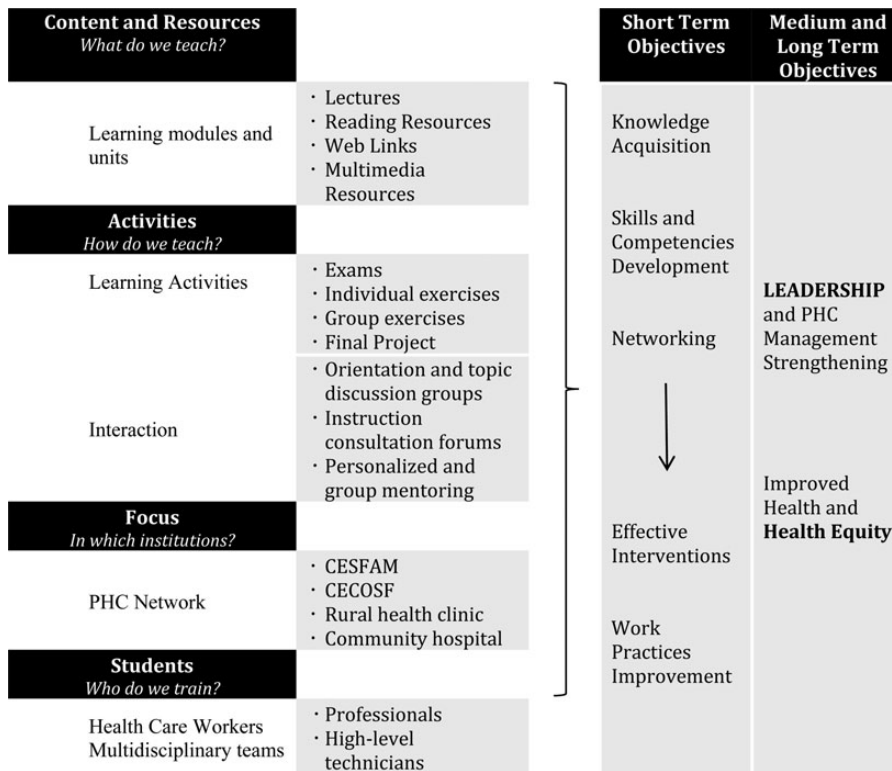


Fig. 2: Pedagogical model of training program for PHC professionals and technicians. Chile 2013.

with mentors (95%), followed by 90% who said they had positive interactions with professors and 78% with their peers.

As for fulfillment of objectives and expectations, knowledge acquisition and overall satisfaction with the program, 95% evaluated these positively.

Regarding the open-ended questions, in both groups, it was found that the main barrier to participation in teaching and learning processes was lack of time and lack of support from superiors. In fact, only 20% said they were given time to study during work hours.

Follow-up survey

The follow-up survey applied 8 months after the end of each training program (January and August 2014, respectively) had a high rate response, reaching 67% in both cases.

The contribution to improving health promotion in primary healthcare through implementation of interventions developed in the final project showed excellent results, with more than 50% of the projects later implemented in practice. This occurred to a greater extent among technicians than professionals (62.6 versus 43%

who said they had fully or partially implemented the final project).

The usefulness of the content, measured in terms of its applicability and increased reflexivity and self-efficacy in their work, was high for both groups. As shown in Figure 3, more than 80% of the participants said the training increased their ability to think critically about practice and their self-efficacy in their work; this was higher among technicians (96.4 and 98.4%). Meanwhile, the applicability of the content was valued significantly more by professionals than technicians (78.5 versus 46.9%).

Regarding changes in work practices, 30% of the professionals reported that training had some effect, such as being given new responsibilities, improved salaries or receiving a mark of merit. Referring to changes in their duties, the professionals said the following: according to 52%, the training stimulated their community work; 43% made some improvement to a program; 42% incorporated health promotion activities into their annual healthcare programs; 38% created new projects or pushed for new administrative measures; and 32% started processes to systematize or evaluate their health promotion experiences.

Table 2: Program evaluation variables and instruments

Variables	Start	End	Follow-up
Demographic information			
Age	x		
Gender	x		
Employment information			
Professional or technical training	x		
Place of work, type of PHC establishment	x		
Years of work experience	x		
Workplace region and district	x		
Previous experience in distance education	x		
Educational methodology			
Academic activities (discussions, individual and group exercises, tests, final project)		x	
Educational materials		x	
Interaction with mentors, professors and peers (quantity and contribution to learning)		x	
Barriers to participation in training program		x	
Assigned work hours for studying		x	
Fulfillment of objectives		x	
Fulfillment of expectations		x	x
Knowledge acquisition		x	x
Overall satisfaction with the training program		x	x
Usefulness of content			
Applicability		x	x
Reflexivity on work practices		x	x
Self-efficacy		x	x
Implementation of theoretical, methodological and practical content			x
Barriers to implementing content			x
Implementation of final project			x
Barriers to implementing final project			x
Changes in work practices			
Engaging in health promotion activities			x
Personal effects			x
Recommendation of the training program			x

Training program for PHC professionals and technicians in health promotion. Chile 2013.

The technicians identified important changes in their work practices: 57% said they now frequently offer informal education when working with patients; 53% provide advice on healthy living; 20% conduct group educational

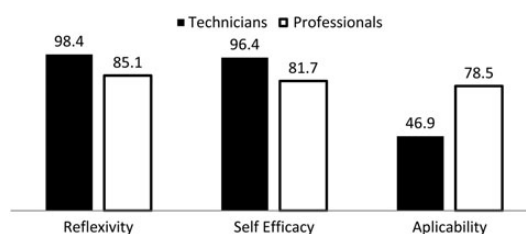


Fig. 3: Usefulness of training program content. Follow-up survey of PHC professionals and technicians (N Professionals: 108, N Technicians: 115). $*\chi^2$ test = 19.8455, $p < 0.000$ (comparison between professionals and technicians of applicability variable).

activities at the health center; 21% work in the community; 17% participate in design and planning educational or community health activities; and 8% participate in educational or community activities in other sectors.

Fulfillment of expectations remained high, similar to the survey at the end of the training, with figures over 90% for both groups. Finally, 98% of the technicians and 95% of the professionals would recommend the program to other people.

The most frequently cited barriers to implementing the program content and the final project in participants' workplaces were: lack of time and personnel, management with low levels of confidence in team capacities, low prioritization of health promotion, lack of financial resources and administrative red tapes.

DISCUSSION

The PHC training program was implemented with two groups of similar size (162 and 172 students, respectively) and similar characteristics in terms of age, years of work experience and regional distribution throughout the country. The participants were from all parts of the country, including rural, isolated and remote districts. Although the technicians had significantly less experience with distance education, they participated very actively in the educational process, and like the professionals, they performed well academically and reported similar effects on their work performance, strengthening their skills in health promotion (Suárez Conejero *et al.*, 2013). An advance orientation regarding the use of the platform and ICT provided by PROEPSA contributed to this result.

The program participants were workers with the greatest time of service, closeness to patients, community leadership and potential to constitute a critical mass that can make the changes needed to revitalize PHC through effective implementation of health promotion; this does not usually occur with physicians and management personnel.

The evaluation model provides a systematic vision of the teaching and learning process and the impact in terms of skills development and workplace practice, both when the training ended and with follow-up some time later.

The explosive development of distance teaching programs, its growing use and effectiveness in healthcare (D'Agostino *et al.*, 2014) has unfortunately not been subject to systematic evaluation or subsequent follow-up to measure its contribution to policy development and implementation of the changes it seeks to bring about. Very few public health evaluations have been reported, with an even smaller group relating to health promotion. Some worth mentioning are the evaluation of a distance learning program on environmental health in Cuba (Olite and Mercedes, 2004) and two mixed programs that combine online and in-person learning: PAHO's International Health Program (Auer and Guerrero, 2011) and the health promotion program in Mexico (Magaña *et al.*, 2010; Alcalde *et al.*, 2013). The Mexican program is the only health promotion training program that has been assessed, and it included: a master's degree in public health with a specialization in health promotion, a 160 h health promotion leadership certificate and short, 50 h courses for health promoters. The results were positive and demonstrated that healthcare personnel in states where training was provided acquired a comprehensive perspective of health promotion, which then translated into better management.

The academic results of the certificate and the course were similar, with average final grades of 5.4 and 5.3 and approval rates of 87 and 76%, respectively. The approval rate is higher than that reported by other authors (Sigulem *et al.*, 2001).

The positive evaluation of the pedagogical, interactive, participatory and practically applicable activities, consistent with the nature of health promotion, favored knowledge acquisition and practice improvement.

The most important results of the training program were observed in the follow-up evaluation of the usefulness and implementation of the theoretical content, methodologies and practices, as well as the high number of workers who implemented the final project. This is a commendable effort, since participation in the program is voluntary and does not have the formal support of supervisors, a situation that is similar to what is observed in medical training programs (Montero and Valdés, 2008).

The final projects were consistent with local realities and contributed to national priorities. The technicians developed a larger number of educational interventions, which may be influenced by the emphasis of the individual perspective of nurses on health promotion (Kemprainen

et al., 2013) and also by the greater recognition of their assistance work. Meanwhile, the professionals oriented their work largely toward the educational sector or local government, probably influenced by the fact that they had greater training in health promotion, the continuity in Chile of the healthy schools strategy (Salinas and Vio, 2011a, b) and the community work component contained in district health promotion plans since 1998 (Salinas *et al.*, 2007).

The notable increase in self-efficacy and reflexivity on their work practices in both groups is consistent with the conceptualization of the health promotion program with a social determinant of health approach applied to the local reality and with the incentive of working in teams and networks through the methodology used.

The greatest applicability of the content for the technicians may be influenced by the strengthening of their community leadership roles in small towns and carrying out educational work at their own health centers. Meanwhile, for the professionals, the challenge of intersectoral action implies greater time, political will and working with other sectors.

The barriers to implementing content and the final project are similar to those observed in previous studies and to what was reported in Mexico (Alcalde *et al.*, 2013; Ramos *et al.*, 2014). These barriers reflect inadequate understanding of health promotion by management, the low value given to team work and the lack of public policies that guarantee continuity of actions and improved health outcomes, from an equity perspective (Etienné, 2013).

This study demonstrates the contribution of distance education to development of health promotion and the effectiveness of an interactive training model with professionals and technicians, which is able to reach the most remote parts of the country where people do not have access to in-person training (Guri-Rosenblit, 2005). In addition, it confirms the positive effect at the local level of a methodology based on learning by doing, with a practice-centered approach (Vasquez, 2007a, b).

What is needed currently is an effective distance learning system, which should evolve from a concept centered on information delivery (information-centric) or the use of new communication technologies (technology-centric) (Vasquez, 2007a, b) to a practical learning system that assists but does not interfere with the work of PHC teams. It should address the needs related to everyday activities, with content that is pertinent and adequate in terms of quality and quantity. The development of health promotion requires integrated, interdisciplinary and reflective healthcare teams, capable of leading change in healthcare systems, which is what this ongoing, inclusive training initiative is designed to do.

Finally, it should be mentioned that the changes and social transformations that health promotion seeks to achieve go hand in hand with changes in educational paradigms and a new healthcare model with a biopsychosocial and equity-based approach.

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