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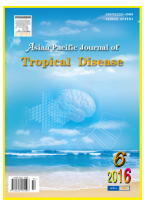

Infectious disease research doi: 10.1016/S2222-1808(16)61063-0

A study of the relationship between infectious diseases and health economics: some evidences from Nepal

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ARTICLE INFO

Article history:
Received 21 Mar 2016
Received in revised form 1 Apr, 2nd revised form 4 Apr 2016
Accepted 15 May 2016
Available online 16 Jun 2016

Keywords:
Health economics
Economic way of thinking
Infectious disease
Poverty
Measuring knowledge

ABSTRACT

Objective: To measure the effectiveness of short term trainings in improving knowledge of health economics and application of economic way of thinking in policy research.
Methods: The training focused to strengthen the capacity of public health practitioners to design and implement health policy and programmes especially for infectious diseases from health system and economic perspectives. We focused to measure the effects of gaining knowledge to understand the relationship between infectious diseases and poverty and to adopt a logical way of thinking to come up with a solution. This approach used in this paper to measure the "reflection" of the training is different from conventional way of evaluating training programmes. The effectiveness of the training was measured in three dimensions: (i) general understanding of economics from health policy perspective; (ii) application of economic analysis and appraisal tools and techniques; and (iii) economic way of thinking for issues related to disease control and poverty.
Results: There was a significant improvement in self-assessed knowledge after the training. Among seven knowledge related questions, in the pre-test, an average participant made 86% correct answers while in post-test, this figure increased to 100%. The results showed that there is a significant improvement in these three dimensions after the training intervention.
Conclusions: The paper concluded that endogenizing knowledge of economics and way of thinking have important implications for designing alternative policy and resource utilization.

1. Introduction

Allocating health resources in an efficient and effective manner is important for all societies but more so for low-income countries like Nepal where resources are scare and infectious disease are still a major public health problem. Advocating policy changes for increasing resource allocation to health sector requires convincing decision-makers that the additional resources will generate higher social benefits in health than in any other sectors of the economy. Knowledge of health economics (HE) and economic way of thinking (EWT) serve as inputs for improving allocative efficiency (doing right things) and technical efficiency (doing things right) to control or eliminate the diseases of poverty[1]. Poverty is a root cause of various infectious diseases and infectious diseases increase the prevalence and severity of poverty. Health outcomes of infectious diseases are also determined by poverty status. Therefore, it is essential to understand the complex dynamics between poverty and diseases, which creates the spiral of low income to disease to poor health and further decline in income[2]. Despite the fact that many of the diseases of the poor are preventable and treatable, a host of poverty related factors hinder its successful control and elimination. This paper is based on the assumption that endogenizing knowledge of HE and EWT can help better understanding of the complex relationships between infectious diseases and poverty[3].

An intensive training on a particular field such as management practices, health literacy, financial literacy, and HE among others improve knowledge base for applications in real life settings[4]. The importance of short term training is being emphasized, particularly because of its efficacy in changing attitude, skills and knowledge. The use of many facets of economic analysis and its tools can identify areas of waste and inefficiencies and map out options for better use of scarce resources. For Nepal, efficient and effective

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Foundation Project: Supported by UNICEF/UNDP/World Bank/WHO Special Program for Research and Training in Tropical Diseases (TDR), Geneva. Project No. HQTDR 1207756.
The journal implements double-blind peer review practiced by specially invited international editorial board members.

allocation of health resources can improve health outcomes even without additional resource mobilization[5]. In a 2009 publication, the Ministry of Health and Population and Government of Nepal, highlighted the importance of improving economic analysis for decision-making. Economic evaluation of policy alternatives can help determine the usefulness of the health policy decisions and the potential costs and effects of the interventions and policies. However, to be able to identify and evaluate policy alternatives, the decision-making process needs to apply health economic analysis of the priorities identified by the national health system and/or the political process. Trained human resources able to undertake HE studies are scarce in Nepal, unlike many other low income countries of the world. The Ministry of Health and Population of Nepal has become more aware of the needs for HE expertise in the country because of rapidly expanding health intervention options becoming available, increasing importance of the health sector to improve wellbeing of the households and increasing understanding of value for money of the health intervention[6]. Clearly, in a rapidly changing world of health care, where the need and demand for health care services and products are increasing at a much faster rate than the availability of resources, it has become important to train the existing cadre of policy analysts and decision-makers on health economic approaches and techniques. Although, educational institutions of higher learning can emphasize HE trainings, short term trainings will be required to address the knowledge gap in the short run. The question is, if short-term trainings are provided, is it going to improve HE knowledge and technical skills of health sector analysts and policy makers? This paper is an attempt to measure the effectiveness of short term trainings in improving knowledge of HE and application of EWT in policy research.

In general, successful completion of training programmes is considered usefulness. Some of the institutions providing or receiving trainings have conducted evaluation of the training sessions for internal purpose. They rarely publish the findings either because the results are considered too subjective or for not being rigorous enough to clearly identify and measure the effectiveness of the training programmes[7]. The objective of this paper is to assess the effectiveness of a short-term training in improving HE knowledge and adoption of EWT in policy analysis using pre- and post-training questionnaires. Although the acquisition of knowledge does not necessarily reflect the acquisition of "competencies", the evaluation of training can indicate if the experienced policy makers consider the knowledge acquisition as useful in future policy analyses.

2. Materials and methods

2.1. Participants and training programme

The training was organized by the Institute for Nepal Environment and Health System Development with the financial support from World Health Organization-training in tropical diseases, and in collaboration with Ministry of Health and Population and University of South Carolina, USA. The main objective of the training was to strengthen the capacity of public health practitioners to design and implement health policy and programmes especially for infectious diseases from health system and economic perspectives. The training was intended to contribute towards identifying disease interventions for breaking vicious cycle of disease and poverty.

The residential training was organized during the period of April 21–28, 2014 in Nagarkot, Nepal. The program was disseminated with an invitation for application to participate. Among the applications received, candidates were short listed for the training. While selecting the participants the training programme wanted to select individuals from diverse background to encourage cross fertilization of ideas and experiences. Majority of participants were from the academia and the Ministry of Health and Population. Some participants were selected from non-governmental organizations closely working with the Ministry of Health and Population related issues. A total of 30 participants attended the training. Table 1 shows the distribution of the participants by their institutional affiliation.

Table 1
Institutional affiliation of participants in the HE training, Nepal 2014.

Institutional affiliation	Number of participants
Academic institution	11
Non-governmental organization	7
Ministry of Health and Population	5
MPhil/PhD candidates	4
Researchers	3
Total	30

A training document or packet on HE research was the main material used during the training programme. It was consisted of multifaceted set of knowledge issues as listed in Table 2. All sessions were designed to be interactive and participants were encouraged to ask questions during lectures. The final product of the training was the development of a research proposal applying EWT and economic principles by each of the participants. The theoretical aspects of HE was delivered through formal lectures followed by discussions. During the sessions, participants were provided with the HE tools to address problems using economic analysis tools. Informal discussions with policy makers created the enabling environment to better understand the use of economic concepts and tools from the perspective of decision-makers and policy planners.

Table 2
Descriptive statistics (n = 28).

Descriptive statistics		Pre-test	Post-test
Self-assessment (n = 4)	Total score possible	5.00	5.00
	Maximum score	4.25	5.00
	Minimum score	2.00	3.00
	Mean score	3.30	3.93
	Median score	3.25	3.88
	Standard deviation	0.58	0.51
Knowledge questions (n = 7)	Total score possible (%)	100.00	100.00
	Maximum correct answers	85.71	100.00
	Minimum correct answers	0.00	42.86
	Mean correct answers	48.98	68.88
	Median correct answers	57.14	71.43
	Standard deviation	0.20	0.16
Way of thinking (n = 4)	Total score possible	5.00	5.00
	Maximum score	5.00	5.00
	Minimum score	2.25	3.50
	Mean score	3.84	4.52
	Median score	3.88	4.75
	Standard deviation	0.73	0.50