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# **The influence of a short training course on physical activity on prescription on self-reported practice in Vietnamese health care practitioners**

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## **Inverkan av en kort “fysisk aktivitet på recept”-kurs på självrapporterad verksamhet bland vietnamesiska sjukvårdsarbetare.**

*Bakgrund:* Fysisk aktivitet (FA) på recept (FaR) är en välstuderad metod i höginkomstländer, men det finns få studier gjorda i låg- och medelinkomstländer. Under 2010-2012 genomfördes ett projekt i Hanoi, Vietnam, där projektgruppen översatte boken “Fysisk aktivitet i sjukdomsprevention och sjukdomsbehandling” (FYSS) till vietnamesiska och även utbildade vietnamesisk hälso- och sjukvårdspersonal i hur man använder FYSS/FaR samt nyttan med FA. *Syfte:* Målen med denna studie var att utvärdera hälsoarbetarnas självrapporterade dagliga verksamhet med avseende på användning, förändringar i patienternas FA-vanor, barriärer och nödvändiga förbättringar efter en kort FaR-kurs. *Material och metod:* Kurserna utvärderades genom ett frågeformulär för självrapportering, vilket delades ut till 123 kursdeltagare. Deskriptiv statistik användes för att analysera data. *Resultat:* Fyra av fem deltagare ansåg att förskrivning av FA kan hjälpa minst hälften av deras patienter. En av fyra angav att de rekommenderade FA oftare efter kursen. Tre av fyra deltagare ansåg att deras patienter var mer fysiskt aktiva efter att ha givits rekommendation om FA. Den mest rapporterade upplevda svårigheten vid användning av FaR var brist på kunskap och den viktigaste förbättringen de önskade se var mer utbildning. *Slutsats:* Resultaten tyder på att kursdeltagarna är villiga att använda FaR och att de ser dess användbarhet, men att mer utbildning behövs. För att undersöka direkta effekter på patienterna krävs fler studier då denna studie endast mätte deltagarnas självrapporterade förändring.

## **The influence of a short training course on physical activity on prescription on self-reported practice in Vietnamese health care practitioners”**

*Background:* Physical activity (PA) on prescription (PAP) is well studied in high-income countries, but there are few studies from low- and middle-income countries. During 2010-2012, a project in Hanoi, Vietnam was conducted, where the Swedish project group had the book “Physical activity in the prevention and treatment of disease” (PAPTD) translated into Vietnamese. The group also educated Vietnamese health care practitioners in how to use PAPTD/PAP and the benefits with PA. *Aims:* To evaluate reported usage of PAP and perceived change in patients' PA habits, as well as perceived barriers and necessary improvements to enhance the use of PAP after a short training course on PAP. *Material and methods:* The courses were evaluated using a self-report questionnaire, completed by 123 course participants. Data were analysed using descriptive analyses. *Results:* Four out of five participants perceived that receiving PAP could help at least half of their patients. One out of four reported they recommended PA more often after the course. Three quarters of participants reported an increase in their patients' PA levels after receiving PAP. Participants identified lack of knowledge as the greatest barrier to using PAP, with more education identified as the most important improvement. *Conclusion:* The results indicate that the participants are willing to use the method of PAP and that they see possible usefulness; however, more education is needed. In order to examine direct effects among the patients, other studies are required since this study only measured the participants' self reported change.

Key words: Exercise, prescriptions, Vietnam, primary prevention, physicians

## **Introduction**

Training courses and other types of educational meetings (*e.g.* conferences, lectures, and workshops) are commonly used within many professions to enhance the knowledge and skill level of staff. The degree to which educational activities influence practice is often not assessed. In the medical field, the ability to influence patients' behaviour depends on many factors including knowledge and skills. In the light of global changes in life-style related diseases, health care practitioners in previously poor countries need training on *e.g.* physical activity on prescription to be able to address a new disease patterns.

### **Non-communicable diseases are becoming more common in the world**

Non-communicable diseases (NCDs) are conditions not passed from one person to another and are non-infectious (1). The most prevalent NCDs include cardiovascular conditions, chronic respiratory diseases, diabetes and some cancers. The incidence of NCDs is rapidly increasing and NCDs are now the reason behind 63% of all deaths in the world (2). In 2030, NCDs are estimated to cause 75% of all deaths (3). A majority of deaths due to NCDs occur at an early age, especially in low- and middle-income countries (1). Currently, approximately 80% of deaths caused by NCDs affect people in low- and middle-income countries (4). The WHO has estimated that the global mortality in NCDs will increase by 15% from 2010 to 2020 (2). One of the regions believed to be the most affected by the increase is South-East Asia, with mortality rates in this area estimated to increase by 20% by the year 2020 (2). It has been estimated that the mortality for the population aged below 70 years old, in 23 high-burden countries including Vietnam, would increase from 10.8 million people in 2010 to 15.4 million in 2015 (4).

### **Physical inactivity is a common reason to mortality and NCDs**

Physical inactivity is one of four major risk factors for non-communicable diseases (NCDs) (5). Physical inactivity was identified by the world health organization (WHO) in 2009 to be the fourth leading underlying risk factor of mortality in the world, just after high blood pressure, tobacco use, and high blood glucose levels (6). This association between physical inactivity and mortality is also very strong in low- and middle-income countries (6). Worldwide, physical inactivity attributed to the cause of 22% of ischemic heart disease, 16% of colon cancers, 14% of type II diabetes, 11% of ischemic stroke and 10% of breast cancers (7). Through successful promotion for increased physical activity, at least two million

premature deaths worldwide could be prevented (7). Increasing physical activity and preventing obesity in the population is now considered as essential as decreasing tobacco use for minimising the worldwide incidence of NCDs (8). Globally 31% of adults are physically inactive (9).

### **Global physical activity recommendations**

In 2010, the WHO released the hallmark publication “Global Recommendations on Physical Activity for Health”, which provides recommendations on sufficient level of physical activity (10). Engaging in sufficient levels of physical activity was identified as a key component in decreasing a person’s risk of developing NCDs. The WHO defined sufficient physical activity according to three different age groups: children, adults  $\leq 64$  years old and adults  $\geq 65$  years old. “1. Adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity. 2. Aerobic activity should be performed in bouts of at least 10 minutes duration” (10). These are global recommendations and are meant to help policy makers in each country to set a strategy for physical activity promotion by giving them a knowledge base, useful when trying to decrease NCDs.

### **Physical activity on prescription in prevention and treatment of disease**

Physical activity on prescription (PAP) is a method to address NCDs (11). A recent Swedish study shows that in a structured PAP-program adherence is between 50 and 65%, comparable to the adherence levels seen in prescription drug studies (12). When a patient receives a PA prescription there is an individualised recommendation of how frequently the patient should exercise, with what intensity, duration and kind of exercise to practice. Studies have shown a higher level of physical activity among patients receiving PAP from their physician or other health care providers compared to controls (13, 14). Globally, there is a large variation in the proportion of general practitioners that recommend or prescribe physical activity to their patients. A self-report questionnaire study conducted in San Francisco, found that 43% of physicians reported recommending PA to more than half of their patients, whereas only 14% reported that they prescribe PAP to their patients (15). An observational study in Kansas, found that 20% of the physicians counselled their patients regarding physical activity (16). A similar study conducted in eleven European countries, including 2082 physicians, showed that

more than half of all physicians recommended physical activity to their physically inactive patients (17).

## **Health economics**

Few studies have performed cost effectiveness analyses to assess the economic impact of introducing a programme like PAP. For example a cost analysis performed by a research group in Denmark estimated savings of 28 000-29 000 Danish kronor (DKK) in disease management costs and 70 000 DKK in production loss for the remainder of a person's lifetime, if a 30-year-old physically inactive person began engaging in low intensity exercise for four hours per week (18). In a Swedish study, the research group investigated the increased costs when introducing PAP, and found that the health care providers' part was a minor part of the total cost for the programme, whereas the participating patients' increased costs were the major part of the total cost (19). Results from a study performed in the USA, showed that if all sedentary people in the USA were to begin a walking programme, the country could save \$6.4 billion per year due to reduced risk of heart disease (20). In poor countries, medical bills for treatment and care of NCDs take up a large proportion of the households' total budget. For example, in India the estimated total cost for treatment of a family member with diabetes is 15-25% of the households' total income (21). When someone develops a chronic disease in developing countries, it also impacts significantly on the person's family. For instance, children are often taken out of school to care for the sick family member or alternatively the women stay at home to take care of the sick family member (22). This redistribution of the families' resources is not specific for NCDs but has a bigger impact than during acute illness due to the chronic and long-term nature of the illness (22).

## **The situation in Vietnam and other low- and middle-income countries**

NCDs are not only a burden for high-income countries; the impact on low- and middle-income countries is also an issue (23). Middle-aged adults in low- and middle-income countries are more likely to be afflicted by NCDs. They often develop disease earlier in life and tend to both suffer for a longer time and die earlier than the middle-aged adults in high-income countries (24). This also affects the countries' economic situation. The WHO has calculated that between 2005 and 2015, China would lose \$558 billion in potential income due to premature deaths caused by stroke, heart disease and diabetes (24). Despite an understanding of the increasing impact NCDs have on low- and middle-income countries'

development, there is an absence of studies regarding NCDs and physical activity in many countries of low- and middle-income.

In South-East Asia, including Vietnam, and the Western Pacific, the level of physical inactivity is between 17% and 34% (9). In an article published 2007, the prevalence of overweight and obesity in Ho Chi Minh City, one of Vietnam's biggest cities, were reported as 26% and 6% respectively (25). Another study reported that only 56% of adults aged 25-64 years in Ho Chi Minh City performed exercise to a level that was comparable with the WHO's definition of sufficient levels of physical activity (26). Currently, Vietnam has implemented an active plan to address the increasing problem of NCDs. Furthermore, there is no policy in Vietnam addressing physical activity as a risk factor for NCDs (4).

Vietnam is a country of rapid economic development (27, 28). In the last 25 years it has developed from being one of the poorest countries in the world to become a lower middle-income country (27). Between 1993 and 2008, poverty has decreased from 58% to 14.5% (27). It is well known that today almost everyone in Hanoi rides a motorbike or goes by car, in contrast to 15 years ago when almost everyone was riding a bicycle.

Per 10 000 inhabitants, Vietnam has less than one third the number of physicians than Sweden (29). In Hanoi the physicians in the hospitals can have about 100 patients to take care of every morning until noon (MD H. Tran Thanh, 24 September 2012, personal information). It may follow that a reduction in NCDs would result in fewer patients, and therefore allow these physicians more time per patient.

## **Effect and assessment of training courses**

A Cochrane review shows that training courses can affect practitioner's practice and also health care outcomes for the patients (30). However, the observed improvements reported in this Cochrane review, were most likely to be small and only as effective as other types of continuing medical education (30). The Kirkpatrick model is a four-level assessment model commonly used for evaluating the effect of training courses (31). The first level is "Reaction" which measures how the participants reacted to the course and their experiences of the course. "Learning" is the second level of measurement, which evaluates any increase in participant's knowledge, skills, and any change in their attitudes. The third level, "Behavioural changes",

measures if the course has led to any behavioural changes in participants. The final level is “Result”, where the final outcomes from an educational intervention can be assessed (31). This method is applicable on many different courses, e.g. courses on physical activity. In this study, self-reported behavioural changes were investigated after a short course on PAP and the benefits of physical activity.

### **An educational project to enhance physical activity in Vietnam**

During 2010-2012 a project group from Karolinska Institutet (KI), in cooperation with Hanoi Medical University (HMU), educated health care providers from Vietnam about the benefits of physical activity and how to prescribe PAP (32). The project group have also had the Swedish book “Physical activity in the prevention and treatment of disease” (PAPTD) translated into Vietnamese. There have been nine training courses; two of them were held in Stockholm, Sweden, five were held in Hanoi, Vietnam and two in Phu Tho, Vietnam. Compared to the courses conducted in Vietnam, the courses in Sweden were more extensive and included some social and health economic aspects of physical activity. There are no guidelines for physical activity recommendations in Vietnam and the group from HMU, who initiated the project, felt that knowledge about physical activity was poor among both administrative and clinically working health care staff. In Vietnam, formal physical activity prescription has not existed before, although individualized written and oral recommendations do occur. This can in a broad sense be regarded as physical activity on prescription (PAP). The teaching project is now about to end and needs to be evaluated to conclude if the training courses have resulted in any measurable effects regarding implementation of the knowledge from the course.

To make PAP and physical activity recommendations a natural part of the health care providers’ daily work, it is of importance to evaluate the training courses and make improvements before arranging new courses or taking other measures. The health care system is quite different in Vietnam compared to Sweden, and the physicians and nurses might encounter different kinds of barriers and difficulties in their daily practice than the Swedish physicians and nurses do in theirs. The information we have from studies from Sweden and other Western countries regarding the implementation might not be applicable to Vietnam with regard to barriers for implementation. It is therefore important to identify the possible barriers for the health care providers in Vietnam. Such information will assist in the

development of strategies to overcome barriers and enhance usage of PAP and physical activity recommendations in Vietnam, which in turn could lead to an increase in patients' PA level.

## **Aims**

The main aim was to study self-reported daily practice and perceived barriers after a short training course on PAP for health care practitioners in Vietnam. Further aims were to investigate if the health care providers reported any difference among their patients regarding the patients' physical activity.

The specific research questions were:

1. Do the course participants report a change in the number of physical activity recommendations they provide to patients after the course than they did before?
2. What percentages of their patients do the course participants think can be helped to a better health using PAP?
3. What demographic categories of patients (regarding age, sex and education) do the course participants think are most receptive to PAP?
4. Have the course participants noticed any change after the course regarding how physically active their patients are?
5. How difficult was it to apply the PAP method in daily practice after the course?
6. Which difficulties did the course participants encounter when trying to use PAP and what could be improved to increase the usage of PAP, measured by ranking multiple alternatives?

The research questions were studied from the perspective of the different age groups of the participants.

## **Materials and methods**

### **Study design**

The study design was cross-sectional in a cohort having undergone a course 6-14 months prior to the study. No control group was used. The collected data were semi-quantitative. The data was collected using a self-report, pen-and-paper questionnaire.

## Participants

The study population was the health care practitioners that participated in the training courses on PAP in Sweden and Vietnam during 2011-2012. The population consisted of two groups; one group consisted of “training of trainers” (TOT) that attended the courses in Sweden, and the other group (non-TOT) was the participants from the courses in Vietnam. The TOT group consisted of 12 participants and the non-TOT group consisted of 161 persons. All courses were held in English, but the courses in Vietnam were translated into Vietnamese with the help from some of the TOTs. The participants who were chosen for the courses in Sweden were persons in key positions and with more knowledge about physical activity. The participants in both groups were working in Hanoi or in the Phu Tho province, Vietnam. Some participants lived in other provinces and they were categorized as “other” in the compilation. Participants had different occupations, work tasks and education; eight of the participants from Hanoi were students at Hanoi Medical University. Since the questionnaire addressed the participants that are able to use the method of PAP in their daily practice, the students were excluded. This means the participants in the non-TOT group were 153 in total.

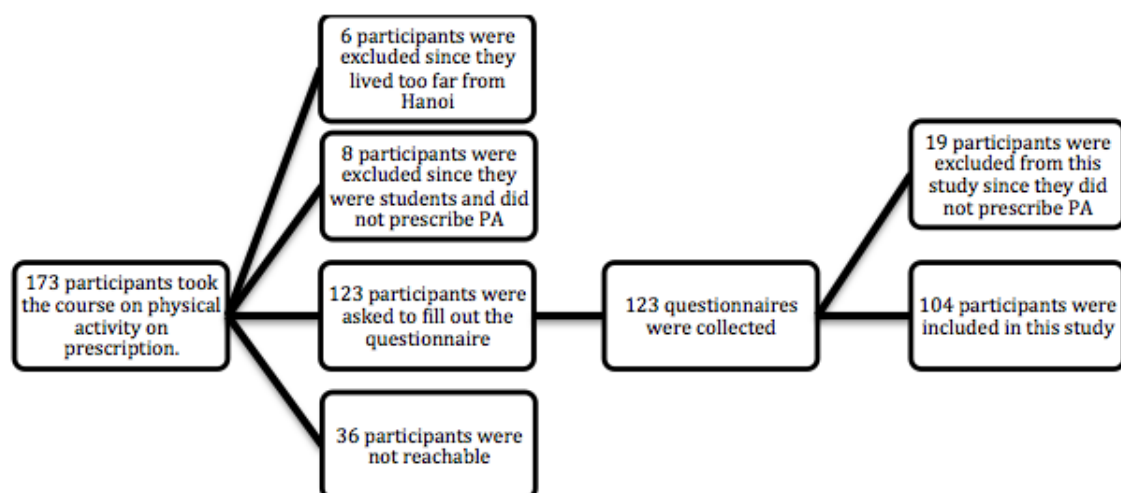
In order to be able to conduct an appropriate chi<sup>2</sup> analysis, the small occupational groups of the participants were grouped into fewer groups. The first group consisted of physicians and an occupation that in the Vietnamese terminology is termed physicians with two years of education (physician Toan Khac Nguyen, February 13 2013, personal information), the second group consisted of nurses, the third group consisted of medical collaborators and volunteers, and the fourth group consisted of lecturers and other occupations. Physicians with two years of education had been trained as a local source of personnel supply for remote areas of the country, or for national urgent situations such as war or disasters. These physicians are employed at medical stations and can continue to study to get the degree of physician (physician Toan Khac Nguyen, February 13 2013, personal information).

In order to obtain relevant answers on the research questions, the participants were divided into prescribers and non-prescribers. This division was made with the following criteria for the prescribers: the participants answered that they were physicians, nurses or medical collaborators/volunteers, the participants answered “Independent handling of patients”, “assisting other professionals” or “Prescribing physical activity” on the questionnaire question regarding their work task, and the participants did not answer that they do not handle patients

or do not prescribe PA as a written answer on question number 15 (What difficulties have you encountered that has prevented you from using the physical activity on prescription-method) or 16 (What would need to be improved to enhance the use of the method). There were 18 participants who wrote their own answers to those questions where the possibility was given. Some of the answers were used to identify non-prescribers. The written answers can be seen in Appendix 3.

## Non-response analysis

A total of 173 participants completed the courses on PAP. Six participants were excluded from this study since they lived too far from Hanoi to be reached. A further 36 participants were not reachable since they were on maternity leave, had changed workplace or were on a business trip (see Fig. 1). Nineteen participants were excluded from the statistical analysis since they do not have the opportunity to prescribe PA to patients, some of them had for example only administrative work at their clinic or institution.



**Fig 1. CONSORT-diagram of the selection process of the participants.**

## Questionnaire

Eight questions were developed for the study (see Appendix 1), without any previous models from studies within the area of physical activity. These were sent to three experts within statistics and pedagogy who offered their comments for improvements. The questionnaire was then translated into Vietnamese (see Appendix 2). There was no back- translation.

Demographic data on age, sex, profession, and province, but also other background questions were collected. The questionnaire included six Likert scale questions: “Before you participated in the training course on physical activity on prescription, how frequently did you

recommend physical activity to your patients?”, “How frequently do you now recommend patients to increase their physical activity, using the tools you have learned during the PAP-course?” (both questions had the alternatives 0 times/month, 1-2 times/month, 1-2 times/week, 3-4 times/week,  $\geq 5$  times/week), “How large proportions of your patients do you now recommend/prescribe physical activity (based on the answer in question 10 a)?”, “What percentage of your patients do you think could be helped to a better health, using the PAP-method?” (both questions had the alternatives 0%, 25%, 50%, 75%, 100%), “Which categories of the following do you find to be the most receptive of the PAP-method?” (Age (years): 0-18, 19-30, 31-60,  $>60$ , do not know, Gender: women, men, do not know, Length of education: 1 year or less, more than 1 year, less than 2 years, 2-3 years, More than 3 years, do not know), “My patients are more physically active after the PAP that I have given them.” (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, have not given any physical activity on prescription) and “How has it been to apply the PAP-method in your daily practice?” (very hard, hard, neither hard nor easy, easy, very easy, have not used the method).

The questionnaire also included the following multiple-choice questions, which had a possibility for an open-ended response: “What difficulties have you encountered that has prevented you from using the PAP-method?” (lack of time, lack of knowledge, lack of confidence, lack of routines at the clinic, cost, low priority at the clinic, hard to use in daily practice, poor availability to the knowledge bank (PAPTD), I rather use another knowledge bank, no difficulties were encountered, other, namely) and “What would need to be improved to enhance the use of the method?” (more time, more funding, more education, more recognition/incitement from the management, better availability to prescription forms, better availability to instruments, such as pedometers etc, better capacity for follow-ups, nothing needs to be improved, other, namely). The participants were asked to mark a maximum of 3 choices and rank them from most important to third most important. The questionnaire also included information about the study and contact details of the researchers that participants could use if they had any questions after the participation.

### **Data collection/questionnaire administration**

The researchers, two medical students from Karolinska Institutet, distributed the questionnaires to the course participants together with three medical students from Hanoi medical university. The Vietnamese medical students helped to interpret, between the

researchers and the participants, when meeting the participants. The researchers or the medical students contacted some participants prior to the questionnaire administration, in order to set up a date and a time, but due to a lack of contact information, some participants were approached at their work place without any prior contact. Upon receiving the questionnaire, participants were verbally informed that the questionnaire was anonymous and participation was entirely voluntary. The participants filled out the questionnaires while we were waiting or they received the questionnaire to fill out when they were free from work and then handed it back to us. The time for handing out and collecting each questionnaire therefore differed from 20 minutes to one week. To ensure anonymity of participants' questionnaires, participants returned their completed questionnaire to the researchers in a sealed envelope. When the participants had handed in the questionnaire they received 3 USD as compensation for filling out the questionnaire. A translator in Vietnam translated the written answers back into English after all questionnaires were collected.

### **Statistical analysis**

The data collected from the questionnaires were coded and entered into a Microsoft Excel spreadsheet. IBM SPSS Statistics 21 was then used to categorize study variables and calculate descriptive statistics. Due to small cell sizes, the variables relating to occupation were grouped into fewer groups to ensure the appropriateness of conducting a chi<sup>2</sup> analysis. The results from the statistical analyses were considered significant if  $p < 0.05$ . The p-value for the first research question, regarding reported change in PA recommendations, was calculated with McNemar-Bowker test. The p-values for the rest of the research questions were calculated with Pearson chi-square tests.

### **Ethical considerations**

Collection of data might violate the participants' anonymity and integrity. This violation could for example lead to dismissal or harmed work relations. To avoid a violation of anonymity, the questionnaires did not include any personal questions such as name and address. When the participants had filled out the questionnaire, they put it in an anonymous envelope that was coded with a number. The participants were informed that the questionnaire was voluntary and they also had the opportunity to ask questions regarding the study and the questionnaire, both at site and afterwards to our e-mail addresses.

There could be a risk of injuries for the patients when they are exercising after the PAP the patients were prescribed. This could indirectly affect this study since the participants might be cautious with physical activity recommendations. The evidence of the benefits of physical activity is convincing, however, which gives reason to believe that the benefits will be greater than the risk of injury. It should be pointed out that my supervisors have been part of the original project since the beginning. It is therefore not possible to exclude that this study could be somewhat biased by their involvement. For example the participants might feel pressure to answer the questions in a certain way since my student colleague and I are from KI.

## Results

The characteristics of the participants that attended the courses on PAP, both in Sweden and Vietnam are presented in Table 1. A majority of the participants were women (64%) and most of the participants had more than 3 years of health care education. Most of the participants are physicians (54%).

**Table 1. Participant characteristics (n=123)**

		n=	%
Age	Younger than 20	1	1
	21-35	58	47
	36-50	48	39
	51-65	15	12
	Older than 65	1	1
Gender	Men	42	34
	Women	79	64
	Missing	2	2
Province	Hanoi	55	45
	Phu Tho	64	52
	Other	2	2
	Missing	2	2
Occupation	Physician	66	54
	Nurse	39	32
	Volunteer/medical collaborator	10	8
	Other	8	7
Length of health care education	0-1 year	6	5
	2-5 years	37	30
	6-15 years	32	26
	More than 15 years	46	37

	Missing	2	2
Course time	August 2011 in Sweden	5	4
	November 2011 in Vietnam	39	32
	February 2012 in Sweden	5	4
	April 2012 in Vietnam	71	58
	Missing	3	2
Recommending PA	Recommend	104	85
	Do not recommend	19	15

PA= Physical activity

The participants reported a difference in the number of patients who received PA recommendations prior to the training course, compared to after the course (see Table 2). There was a tendency to a statistically significant difference ( $p=0.081$ ) between the number of PA prescriptions the participants reported they gave after the course and the number of PA prescriptions they gave prior to the course. There were 30 participants who reported an increased number of patients they recommended PA to, and 13 participants who reported a decrease in the number of patients that were recommended PA after the course compared to prior to the course.

**Table 2. The participants' self-reported number of PA-recommendations before and after the training course on PAP (n=104)**

		PA recommendations after course					
		0 patients/ month	1-2 patients/ month	1-2 patients/ week	3-4 patients/ week	$\geq 5$ patients/ week	Total
		n=	n=	n=	n=	n=	n=
PA recommendations prior to course	0 patients/ month	0	1	3	0	0	4
	1-2 patients/ month	0	11	8	1	0	20
	1-2 patients/ week	0	5	6	5	4	20
	3-4 patients/ week*	0	0	2	1	8	12
	$\geq 5$ patients/ week	2	1	1	2	41	47
	Total	2	18	20	9	53	104

PA=Physical activity

PAP= Physical activity on prescription

Participants=took part in a course on PAP

\*=1 missing case

There was a variation between the age groups regarding what proportions of patients the participants reported could be helped by receiving a PA prescription (see Table 3). A majority

of the participants reported that 50% of the patients or more could be helped. There was a statistically significant difference between the different participant age groups in this regard ( $p=0.044$ ). Just over one quarter of the younger participants, 21-35 years old, reported that prescribing PA could help only 25% of their patients, which was twice the proportion as for the older participants, 51-65 years old.

**Table 3. Reported proportions of patients that participants think could be helped by receiving PAP.** The reporting participants ( $n=104$ ) are grouped according to age.

		Proportion of patients that the participants believe could be helped by PAP				
		0% of their patients	25% of their patients	50% of their patients	75% of their patients	100% of their patients
		n (%)	n (%)	n (%)	n (%)	n (%)
Age group	21-35 years	0 (0)	14 (28)	10 (20)	19 (38)	7 (14)
	36-50 years	1 (3)	1 (3)	10 (27)	11 (30)	14 (38)
	51-65 years	0 (0)	2 (13)	6 (40)	3 (20)	4 (27)
	> 65 years	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)
Total	Total	1 (1)	17 (17)	26 (25)	34 (33)	25 (24)

PAP=Physical activity on prescription

Participants=took part in a course on PAP

A majority of the participants perceived that with regard to gender, the most receptive patient was a woman between 31-60 years old, and who had completed university education (see Table 4). Almost 54% of the participants aged 36-65 years reported that women were most receptive to PAP (10% reported that men were most receptive), but in the 21-35 year age group, 80% of the participants reported that men were more receptive to PAP (see Table 4a). This difference between age groups was statistically significant ( $p=0.002$ ).

**Table 4. Participants' perception of receptivity of PAP among the different demographic categories of patients ( $n=104$ ).**

		Demographic factors of the most receptive patients.		
		Gender of patients*		
		women	men	do not know
		n (%)	n (%)	n (%)
Age group (years)	≤ 20	1 (100)	0 (0)	0
	21-35	15 (30)	23 (46)	4

36-50		16 (43)	5 (14)	8 (22)		
51-65		12 (80)	0 (0)	1 (7)		
> 65		0 (0)	0 (0)	1 (100)		
Total		44 (42)	28 (27)	14 (14)		
		Age group of patients (years)*				
		0-18	19-30	31-60	older than 60	
		n (%)	n (%)	n (%)	n (%)	
Age group (years)	≤ 20	0 (0)	0 (0)	0 (0)	1 (100)	
	21-35	0 (0)	5 (10)	30 (60)	11 (22)	
	36-50	1 (3)	0 (0)	24 (65)	11 (30)	
	51-65	2 (13)	1 (7)	8 (53)	4 (27)	
	> 65	0 (0)	0 (0)	1 (100)	0 (0)	
Total		3 (3)	6 (6)	63 (61)	27 (26)	
		Educational background of patients*				
		Primary school	Secondary school	High school	University education	do not know
		n (%)	n (%)	n (%)	n (%)	n (%)
Age group (years)	≤ 20	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)
	21-35	2 (4)	1 (2)	14 (3)	24 (48)	3 (6)
	36-50	1 (3)	1 (3)	14 (38)	11 (30)	7 (19)
	51-65	1 (7)	1 (7)	7 (47)	5 (33)	0 (0)
	> 65	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)
Total		4 (4)	3 (3)	35 (34)	41 (39)	11 (11)

\* =5 missing cases

PAP= Physical activity on Prescription

Participants=took part in a course on PAP

In total, 74% of the participants reported a higher level of physical activity among their patients after receiving PA on prescription (see Table 5). There was a difference among age groups, in that 10% of the participants aged 21-35 years old and 53% of the participants aged 51-65 years old did not report that their patients were more physically active. The difference between the age groups was significant ( $p=0.048$ ).

**Table 5. Participants' perceived level of PA of their patients after receiving PAP (n=104).** Perceived activity was reported on a 5-point scale.

	Patients are more physically active after PA recommendation						
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Have not given any PAP	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n

Age group	≤ 20	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	1
	21-35	5 (10)	0 (0)	2 (4)	29 (58)	9 (18)	5 (10)	50
	36-50	2 (5)	2 (5)	2 (5)	14 (38)	16 (43)	1 (3)	37
	51-65	5 (33)	3 (20)	0 (0)	4 (27)	3 (20)	0 (0)	15
	> 65	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	1
Total		12 (12)	5 (5)	4 (4)	48 (46)	29 (28)	6 (6)	104

PA=physical activity

PAP=physical activity on prescription

Participants= took part in a course on PAP

Seven % of the participants reported that it has been very easy (see Table 6) to implement the method of PAP in their daily practice. Most of the answers were “neither hard nor easy” and there were no significant differences between the age groups.

**Table 6. Degree of difficulty of implementation of PAP in the health care practitioners daily practice (n=104)**

		Has the method of PAP been easy to implementation in your daily practice?					
		Very hard	Hard	Neither hard nor easy	Easy	Very easy	Have not used the method
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Age group	≤ 20	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)
	21-35	2 (4)	11 (22)	25 (50)	7 (14)	2 (4)	3 (6)
	36-50	0 (0)	5 (14)	13 (35)	13 (35)	5 (14)	1 (3)
	51-65	1 (7)	0 (0)	9 (60)	5 (33)	0 (0)	0 (0)
	> 65	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)
Total		3 (3)	17 (16)	47 (45)	26 (25)	7 (7)	4 (4)

PAP=Physical activity on prescription

The participants were asked what difficulties or barriers they have encountered using the method of PAP and what they think needs to be changed in order for them to use the method of PAP more frequently. They were allowed to select three choices. Lack of knowledge was reported by 48% of the participants and was thereby the barrier they thought were most important (see Table 7). Furthermore, 69% of the participants reported that in order for them to use the method of PAP more frequently, they need more education (see Table 8).

**Table 7. Difficulties or barriers that the participants have encountered using PAP (n=104).** Participants were able to choose 3 alternatives

	n=	%
Lack of knowledge	50	48.1
Lack of time	47	45.2
Hard to use in daily practice	41	39.4
Lack of routines at the clinic	34	32.7
Poor availability to the knowledge bank (PAPTD)	26	25
Lack of confidence	25	24
Low priority at the clinic	24	23.1
Cost	14	13.5
No difficulties were encountered	13	12.5
Other	3	2.9
I rather use another knowledge bank	1	1

PAP=Physical activity on prescription

Participants=took part in a course on PAP

PAPTD=Physical activity in the prevention and treatment of disease

**Table 8. Improvements that the participants believe have to be done to increase the usage of PAP (n=104).** The participants could select 3 alternatives

	n=	%
More education	72	69.2
Better availability to prescription forms	50	48.1
More time	46	44.2
More funding	36	34.6
Better availability to instruments, such as pedometers etc	35	33.7
Better availability to prescription forms	50	48.1
Better capacity for follow-ups	19	18.2
Other	4	3.8
Nothing needs to be improved	0	0

PAP=physical activity on prescription

Participants= took place in a course on PAP

## Discussion

In Vietnam, the increasing physical inactivity and related mortality is becoming a problem and something needs to be done in order to change the direction of the development. There are different ways to do this; one way could be to use PAP for prevention and treatment of

disease. This study provided information regarding the self-reported effects and implementations of a short training course on PAP.

The study showed a tendency for the participants of the training courses to report increased prescribing of physical activity after the course. However, the change in PA recommendations was not statistically significant and should therefore be cautiously interpreted since the result might not represent a real change. Thirteen participants reported that they now recommend PA to fewer patients than they did before. It might be speculated that prior to the course the participants were recommending from their own knowledge and were more confident in how to use their knowledge on PA. Having learnt more about PA in prevention and treatment of disease, they might have become more confused and uncertain on how to use it and what to recommend, and therefore do not use it at all. For future evaluations, it would be valuable to add a follow-up question asking participants why they recommend PA to fewer patients, or to perform a qualitative interview study.

Most of the participants reported that PAP could help 50% or more of their patients. However, there were statistically significant differences between age groups. Almost one third of the younger participants (21-35 years old) reported that this method could help only 25% of their patients, compared to the older participants (36-50 years old) where as little as 3% reported that only 25% of their patients could be helped. This is a worrying result in view of the current situation in Vietnam where the people are less physically active than before. Thus, the younger part of the Vietnamese population would need to acknowledge the current situation and be willing to take measures against the increased level of overweight and physical inactivity. The result, that the younger participants in this study do not see the same need for PAP as the older participants, should be investigated further since Vietnam is developing and becoming a richer country (27, 28). The population will have greater economical assets and will thereby be able to adopt a life style many of them did not have before, which in certain ways may be unhealthier than their previous lifestyle. The young population may be unaware of how it was when everyone rode a bicycle instead of a motorbike. Therefore, young people may not realize that a massive change in lifestyle underlies the new disease pattern.

Altogether, the majority of the participants reported that they thought the most receptive person to PAP was a woman aged 31-60 years old with completed university education or higher. This might be related to the fact that there were more women than men in this study

and therefore the overall result should be weighted for the women. A study conducted in 2012 showed that women were more prone to make lifestyle changes benefitting their mental health than men and that the majority of these women were aged 35-49 and middleclass (33). This result is in line with the result from the present study.

There was a statistically significant difference between the age groups with the younger participants (21-35 years old) reporting that men were most receptive and the older participants (36-65 years old) reporting that women were most receptive. The difference between the younger and the older participants cannot be explained by the gender distribution between the age groups since there are more women than men in both groups. All the results are estimations from the participants and reflect the received attitude from their patients.

In a study from USA in 2012, it was shown that the physicians in the study were not very good in assessing which patients were most likely to follow their recommendations on increased physical activity (34). It is therefore important to be encouraging and motivating to every patient, also those who we believe might be able to do it on their own, since it is hard to predict which patients will fulfil their PA recommendation. It also shows that a self-report questionnaire might not be the best way to assess receptiveness among patients. To be sure of the receptiveness, a larger study should be conducted, where objective measurements are taken in order to get the full picture of the patients' receptiveness and adherence. A study like that would increase the reliability and validity of the result on this research question.

Seventy-four per cent of the participants reported that their patients were more physically active after the PA recommendation. This result is in line with previous studies where increased level of physical activity was obtained after patients received PAP (12, 13). However, the present study is based on self-reported assessment wherefore the results might not be as reliable since it has been shown that physicians are not very good in assessing patient adherence regarding PA recommendations (34). It was the younger participants in this study who mostly reported a change among their patients. Among the participants aged 51-65 years old, more than half disagreed or strongly disagreed that their patients were more physically active after the PA recommendation they were given. This difference might be explained by possible differences in undergraduate education course content and that older participants are more accustomed to routine and might have a harder time to change habits. Interesting to note is that a total of 16% of the participants did not report increased PA among

their patients after the PA recommendation. This might be due to the fact that some participants did not think that many of their patients could be helped by a PAP and might therefore not have been sufficiently active in engaging and encouraging their patients to increased PA.

The majority of participants reported that PAP was “neither hard nor easy” to use in their daily practice. PAP may not be perceived as easy to implement by Vietnamese health care providers since the PAPTD book was not translated into Vietnamese and not printed until November 2012, wherefore they only had access to the English version of the knowledge bank. It could also be that they lack knowledge and routine to use the method. Such barriers need to be addressed and overcome, as a method that is not easy to apply or implement is less likely to be used. Another reason why the majority of the participants might have chosen the middle alternative might be that participants’ subconscious reaction, when filling out a questionnaire, usually is to avoid the alternatives in the end of scales when answering (35). This tendency is known as end aversion or central tendency.

“Lack of knowledge” was the most highly identified difficulty encountered by the participants in using PAP, with 48% of participants choosing this response option. The second and third most highly perceived difficulties were “lack of time” and “hard to use in daily practice” respectively. Since most of the participants only have taken the course once, the answer “lack of knowledge” is perhaps not very surprising. These results are similar to those identified in a recent systematic review (36) of the barriers physicians encounter, after giving health care counselling. The two most reported barriers in this review were “lack of time” and “lack of knowledge”, i.e., the same as in the current study (36). The third most selected choice, “hard to use in daily practice”, might be explained by the fact that the method of PAP is harder to use in your daily practice when you do not have the PAPTD book in your own language to read in. Instead, the participants only had an English pdf-version, which might be hard to use in daily practice since computers are not available for everyone in Vietnam. When asked what needs to be changed in order for the participants to use the method more often, 69% of the participants chose “more education” which may be explained by the difficulties they have encountered. The second most chosen response was “better availability to prescription forms”, and this is also not surprising since they do not have any prescription forms for PA in Vietnam. Development of a prescription form for the Vietnamese health care workers might assist in making PAP more acceptable and easier to use for Vietnamese health care providers.

It is recommended that such a prescription form should be pre-printed, detailing all the parameters necessary for finding information relating to a PA recommendation.

This study represents the first level according to Kirkpatrick's model for evaluating training courses (31). The first level is "Reaction", the second level is "Learning", the third level is "Behavioural changes" and the fourth level is "Result". The first level consists of collecting information regarding the participants' experience of the training course they have taken. This tells us nothing about how much they have learned during the course, but it is known that a positive attitude towards a course promotes the learning process (31). We also indirectly addressed the influence of the course at the fourth level, even if the behavioural changes were only self-reported. To further evaluate how this training course has influenced the daily practice of the health care workers, another study must be done, where we can measure the level three and four. This should be done in order to see if we are able to measure any objective results of the training courses. It could also give us answers regarding any direct effects on the patients.

This study provides some indications for improving the training courses in order to increase the usage of PAP in Vietnam. The results may contribute to more courses on physical activity and PAP being held, and towards a larger study in which the direct effects on the patients could be assessed when performing a study on a higher level of the Kirkpatrick model (31).

### **Study limitations and suggested improvements**

There were several limitations to this study: One weakness with the questionnaire used in this study is the way in which it was formed partly from a Swedish context and therefore certain aspect relevant for the Vietnamese society might not be met. When the questionnaire was developed some difficulties arose; even if the method of PAP is well studied in many high-income countries, the difficulties and barriers the participants from those countries encounter might not be the same as the ones Vietnamese health care workers encounter. Therefore it is difficult to know what barriers and difficulties to set as options on such a question, because they can be very different from those in high-income countries. To try to overcome this limitation an open-ended response was included where the participants themselves could write an answer matching their thoughts. However, given the time restraints of health care providers it is probable that most participants opted for the ease of selecting one of the proposed

response options, rather than choosing to write their own (35). We expect this to be the case as only 18 participants wrote their own alternative. It is still unknown if the result in this study mirrors the actual situation in Vietnam. With regard to this, a study with qualitative interviews or focus groups interviews might provide a better understanding of the situation in Vietnam concerning perceived barriers, difficulties and improvements of PAP.

Another limitation with the questionnaire was the way some of the questions were constructed. The questions gave answers to the self-reported increase in number of PA recommendations instead of a proportion of PA recommendations among the participants' patients. To overcome this, participant behaviour in recommending PA to their patients should have been assessed prior to the course as a proportion of the participants' patients. Doing so would have reduced the risks of recall bias, providing more accurate data. The same question, i.e., the proportion of their patients they prescribe PA to, should also have been asked after the course. This would have resulted in a method more suited to assess the usage of PAP.

The word "PAP" in the questionnaire used in this study was considered to include any types of semi-formal recommendations, oral or in writing. In retrospect it may seem obvious that we should have phrased the word "PAP" somewhat different in the questionnaires since it does not exist in the same formal sense in Vietnam as it has in Sweden for the last ten years. However, all the participants who answered the questionnaire had taken the course on PAP and therefore knew what PAP meant. To recommend physical activity to patients is not a new method in the Vietnamese health care system; they have been giving oral and written recommendations to their patients prior to the course.

When measuring behavioural changes with a self-report questionnaire it is important to be aware of the possibility of low validity of the results compared to observed behavioural changes. In a study conducted in 2009, the researchers found that self-reported health care utilization could be used in order to assess patients' utilization (37). However, another study, conducted in 2003, showed that the results from self-reported health-risk behaviour in several areas could be affected by several factors, e.g. cognitive, and situational factors (38). This illustrates that the validity of answers in a questionnaire can be affected by other factors than the construction of the questions. To conclude, self-reported questionnaires are not precise but can be used in order to measure behavioural changes. The validity in this study might differ

for the different questions. Assessing difficulties and barriers might be easier for the participants than to report how frequently they use PAP. Frequency might be hard to assess, and the participants might want to answer this question with the answer they perceive the researchers would like to hear (35). This may lead to a somewhat distorted picture of the situation. However, for a study in a short period of time as this one, it is difficult to use another method than self-reported questionnaires, in order to measure reported user frequency. Future research should employ objective measures to validate data from the self-report questionnaires.

Recall bias is another limitation with this questionnaire, as many of the questions were dependent on the participants' memory. The participants filled out our questionnaire between 7 and 15 months after they took the course. This means that the participants have the knowledge and the information from the course more or less fresh in memory. Studies have shown that recall bias is dependent on many factors, for example time period involved, significance to the respondent and characteristics of individuals, such as education and socioeconomic status (39). Recall bias lowers the reliability of the result somewhat, but we are able to see if there are any trends. To improve the questionnaire's accuracy and reliability we could have tested the questionnaire on a control group to see that the questions were interpreted in the way they were supposed to, so that we could rely on the answers to be accurate. We could also have had another interpreter who could have translated the questionnaire back into English so that we could be sure that the translation of the questions was correct. We could also have had the same time period from the time for course participation and the time for answering the questionnaire, so that the risk of recall bias within the group would be somewhat evened out. Since we can observe a tendency to increased prescribing and other positive measurement in this study, it would be interesting to do another study with a tested questionnaire that has been backwards/forwards translated, with the same time period between the course date for the participants and completing the questionnaire.

The participants received a 3 USD compensation for their participation in the study. Studies have shown a substantial increase in response rate on postal questionnaires with monetary incentives compared to postal questionnaires with no incentive (40). It is important to have a representative sample to be able to generalise the results. To what degree the incentive might have biased the data is hard to assess but the risk might be present. Given such risks using a

monetary incentive and the slight risk of positive response bias from respondents, these risks were considered less of an issue than obtaining too low response rates.

Another risk for bias might be seen among those participants who took the course in Sweden. They were specially selected for higher positions within the Vietnamese healthcare system, interest for PA and good knowledge of English. These participants had their journey to Sweden paid from the project budget. Their experience when going to Sweden and the fact that their journey was paid by the project, may influence the answers from that group. However, given that this sub-sample was only approximately 10% of the entire sample, the impact this would have on the results is expected to be minimal (statistician Jan Kowalski, personal information).

Swedish physicians and health care workers developed this training course on PAP. To ensure the course was culturally appropriate it would have been advantageous for the course to include the viewpoint of a couple of members from the Vietnamese society. It is probably important to try to address some of the cultural issues found in the Vietnamese society to be able to make the participants interested and eager to use this method in their daily practice. It would have been appropriate to have some practical examples on how a prescription on physical activity could look like, since they have never had PAP before. To increase the usage of PAP in Vietnam it would probably also be beneficial to add some interactive elements to the training course to enhance the outcome of the course. An evaluation of existing reviews within the area has shown that a course in combination with interactive learning enhances the outcome of a course (41).

## **Conclusions**

This study on the effects of a short training course on PAP in Vietnam showed a tendency, albeit statistically not significant, for the participants to report an increased prescribing of PAP after the course and that most of the participants think that a large proportion of their patients could be helped by PAP. A large proportion of the participants reported that their patients were more physically active after the PAP they received. The majority of participants reported that PAP was “neither hard nor easy” to use in their daily practice, but many of the participants reported that they need more education in order to use PAP more often, and that more education is the most important improvement in order to increase the usage. Altogether,

the results indicate that the participants are willing to use the method of PAP and that they see possible usefulness. In order to examine direct effects among their patients other studies are required, since this study only measured self reported change among the participants. These other studies should be on a higher level according to the Kirkpatrick model for evaluation of training courses.

## **Student collaboration**

Another medical student, Sofie Svensson, also performed her master's thesis within the same original project but with different goals. We worked together to hand out the questionnaires. We developed one part each of the questionnaire so that we had questions that could help us answer our different aims. Since large parts of the background were the same, we wrote some of the background together. We also worked and wrote parts of materials and methods together since this part was also very much alike. The statistical analysis was done separately since we had different data. Result and discussion were written independently since the projects had different aims.

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Appendix 1

**To the participants in the training courses on physical activity on prescription.**

This questionnaire is given to you to evaluate the impact of the training course you attended in 2011-2012. The courses were a part of a collaborative project between Karolinska Institutet in Stockholm, Sweden, and Hanoi Medical University in Vietnam. In the training course you learned a method called 'Physical activity on Prescription' (PaP), to use in your daily practice. You also learned to use a knowledge bank called 'Physical activity in Prevention and Treatment of Disease' (PaPTD/FYSS).

We are two medical students from Karolinska Institutet that are involved in this project as a part of our medical degree. Prof. Carl Johan Sundberg and Dr. Tran Thi Thanh Huong are our supervisors for this project.

If you have any questions, don't hesitate to contact us.

Thank you very much for participating!

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**Please tick one box if no other instruction is given, or write your answer at the line below the question. We appreciate your help!**

1. Age (years):

☐ less than 20      ☐ 21-35   ☐ 36-50   ☐ 51-65   ☐ more than 65

2. Gender:    ☐ Male    ☐ Female

3. When and where did you take the course in PAPTD/FYSS and PaP?

☐ August 2011 in Sweden

☐ November 2011 in Vietnam

☐ February 2012 in Sweden

☐ April 2012 in Vietnam

4. What is your profession?

☐ Medical Doctor

☐ Nurse

☐ Midwife

☐ Collaborator

☐ Student

☐ Other \_\_\_\_\_

5. What is your work task? (more than one tick is accepted)

☐ Independent handling of patients

☐ Assisting other professionals

☐ Prescribing physical activity

☐ Other \_\_\_\_\_

6. What is the length of your health care education?

☐ 1 year or less

☐ More than 1 year, less than 2 years

- ☐ 2-3 years
- ☐ More than 3 years

## Appendix 1

7. How long have you been working with health care?

- ☐ 0-1 year
- ☐ 2-5 years
- ☐ 6-15 years
- ☐ More than 15 years

8. Where is your workplace located?

Commune \_\_\_\_\_

Province \_\_\_\_\_

9. Before you participated in the training course on physical activity on prescription, how frequently did you recommend physical activity to your patients?

- ☐ 0 patients/month
- ☐ 1-2 patients/month
- ☐ 1-2 patients/week
- ☐ 3-4 patients/week
- ☐  $\geq 5$  patients/week

10. a) How frequently do you now recommend patients to increase their physical activity, using the tools you have learned during the physical activity on prescription-course?

- ☐ 0 patients/month
- ☐ 1-2 patients/month
- ☐ 1-2 patients/week
- ☐ 3-4 patients/week
- ☐  $\geq 5$  patients/week

b) How large proportion of your patients do you now recommend/prescribe physical activity (based on the answer in question 10 a)? Choose the alternative that best represents your answer.

- ☐ 0%
- ☐ 25%
- ☐ 50%
- ☐ 75%
- ☐ 100%

11. What percentage of your patients do you think could be helped to a better health, using the physical activity on prescription-method? Choose the alternative that best represents your answer.

- ☐ 0 %
- ☐ 25%
- ☐ 50%
- ☐ 75%
- ☐ 100%

12. Which categories of the following do you find to be the most receptive of the physical activity on prescription-method?

- a) Age (years): ☐ 0-18, ☐ 19-30, ☐ 31-60, ☐ >60, ☐ do not know
- b) Gender: ☐ women, ☐ men, ☐ do not know
- c) Length of education: ☐ 1 year or less      ☐ More than 1 year, less than 2 years  
☐ 2-3 years      ☐ More than 3 years      ☐ do not know

13. My patients are more physically active after the physical activity on prescription that I have given them.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree
- ☐ Have not given any physical activity on prescription

14. How has it been to apply the physical activity on prescription-method in your daily practice?

- ☐ Very hard
- ☐ Hard
- ☐ Neither hard nor easy
- ☐ Easy
- ☐ Very easy
- ☐ Have not used the method

15. What difficulties have you encountered that has prevented you from using the physical activity on prescription-method? (*Maximum 3 ticks are accepted. Please rank your answer: 1=most important, 2= second most important, 3=third most important*)

- \_\_\_ Lack of time
- \_\_\_ Lack of knowledge
- \_\_\_ Lack of confidence
- \_\_\_ Lack of routines at the clinic
- \_\_\_ Cost
- \_\_\_ Low priority at the clinic
- \_\_\_ Hard to use in daily practice
- \_\_\_ Poor availability to the knowledge bank (PAPTD)
- \_\_\_ I rather use another knowledge bank
- \_\_\_ No difficulties were encountered
- \_\_\_ Other, namely\_\_\_\_\_

16. What would need to be improved to enhance the use of the method? (*Maximum 3 ticks are accepted. Please rank your answer: 1=most important, 2= second most important, 3=third most important*)

- \_\_\_ More time
- \_\_\_ More funding

- \_\_\_ More education
- \_\_\_ More recognition/incitement from the management

#### Appendix 1

- \_\_\_ Better availability to prescription forms
  - \_\_\_ Better availability to instruments, such as pedometers etc.
  - \_\_\_ Better capacity for follow-ups
  - \_\_\_ Nothing needs to be improved
  - \_\_\_ Other, namely
-



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## Appendix 2

### **Thân gửi các học viên tham gia khoá đào tạo về kê đơn hoạt động thể lực,**

Bộ câu hỏi này được gửi tới các anh/chị nhằm đánh giá hiệu quả của khoá học mà các anh/chị đã tham gia trong hai năm 2011-2012. Khoá đào tạo về kê đơn hoạt động thể lực thuộc dự án hợp tác giữa Viện Karolinska, Stockholm, Thụy Điển và Đại học Y Hà Nội, Việt Nam. Khoá học được tổ chức với mục đích cung cấp cho các anh/chị kiến thức về phương pháp “Kê đơn hoạt động thể lực” (PaP) để từ đó các anh/chị áp dụng trong thực hành lâm sàng. Ngoài ra, khoá học còn truyền tải tới các anh/chị kiến thức về “Hoạt động thể lực trong phòng và điều trị bệnh tật” (PaPTD/FYSS).

Chúng tôi là hai sinh viên y khoa đến từ Viện Karolinska hiện đang tham gia dự án Hoạt động thể lực, công việc này thuộc chương trình đào tạo của chúng tôi. Người hướng dẫn chúng tôi là Giáo sư Carl Johan Sundberg và Tiến sĩ Trần Thị Thanh Hương.

Mong anh/chị vui lòng liên hệ với chúng tôi nếu có điều gì chưa rõ!

Xin chân thành cảm ơn sự hợp tác của anh/chị!

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**Để trả lời các câu hỏi dưới đây, các anh/chị hãy tích vào ô trống hoặc điền câu trả lời của mình vào phần để trống. Chúng tôi xin được chân thành cảm ơn!**

1. Hiện tại anh/chị bao nhiêu tuổi?

☐ Dưới 20 tuổi      ☐ 21-35 tuổi   ☐ 36-50 tuổi   ☐ 51-65 tuổi   ☐ Trên 65 tuổi

2. Giới tính:   ☐ Nam    ☐ Nữ

3. Anh/chị tham gia khoá đào tạo về PAPTD/FYSS và PaP vào thời gian nào và ở đâu?

- ☐ Tháng 8/2011 tại Thụy Điển
- ☐ Tháng 11/2011 tại Việt Nam
- ☐ Tháng 2/2012 tại Thụy Điển
- ☐ Tháng 4/2012 tại Việt Nam

4. Nghề nghiệp của anh/chị là gì?

- ☐ Bác sĩ y khoa
- ☐ Y tá
- ☐ Nữ hộ sinh
- ☐ Tình nguyện viên y tế
- ☐ Sinh viên
- ☐ Nghề khác: \_\_\_\_\_

5. Anh/chị đảm nhận những công việc gì? (có thể chọn nhiều lựa chọn trong các lựa chọn dưới đây)

- ☐ Chăm sóc bệnh nhân một cách độc lập
- ☐ Hỗ trợ bác sĩ trong việc chăm sóc bệnh nhân
- ☐ Kê đơn hoạt động thể lực
- ☐ Công việc khác: \_\_\_\_\_

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6. Anh/chị hành nghề trong bao lâu rồi?

☐ 1 năm hoặc ít hơn

☐ Hơn 1 năm nhưng dưới 2 năm

☐ 2-3 năm

☐ Nhiều hơn 3 năm

7. Anh/chị hoạt động trong ngành y tế được bao lâu rồi?

☐ 0-1 năm

☐ 2-5 năm

☐ 6-15 năm

☐ Hơn 15 năm

8. Anh/chị làm việc ở đâu?

Xã \_\_\_\_\_

Tỉnh \_\_\_\_\_

9. Trước khi tham gia khoá đào tạo về kế hoạch động thể lực, anh/chị có thường xuyên khuyến khích bệnh nhân của mình hoạt động thể lực không?

☐ 0 bệnh nhân/tháng

☐ 1-2 bệnh nhân/tháng

☐ 1-2 bệnh nhân/tháng

☐ 3-4 bệnh nhân/tháng

☐  $\geq 5$  bệnh nhân/tháng

10. a) Ở thời điểm hiện tại anh/chị có thường xuyên áp dụng kiến thức từ khoá học Kế hoạch động thể lực để khuyến khích bệnh nhân của mình tăng cường hoạt động thể lực không?

☐ 0 bệnh nhân/tháng

☐ 1-2 bệnh nhân/tháng

☐ 1-2 bệnh nhân/tháng

☐ 3-4 bệnh nhân/tháng

☐  $\geq 5$  bệnh nhân/tháng

## Appendix 2

b) Những bệnh nhân được anh/chị khuyến khích hoặc kê đơn tăng cường hoạt động thể lực chiếm bao nhiêu phần trăm trong tổng số các bệnh nhân mà anh/chị điều trị (dựa trên câu trả lời đối với câu hỏi 10a)?

- ☐ 0%
- ☐ 25%
- ☐ 50%
- ☐ 75%
- ☐ 100%

11. Anh/chị cho rằng việc kê đơn hoạt động thể lực sẽ giúp cải thiện sức khỏe của bao nhiêu bệnh nhân trong tổng số bệnh nhân mà anh/chị điều trị?

- ☐ 0 %   ☐ 25%   ☐ 50%   ☐ 75%   ☐ 100%

12. Anh/chị cho rằng nhóm đối tượng nào dễ tiếp nhận và thực hiện tăng cường hoạt động thể lực kê đơn nhất?

a) Phân loại theo tuổi của đối tượng:

- ☐ 0-18 tuổi   ☐ 19-30 tuổi   ☐ 31-60 tuổi   ☐ > 60 tuổi   ☐ Tôi không biết

b) Phân loại theo giới tính của đối tượng:   ☐ Nữ   ☐ Nam   ☐ Tôi không biết

c) Phân loại theo trình độ học vấn của đối tượng:

- ☐ Trình độ tiểu học (primary school)
- ☐ Trình độ phổ thông cơ sở (secondary school )
- ☐ Trình độ trung học phổ thông (high school)
- ☐ Trình độ đại học hoặc cao hơn (university education or higher)
- ☐ Tôi không biết (I don't know)

13. Anh/chị hãy cho biết ý kiến về nhận định sau: “Các bệnh nhân của tôi tích cực hoạt động thể lực hơn sau khi được tôi kê đơn hoạt động thể lực.”

- ☐ Tôi hoàn toàn không đồng ý với nhận định trên
- ☐ Tôi không đồng ý với nhận định trên

- ☐ Tôi không phản đối nhưng cũng không đồng ý với nhận định trên
- ☐ Tôi đồng ý với nhận định trên
- ☐ Tôi hoàn toàn đồng ý với nhận định trên
- ☐ Tôi chưa kê đơn hoạt động thể lực lần nào

14. Anh/chị đánh giá về việc áp dụng kê đơn hoạt động thể lực vào thực hành lâm sàng như thế nào?

- ☐ Rất khó
- ☐ Khó
- ☐ Trung bình
- ☐ Đơn giản
- ☐ Rất đơn giản
- ☐ Tôi chưa kê đơn hoạt động thể lực lần nào

15. Bản thân anh/chị đã gặp những trở ngại nào trong việc kê đơn hoạt động thể lực? (Anh/chị hãy chọn tối đa 3 lựa. Anh/chị hãy đánh số các lựa chọn của mình: 1 = yếu tố quan trọng nhất, 2 = yếu tố quan trọng thứ nhì, 3 = yếu tố quan trọng thứ ba)

- \_\_\_ Thiếu thời gian
- \_\_\_ Thiếu kiến thức
- \_\_\_ Thiếu tự tin
- \_\_\_ Bệnh viện/cơ sở y tế không có quy định hoặc hướng dẫn về việc kê đơn hoạt động thể lực
- \_\_\_ Chi phí
- \_\_\_ Việc kê đơn hoạt động thể lực không được ưu tiên ở nơi tôi đang làm việc
- \_\_\_ Khó áp dụng kê đơn hoạt động thể lực trong công việc hàng ngày
- \_\_\_ Khó tiếp cận với nguồn kiến thức về hoạt động thể lực trong phòng và điều trị bệnh tật
- \_\_\_ Tôi cho rằng sử dụng nguồn kiến thức khác sẽ tốt hơn
- \_\_\_ Tôi không gặp trở ngại nào
- \_\_\_ Đáp án khác, cụ thể là: \_\_\_\_\_

16. Điều gì là cần thiết để tăng cường việc kê đơn hoạt động thể lực? (Anh/chị hãy chọn tối đa 3 lựa. Anh/chị hãy đánh số các lựa chọn của mình: 1 = yếu tố quan trọng nhất, 2 = yếu tố quan trọng thứ nhì, 3 = yếu tố quan trọng thứ ba)

\_\_\_ Có thêm thời gian

\_\_\_ Có thêm nguồn hỗ trợ kinh phí/tài chính

\_\_\_ Được đào tạo thêm

\_\_\_ Được lãnh đạo bệnh viện/cơ sở y tế biểu dương/tạo điều kiện hơn nếu chúng tôi kê đơn hoạt động thể lực cho bệnh nhân

\_\_\_ Có thêm điều kiện để tiếp cận với mẫu đơn hoạt động thể lực hơn

\_\_\_ Có thêm các công cụ, ví dụ như máy đếm bước chân, vv.

\_\_\_ Tăng khả năng theo dõi quá trình hoạt động thể lực của bệnh

\_\_\_ Không cần cải thiện gì cả

\_\_\_ Đáp án khác, cụ thể là: \_\_\_\_\_

## Appendix 3

The written answers provided by some of the participants.

Questionnaire number	Question number	Written answer
8	15	Have not prescribed physical activity
10	15	Have not prescribed physical activity
11	15	Have not prescribed
30	16	Doctors awareness
49	15	Do not prescribe
57	16	Tools and facilities are needed
58	15	I am not working in the clinical field
60	15	Lack of information
63	16	Lack of information
71	15	Patients don't collaborate
78	15	It's difficult for the patients to apply physical activity correctly because of lack of facilities for training
79	15	Before the class
89	15	Lack of detailed knowledge and experience
100	15	Compliance of patients towards the doctor's prescription
108	16	Need sample of instructions on each case
109	16	Need sample of instructions on each case
120	15	I don't examine and treat patients with problems related to physical activity
122	15	I don't treat patients with problems related to physical activity