

# School Health Research in Low-Income Countries in East Asia and the Pacific

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Masamine Jimba,\*<sup>1</sup> Krishna C Poudel,\*<sup>1</sup> Kalpana Poudel-Tandukar,\*<sup>1</sup> Susumu Wakai\*<sup>1</sup>

## Abstract

Although the importance of school health has been emphasized in low-income countries, comparatively little information is available. Targeting nine World Bank defined low-income countries in East Asia and the Pacific, we found only 63 published articles pertaining to these countries in nearly four decades using the Medline database as a search tool. Parasite was the most common topic and the number of articles was rapidly increasing only in Vietnam during the period between 2000 and 2004. To encourage evidence-based school health practices, we suggest the importance of more scientific research in these countries.

**Key words** School health, Low-income countries, East Asia and the Pacific

## Introduction

Since the 1950s, the World Health Organization (WHO) has emphasized school health to show how it can contribute to improving the health of young people.<sup>1</sup> As a result, much progress was seen in industrialized countries during the 1970s and 80s.<sup>2</sup> However, the nutrition and health of school-age children received scant attention in developing countries until the early 1990s, although the percentage of school age children in developing countries greatly increased during this period due to successful immunization and control of diarrhoeal diseases.<sup>3,4</sup>

In the 1990s, different organizations have initiated more active school health programmes in many developing countries. In 1993, for example, the World Bank included school health as one component of its essen-

tial public health package for cost-effective health programmes.<sup>5</sup> Similarly, WHO regional offices for both Southeast Asia and the Western Pacific have committed themselves to reversing this trend and have published guidelines for school health actions.<sup>6,7</sup> Such commitment has stimulated member countries to initiate school health activities; however initiatives in low-income countries have tended to be slower to start and/or less effective due to poor school-related infrastructure and the absence of central education systems.

In low-income countries in East Asia and the Pacific region, school health is important as it is cost-effective, has a large target population, and also improves the effectiveness of education in general.<sup>4</sup> In addition, in Nepal, for example, as in several other countries in the region where the standard of living is similar, schools are also regarded as centres

\*1 Department of International Community Health, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan  
Correspondence to: Masamine Jimba MD, PhD, MPH, Department of International Community Health, Graduate School of Medicine, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan.  
Tel: 81-3-5841-3698, Fax: 81-3-5841-3422, E-mail: mjimba@m.u-tokyo.ac.jp

**Table 1** Number of articles containing keyword 'school' according to country

Articles	Cambodia	Laos/ Lao PDR	Mongolia	Myanmar/ Burma	North Korea	Papua New Guinea	Solomon Islands	Timor-Leste	Vietnam
School health <sup>a</sup>	8	3	2	9	0	22	4	0	17
Not school health <sup>b</sup>	1	3	4	1	0	5	1	0	5
Abroad-based <sup>c</sup>	16	5	0	0	0	1	1	0	45
Medical/Dental school <sup>d</sup>	5	1	2	2	1	9	1	0	7
Total	30	12	8	12	1	37	7	0	74

<sup>a</sup> Studies based in primary and/or secondary schools of study countries or targeting school children of these countries. One article was counted in Cambodia, Laos/Lao PDR and Vietnam therefore the total number of school health articles appears to be 65.

<sup>b</sup> Studies based in study countries not meeting criteria of school health articles (as mentioned in <sup>a</sup>)

<sup>c</sup> Studies including keyword 'school' and name of study countries but not based in study target-country.

<sup>d</sup> Studies including keyword 'school' and name of study countries but taking place in schools other than primary or secondary schools.

for overall development in rural settings so successful interventions there often serve as the most effective way to improve overall development.<sup>8</sup> Despite such importance, nationwide school health activities have been uncommon and innovative health promoting school activities have only just started in countries such as Laos, Cambodia and other low-income countries in the area.<sup>9</sup>

To ensure the effectiveness of school health activities in low-income countries, it is important to have a scientific foundation for practice. However, the majority of school health research has been carried out in high- and middle-income countries and school-health related review articles are rarely available for low-income countries. This situation makes it difficult for researchers and practitioners to make informed decisions when implementing school health programmes. This paper aims to establish a scientific foundation for school health in the low-income countries of East Asia and the Pacific by using Medline to review existing literature and extrapolate findings.

## Methods

On 3 February 2005, we searched for articles on school health-related topics in the low-income countries in East Asia and the Pacific region using Medline. In this report, low-

income countries are defined as the nine countries out of 24 in East Asia and the Pacific region identified by the World Bank in their 2005 World Development Report.<sup>10</sup> These countries have GNI per capita equal to or less than \$765. In South East Asia and the Pacific, these countries were Cambodia, Laos/Lao PDR, Mongolia, Myanmar/Burma, North Korea, Papua New Guinea, Solomon Islands, Timor-Leste, and Vietnam.

To identify relevant school health articles we focused on articles dealing with health in primary or secondary schools within the target countries. For school health articles in general, Medline has three medical subject heading (MeSH) categories: school health services, school dentistry, and school nursing. These MeSH categories, however, have limitations as other health issues outside those three categories may be automatically excluded. To avoid such a problem, we checked the entire database and did not just focus on those three MeSH.

We first searched for articles written in English using the keyword 'school' for the publication period between 1966 and 2004. Next, we searched for articles using the names of each low-income country in the two regions. Finally, we selected articles that included both of these key words.

For further analysis, we printed the titles and abstracts of all the articles we selected.

**Table 2 School health-related articles in lower-income countries of East Asia and Pacific region according to article type**

Article type	Cambodia	Laos/ Lao PDR	Mongolia	Myanmar/ Burma	Papua New Guinea	Solomon Islands	Vietnam
Journal <sup>a</sup>	7	3	2	8	20	4	16
Review	0	0	0	1	1	0	1
Clinical trial	1	0	0	0	1	0	0

<sup>a</sup> One journal article was counted in Cambodia, Laos/Lao PDR and Vietnam therefore the total number of journal articles appears to be 60.

During this process we excluded six duplicated articles (three substituted the key word Laos with Lao PDR, and the other three, Burma with Myanmar). Then, we assessed each of the remaining articles independently. Next, we sorted them into article types: journal, review, or clinical trial, according to their Medline classification. In addition, we grouped them into five categories based on their publication year; before 1985, 1985 to 1989, 1990 to 1994, 1995 to 1999, and 2000 to 2004. Finally, specific topics were identified either by reading the abstract or full text of each article.

## Results

We identified a total of 179 articles containing the key words 'school' and 'each country name' (Cambodia = 30, Laos/Lao PDR = 12, Mongolia = 8, Myanmar/Burma = 12, North Korea = 1, Papua New Guinea = 37, Solomon Islands = 7, Timor-Leste = 0, and Vietnam = 74) in Medline for the publication period 1966 to 2004. One article was counted in Cambodia, Laos/Lao PDR and Vietnam.

From the 179 articles, we excluded 116 as they did not provide information relevant to school health. Of these 116, 68 were based on other countries although they contained both key words (Table 1). The focus was the health of refugees from the study countries and their children studying in schools in developed countries, or the health of the American or Australian soldiers deployed in the study countries for a certain period and their school-aged children. Another 28

articles identified the word "school" but this related to medical, dental, nursing or other schools. For example, the keyword 'school' included in such articles was from 'University *School* of Medicine,' '*School* of Public Health,' or 'Liverpool *School* of Tropical Medicine.' Finally, 20 articles were not related to school health although they were conducted in the study countries and listed both the keywords 'school' and the name of the specific country. The keyword 'school' in this case was usually a defining reference such as, 'Mothers with some *school* education . . .' or '*Pre-school* children.'

After excluding these articles 63 articles remained relating to school health in the study countries: Cambodia = 8, Laos/Lao PDR = 3, Mongolia = 2, Myanmar/Burma = 9, North Korea = 0, Papua New Guinea = 22, Solomon Islands = 4, Timor-Leste = 0, and Vietnam = 17. One article was counted in Cambodia, Laos/Lao PDR and Vietnam.

### Article type

Almost all of the school health-related articles (92.1%; 58/63) were published as 'Journal articles' (Table 2). Only three were 'Review articles' (one from each of Myanmar/Burma, Papua New Guinea and Vietnam). However they were not specifically the reviews of school health. The topics of the review articles were: 'Drug abuse' (Myanmar/Burma), 'Iron and Infection' (Papua New Guinea) and 'Parasites' (Vietnam). The last two articles were 'Clinical trials.'

**Table 3 School health-related articles in lower-income countries of East Asia and Pacific region according to year of publication**

Publication year	Cambodia	Laos/ Lao PDR	Mongolia	Myanmar/ Burma	Papua New Guinea	Solomon Islands	Vietnam
Before 1985	0	0	0	2	9	1	1
1985–1989	0	0	0	2	4	0	0
1990–1994	0	0	0	1	4	1	0
1995–1999	4	0	1	2	4	2	1
2000–2004 <sup>a</sup>	4	3	1	2	1	0	15

<sup>a</sup> One article published in 2003 was counted in Cambodia, Laos/Lao PDR and Vietnam therefore the total number of articles during 2000–2004 appears to be 26.

**Table 4 School health-related articles in lower-income countries of East Asia and Pacific region according to topic**

Cambodia		Laos/Lao PDR		Mongolia		Myanmar/Burma		Papua New Guinea		Solomon Islands		Vietnam	
Topics	n	Topics	n	Topics	n	Topics	n	Topics	n	Topics	n	Topics	n
Parasite <sup>a</sup>	4	Infection	1	Blindness	1	Leprosy	3	Oral health	3	Drug resistance	1	Nutrition	4
Health programme	1	Nutrition	1	Side-effects of drugs	1	Drug abuse	2	Parasite	3	HBV	1	Asthma & Allergy	3
Nutrition	1	Parasite <sup>a</sup>	1			Parasite	2	Mental health	2	Nutrition & Malaria	1	Parasite <sup>a</sup>	2
Oral health	1					Hygiene	1	Alcohol	1	Parasite	1	Allergy, Nutrition & Parasite	1
Reproductive health	1					Nutrition	1	Contraception	1			Anemia	1
								Diabetes	1			Cholera immunization	1
								Eye problem	1			Drug resistance	1
								Genetic marker	1			Infection	1
								Health promotion	1			Injury	1
								Hearing defects	1			Oral health	1
								HIV/AIDS	1			Population education	1
								Iron & Infection	1				
								Lameness	1				
								Nutrition	1				
								School health service	1				
								Smoking	1				
								Value of children	1				

<sup>a</sup> One article on parasite was counted in Cambodia, Laos/Lao PDR and Vietnam.

### Publication year

We found the number of school health-related articles has been increasing gradually (Table 3). A total of 13 (20.6%) articles were published before 1985. Six articles (9.5%) were published during the period between 1985 and 1989, and between 1990 and 1994, respectively. The number then increased to 14 (22.2%) during the period between 1995 and 1999. It finally reached 24 (38.1%) during the last period between 2000 and 2004; Vietnam, however, is the only country where a rapid increase was seen during this period.

### School health article topics

As indicated in Table 4, the school health articles included a variety of topics. Parasite was the focus of 11 articles (17.5%), while 8 articles (12.7%) were about nutrition, and 5 (7.9%) were about oral health. Three articles from Myanmar/Burma focused on Leprosy while two others were on drug abuse. Two articles from Papua New Guinea focused on mental health. Asthma and allergy were the focus of three articles from Vietnam.

## Discussion

This study revealed there has been a paucity of school health research in the nine low-income countries of East Asia and the Pacific region in the past four decades. Although three review papers were published relating to school health activities, they were not specifically the reviews of school health as we showed in the results.

Although school health activities increased in the 1990s, they seemed to have only a minor effect on school health research in the target countries. Our results, therefore, may not necessarily reflect a lack of initiatives on the ground in these countries. For example, in our field research in Cambodia during June to August 2004, we found at least seven international NGOs were implementing school-based health education programmes.

In addition, the Department of School Health under the Ministry of Education, Youth, and Sports has implemented seven school health programmes including HIV/AIDS since the late 1990s (unpublished report, 2004). However, only 4 papers were published in the 2000s in Cambodia as shown in Table 3. It suggests that a huge gap exist between practice and research into school health in these countries although such a gap can be also common in other health activities.

Except for Vietnam, the increase in published school health articles remains similar in most of the targeted countries. We found only a small increase during the period between 1995 and 1999 in some of these countries considering the size of their public health problems. For example, the burden of infectious diseases in these countries remains high<sup>11</sup> and, as in Africa, there was an explosion of incidences of HIV in the 1990s. Cambodia and Myanmar recorded the estimated national HIV prevalence rate of 2.6% and 1.2% among adults at the end of 2003.<sup>12</sup> Despite that there has only one published report of school health initiatives for HIV in the four decades from Papua New Guinea. In contrast, school children were the target of HIV/AIDS education in African countries and reviews of a school-based approach for HIV/AIDS in Africa have been published.<sup>13,14</sup> Gallent and Maticka-Tyndale reviewed 11 articles of school-based HIV prevention programmes for African youth,<sup>13</sup> and Kaaya et al.<sup>14</sup> reviewed 47 articles reporting sexual behaviours of school-based young persons in Africa.

Our study has some limitations. First, our research was based only on the Medline database. Thus, school health-related papers that were not registered with Medline were excluded. Second, this paper may not reflect the school health activities in practice in these countries as we suggested in the example of Cambodia. Finally, some papers included in our search as 'school health-related paper' were written only for aca-

demic purposes and may have little impact on practice.

In conclusion, this study revealed that school health research is limited in the low-income countries of East Asia and the Pacific region. We also hinted at a gap existing between practice and research in this region. Such a gap may lead to non evidence-

based practices in the field and repetition of mistakes. To avoid such a waste of resources, more researchers and programme managers are recommended to share lessons learned by publishing their work. To support such research practice we attach all the papers we collected in this study in the Appendix.

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## Appendix:

### List of School Health Articles for Low-Income Countries in East Asia and the Pacific

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