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ORIGINAL RESEARCH

Two sides of a broken medal: Disease prevention and health promotion in schools of public health

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Abstract

Aim: Disease prevention and health promotion are closely related through the lifestyle concept and teaching modules on them should be a part of the postgraduate curriculum of every School of Public Health (SPH) in the European Region and beyond. We aimed to determine to which degree the European SPH offer modules on Disease Prevention and Health Promotion in their postgraduate programs, but also the delay in full implementation for the target year 2030 that has been set at 100% for all SPHs.

Methods: The Association of Schools of Public Health in the European Region (ASPHER) conducted two surveys on the activities of its members in 2011 and 2015/16. A group of 48 SPH responded in both surveys. Questions were related to the content offered by SPHs, the types of teaching methods that are in use and presentations of the modules at social networks.

Results: For both modules, the 2nd survey in 2015/16 shows slightly less positive results as compared to the 1st Survey in 2011 (72.9% vs. 77.1% and 81.3% v. 87.5%). The only exception is the use of social media which increased for disease prevention from 20.8% to 37.5% of all SPH and for health promotion from 22.9% to 39.6%. Referring to the set target of 100%, delays between 4 and 13.5 years accumulate for the target year 2030.

Conclusion: With the exception of the use of social media, progress towards 2030 is slow or even negative. Serious efforts have to be made by ASPHER to revert this process.

Keywords: *disease prevention, European region, health promotion, schools of public health.*

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Conflict of interest: None declared.

Introduction

Health promotion and disease prevention are closely related through the lifestyle concept and can be considered as two sides of the same medal. Whereas research in the field of prevention tries to analyze, detect and modify risk factors which may with a certain probability lead to disease, in the field of health promotion efforts are made to find out how to change risky lifestyles, at the individual as well as at the community level by identifying upstream system determinants as codified in the Ottawa Charter (1) and their impact on health defined in Health in All Policies (2). The Ottawa Charter recognized the need to reorient the health system towards health promotion and disease prevention with a focus on environments and policies that can make the healthy choice the easy choice (1). Recent global policy priorities of the United Nations have given further impetus to health promotion and to an increased focus on equity in prevention. The most prominent global policy includes Sustainable Development Goals 2030 with its focus on equity – ensuring that ‘no one is left behind’ (3).

Except for Ottawa Charter where the concept of health promotion is elaborated, WHO defined 10 main categories of Essential Public Health Operations (EPHOs), out of which "*Health promotion including action to address social determinants and health inequity and Disease prevention, including early detection of illness*" represent two core services delivery of EPHOs (4,5). Additionally, *Health Promotion, health protection and disease prevention* is one of the 6 main chapters of ASPHER's European List of Public Health Generic Core Competences for the Public Health Professional (6). In this regard, health promotion and disease prevention are an essential composite of any bachelor or master program in public health. All European Schools of Public Health (SPH) should offer

these two modules in their programs with a focus on modifiable risk factors.

There are two interrelated modern risk behaviors, the sedentary lifestyle and, usually associated, the intake of high caloric food and alcoholic beverages which both lead to overweight and elevated levels of blood pressure and cholesterol as well to diabetes mellitus, often accompanied by smoking as a key risk factor for lung cancer and cardiovascular diseases (7). On the other hand, physical inactivity and eating habits are the leading modifiable risk factors (8,9). The individual consequences in terms of reduced quality of life can be considerable (10) but also the socioeconomic costs constitute a heavy economic burden for the population (11). Thus, health is more than an individual concern.

A public health educational capacity in European countries significantly increased during the last decades and manifests itself in a growing membership (schools and university departments of public health) of the Association of Schools of Public Health in the European Region (ASPHER): during 2006–2016, from 69 to 112 institutional members situated all over Europe (12). There are numerous public health programs offered across Europe. The most frequent include bachelor and master's programs in comprehensive public health. Also, together with programs for specialization in public health for physicians and nurses, continuing education supporting the process of lifelong learning, they form a relevant background for shaping a generalist professional, accredited and authorized in comprehensive public health (12-14).

However, if we focus on the two priority fields of health promotion and disease prevention, the broader corresponding modular concepts on teaching and training can be described as a framework for two standard training modules (15):

Health Promotion. Scholars will be prepared to design, implement and evaluate health promotion programs at all levels from local to international. Health promotion is fundamental to public health and forms an integral part of all public health activities. Scholars will review the development of health promotion, studying key documents such as the Ottawa Charter, Jakarta Declaration and related international statements. Both the theoretical and practical aspects of health promotion will be examined, exploring different models of health and methods of achieving behaviour change on a population and individual basis. Detailed competency profiles have been published for disease prevention and health promotion by the ASPHER (6) and for Health Promotion by the International Union for Health Promotion and Education (IUHPE) (16).

Disease prevention. Scholars will be introduced to the basic principles, methods and application of screening in early detection and prevention of disease. They will be taught to calculate basic parameters of screening tests: sensitivity, specificity, positive and negative predictive values. Also, they will be introduced to take into account the ethical and economic aspects of screening, as well as the planning and organization of screening programs. Special attention will be paid to the assessment of the effectiveness of screening, such as randomized controlled trials, prospective cohort and case-control studies. Economic evaluation methods, such as cost-effectiveness-analysis, cost-utility-analysis, cost-benefit-analysis, and technology assessment tools are available (6).

Study objectives

In this paper, we attempt to analyze:

1. to which degree the European SPHs offer modules on Disease Prevention

and Health Promotion in their post-graduate master-programs;

2. the distribution of different types of teaching methods that are in use for modules on Disease Prevention and Health Promotion; and
3. the delays in the implementation of Disease Prevention and Health Promotion teaching modules.

Methods

Research design and study population

ASPHER conducted two methodologically equal studies on the activities of SPHs in the European Region between January 2015 and March 2016 (Survey II (17)) and in 2011 (Survey I (13)). Between two surveys, the membership of ASPHER increased from 80 to 96 members with approximately the same percentage participating, 66 (82.5%) in 2011 and 78 (81.3%) in 2015/16. However, this analysis focused on the 48 SPHs which responded in both surveys.

Data collection

The online questionnaire for Survey II was made available by ASPHER with a few modifications vs. the one used in Survey I. Questions were related to the content areas offered by SPHs, the types of teaching methods that are in use (% of hours approximately spent per method) and presentations of the offered modules at social networks.

Data analysis

The statistical analyses were done using the methods of descriptive and analytical statistics. In descriptive data analysis, absolute numbers and percentages were used. Graphs and tables were used to display data. To determine delays in the implementation of the respective teaching modules we used a gap

analysis according to the United Nations Development Program (18). The data analysis was done with TIBCO Software (19).

Results

The Comparison of the frequency of teaching modules on Disease Prevention and Health Promotion in the ASPHER surveys of 2011 and 2015/16 is shown in Table 1. The second

survey (2015/16) showed slightly less positive results as compared to the first survey (2011) regarding both programs (Table 1). While in 2015/16 there were 35 SPHs that tough Disease prevention, in 2011, 37 SPHs offered this module (Table 1 a). The same pattern has been observed regarding Health promotion module that was offered by 39 SPHs in 2015/16 vs. 42 SPHs in 2011 (Table 1 b).

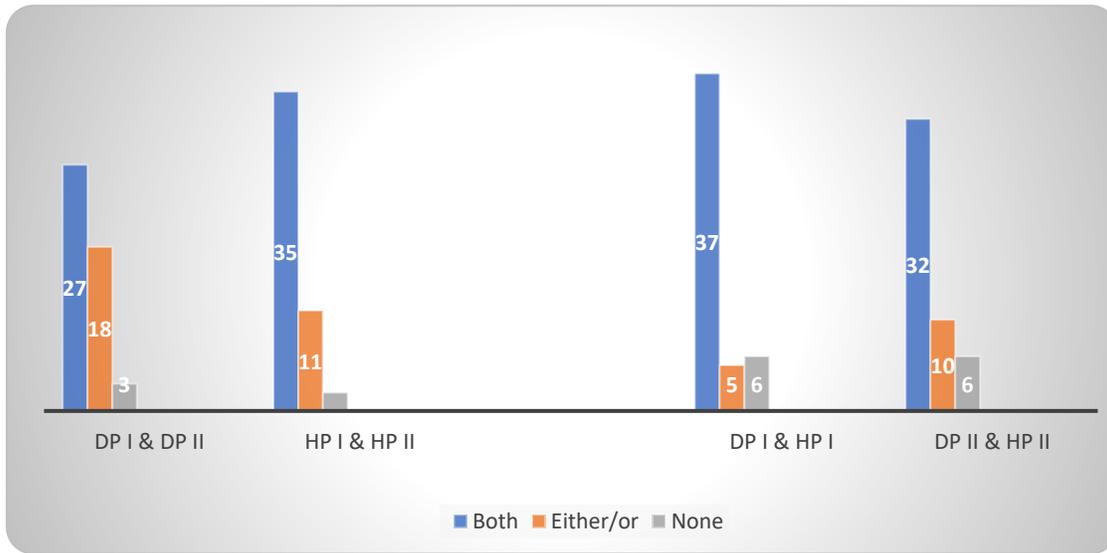
Table 1. Comparison of the frequency of modules on Disease Prevention and Health Promotion in the ASPHER surveys of 2011 and 2015/16

a. COMPARISON I: frequency in DP module in both surveys				
		Second survey 2015/16; Disease Prevention II		
		YES	NO	SUM
First survey 2011 Disease Prevention I	YES	27 (56.3)	10 (20.8)	37 (77.1)
	NO	8 (16.7)	3 (06.3)	11 (22.9)
	SUM	35 (72.9)	13 (27.1)	48 (100.0)
b. COMPARISON II: frequency in HP module in both surveys				
		Second survey 2015/16; Health Promotion II		
		YES	NO	SUM
First survey 2011 Health Promotion I	YES	35 (72.9)	7 (14.6)	42 (87.5)
	NO	4 (08.3)	2 (04.2)	6 (12.5)
	SUM	39 (81.3)	9 (18.8)	48 (100.0)
c. COMPARISON III: frequency of both modules in 2011 survey				
		First survey 2011; Health Promotion I		
		YES	NO	SUM
First survey 2011 Disease Prevention I	YES	37 (77.1)	0 (00.0)	37 (77.1)
	NO	5 (10.4)	6 (12.5)	11 (22.9)
	SUM	42 (87.5)	6 (12.5)	48 (100.0)
d. COMPARISON IV: frequency of both modules in 2015/16				
		Second survey 2015/16; Health Promotion II		
		YES	NO	SUM
Second survey 2015/16 Disease Prevention II	YES	32 (66.7)	3 (06.3)	35 (72.9)
	NO	7 (14.6)	6 (12.5)	13 (27.1)
	SUM	39 (81.3)	9 (18.8)	48 (100.0)

Frequency of modules for Disease Prevention and Health Promotion in Surveys I and II (N=48) is presented in Figure 1. Out of the 48 SPHs in this analysis, 11 SPHs in the first and 16 SPHs in the second survey did not indicate to teach both subjects (“Either/Or” plus

“None”). While disease prevention was taught by 27 SPHs in 2011 and 2015/16, health promotion was offered as a teaching program in 35 SPHs in both survey years (Figure 1).

Figure 1. Frequency of modules for Disease Prevention (DP) and Health Promotion (HP) in Surveys I and II (N=48)



- DP I & DP II = Disease Prevention in Survey I & II
- HP I & HP II = Health Promotion in Survey I & II
- DP I & HP I = Disease Prevention & Health Promotion in Survey I
- DP II & HP II = Disease Prevention & Health Promotion in Survey II

The proportion of methods in teaching and training for disease prevention and health promotion programs are shown in Table 2 and Figure 2. All methods of teaching and training were more prevalent for Health Promotion program than Disease prevention programs. However, when comparing survey I (2011) and survey II (2015/16) for both programs, significantly lower participation of all

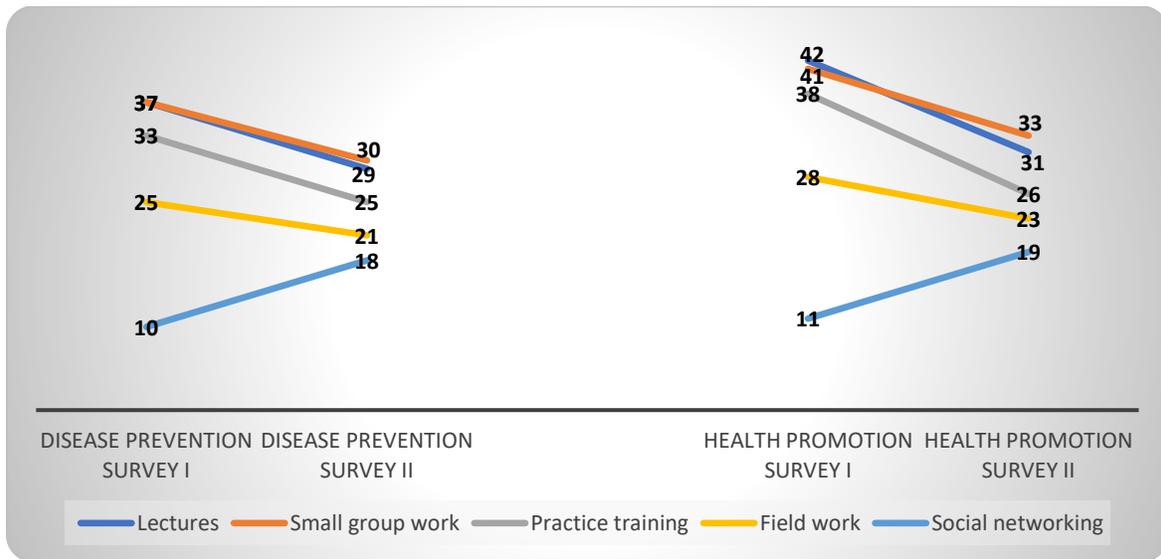
forms of teaching methods was observed in the latter year.

The exception is the presentations of programs at social networks which increased almost double for both programs (Disease Prevention: from 20.8% to 37.5%; Health Promotion: from 22.9% to 39.6%).

Table 2. Methods in teaching and training for disease prevention and health promotion

Teaching methods	DISEASE PREVENTION		HEALTH PROMOTION	
	Survey I	Survey II	Survey I	Survey II
Lectures	37 (77.1)	29 (60.4)	42 (87.5)	31 (64.6)
Small group work	37 (77.1)	30 (62.5)	41 (85.4)	33 (68.8)
Practice training	33 (68.8)	25 (52.1)	38 (79.2)	26 (54.2)
Fieldwork	25 (52.1)	21 (43.8)	28 (58.3)	23 (47.9)
Social networks	10 (20.8)	18 (37.5)	11 (22.9)	19 (39.6)

Figure 2. Methods in teaching and training for disease prevention and health promotion (N=48)



The results of the gap analysis for Disease Prevention and Health Promotion programs towards the target years 2020 and 2030 are shown in Table 3. The target set at 100% in 2030 requests all 48 SPH to offer both mod-

ules in 2030 the latest. This allows to determine the time gap, i.e. the time remaining to achieve the agreed target of 100% earlier or with delay, based on the progress made between 2011 and 2015/16.

Table 3. Gap analysis for Disease Prevention and Health Promotion of 48 SPH in the European Region towards the 100% target for the years 2020 and 2030

Target: 48 SPH offer programs on Disease Prevention and Health Promotion latest in 2020 resp. 2030	2011	2015/16	Time gap to the year 2020 target	Time gap to the year 2030 target
Disease Prevention	37	35	-5.6/-1.13	-7.5/-0.50
Health Promotion	42	39	-8.5/-1.70	-13.5/-0.90
Both programs together	37	32	-8.1/-1.62	-12.6/-0.84
Both programs either/or	42	42	-4.0/-0.80	- 4.0/-0.27
Social Networks in Prevention	10	18	-2.1/-0.42	0/0
Social Networks in Promotion	11	19	-2.1/-0.41	+0.1/+0.01

However, we found a considerable delay between 2.1 and 8.5 years for 2020 because of the negative trend between 2011 and 2015/16 - between 4 and 13.5 years accumulating for 2030. The same tendency we find for the training/teaching methods with regard to lecturers, small group work, practice training and fieldwork (data not shown in the table). The only exception of these trends is the use of social networks with a much smaller delay of only 2.1 years for 2020 and achievement in time for 2030.

Discussion

This study provided valuable information on to which degree the European SPHs offer modules on Disease Prevention and Health Promotion in their postgraduate programs including continuing education and to comparable analysis of the results from two surveys conducted in 2011 and 2015/16. However, the results are disappointing. There is a significant decline in the number of SPHs that

offer these modules. Also, the proportion of all teaching methods such as lectures, small group works and practical works for these two modules has been decreased.

Since noncommunicable diseases are substantially preventable and investment in the prevention of risk factors and health promotion could benefit the whole population, the central question is why the decline happened in 5-years period and why it is important to put disease prevention and health promotion in the focus of curricula for future PH professionals.

One of the possible explanations lies in the fact that there is not a clear distinction between disease prevention and health promotion. Although the core competencies for health promotion and disease prevention have been elaborated during the last decade and published in WHO European Action Plan for Strengthening Public Health Capacities and Services (4,5) and ASPHER's European

List of Public Health Generic Core Competences for the Public Health Professional (6), these two programs interrelate so it might be possible that students learn about both within one program.

A small number of SPHs that offer programs on health promotion and disease prevention might be a reflection of the lack of investment in the necessary health promotion and primary prevention systems at a global level which has been recognized by the International Union for Health Promotion and Education (IUHPE) (20).

Big community trials on health promotion and primary prevention have shown to effect upon non-communicable diseases at the population level (21). These successes should have been reflected in postgraduate education. As Werkhoven et al. stated, perceptions held or acquired during tertiary study can influence health promotion students' interactions with their future clientele and their long-term sustainability as health promotion practitioners (22).

Since current trends in the field of health promotion and disease prevention emphasize community-based programs employing multiple interventions as the main strategy for achieving population-level change in risk behaviors and health, the focus should be on a community- and population-based approach representing a shift in emphasis from individually focused explanations of health behavior to ones that encompass social and environmental influences (23, 24).

This paper focuses on postgraduate education including continuing education where the latter is especially important to close deficits in primary health care provision. Only a minority of primary health care physicians understands health promotion as an integral part of practice (25). Also, the European Union sees both subjects interlinked (26,27), but to transfer the community dimension into primary

health care may prove extremely difficult as Leppin et al. concluded from their study in Southeast Minnesota: Primary care and community-based programs exist in disconnected worlds (28). By transferring the community dimension to primary health care, most of the activity falls within the role of health professionals and health-care providers in primary care which could be an additional burden (29). A more optimistic analysis is presented by March et al. after review of 39 health-promoting community interventions concluding that nevertheless there is lack of evidence on many community interventions in primary health care (30). However, in Western countries, there are many primary care-based chronic diseases intervention studies that confirm positive effects (31,32) which encourage us to achieve the best possible effects on population health.

The systematic review of health promotion and disease prevention strategies in some curricula revealed that the inclusion of health promotion and disease prevention programs varied considerably, but was strongest in programs claiming social accountability and responding to medical education standards of the more influential regulators (33). This is a pattern that should be applied at the postgraduate level as well. Although the contribution of medical education to improvements in health care and the health of populations is difficult to measure, examples are demonstrating that investment in these programs brings benefits to the population. As such, North Karelia project is a classic example of a big community trail that has shown the feasibility of interventions at the community level and with a specific focus in preventing NCDs especially cardiovascular diseases (34). Similar programs were conducted the United States leading to a significant decrease in blood pressure levels and improvement in blood pressure management (32).

Since physical inactivity, unhealthy diet, and harmful use of alcohol are the common risk factors for NCDs such as hypertension, cardiovascular diseases, and cancers, with all these projects the focus has shifted from cardiovascular disease prevention to NCD prevention due to the similarity in risk factors.

The overwhelmingly disappointing results of our study concerning the expected progress in teaching and training identified in the European Region can be described as the two sides of a medal but unfortunately, the one with cracks. Not only the number of schools that offer these programs decrease but the proportion of teaching methods of the respective modules is unsatisfactory. However, the increase of social networks for program presentation is visible as a bright side of the unexpectedly discouraging results but still could be better. After finishing the first survey, the authors identified lack of modernity regarding continuing education (13,35) as a potential space for improvement. Since the use of social networks has been almost doubled for both modules, these results could be viewed as a shift from traditional to modern technological advances. Further, it represents a ground for the future use of social networks not only for the presentations of programs but for the full process of learning and teaching. With technology advancements, it seems that traditional ways of learning are likely to be replaced with blended or online learning.

It is important to highlight some limitations of the study. At the time of the second survey in 2015/6 ASPHER had 96 members out of which only 48 or 50.0% could be subjected to our analysis therefore results may be less representative. Also, the study design is limited by potential bias because the quality of answers to the questionnaire could not be controlled. In addition, the two surveys have been conducted five and ten years ago, respectively and may not provide an accurate

picture of ASPHER's institutional membership as of today in 2021. However, there is no indication that the picture changed considerably in the last five years. To stimulate improvement, it may be preferable to assume an estimated straight trend of development. Also, the two subjects may overlap to some degree in the practice of lecturing which could be the reason for a more favorable picture then analyzed here.

The projected progress towards achievement of the SDGs in 2030 as calculated on the basis of the years 2011 and 2016 seems to be too slow in many areas: in the delay of up to 13.5 years. Only for achieving targets for presentation at social networks for both programs, a significant delay is observed in all program areas. The long time passed since the collection of information in the field remains the main limitation for identification of the causal factors responsible for the slow progress during the period between the two surveys. A future study in 2021 focusing on the progress and innovations would be of a great interest.

In Survey II several proposals for improvement have been made (17) out of which the following may relate especially to teaching health promotion and to some degree also disease prevention and may partly be implemented since:

- 1) To correspond adequately to the comprehensive character of the key topics in public health it is certainly advisable to move towards a mix of modular transversal courses and schedule an increased number of hours for learning in small groups and/or extend field practice, especially in remote rural or disadvantaged urban areas. This move is expected to be accelerated by the Coronavirus pandemic in 2020.

2) To provide knowledge and experience in the cultural dimension of health and train intensively communication skills and how to interact with the general public.

3) To interact with the policymaking process at the local and national level in order to overcome resistance on the side of governments to implement health policies in collaboration with the researchers.

Conclusion

The study clearly indicates the significant decline in the number of SPHs that offer Disease Prevention and Health Promotion modules. The share of all teaching methods such as lectures, small group works and practical works for these two modules has been decreased except the use of social networks for

program presentation which is in accordance with technology advances nowadays.

Given the epidemic of non-communicable diseases, public health services are as relevant now as they have ever been. It implies that the need for a competent public health workforce has never been greater. Based on that, ASPHER, as the leading organization of the SPHs in the European Region, should continue to strengthen its leadership role further and provide more central guidance in the areas of modernizing and standardizing curricula (especially in the domain of disease prevention and health promotion) which will lead to the successful community health interventions and competent and devoted health professionals in the primary health care.

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