

## Research paper

# Physical activity and exercise counselling: a cross-sectional study of family practice patients in Estonia

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## ABSTRACT

**Background** Low levels of physical activity are common in developed countries. Therefore, regular exercise counselling in family practice is potentially important.

**Aims** To assess the physical activity of consecutive patients in family practice settings and to find out whether patients seek advice from their family doctors (FDs) regarding physical activity.

**Methods** The study group was made up of consecutive patients aged 18 to 75 years from five family practices across Estonia. Every patient completed a questionnaire to assess physical activity and exercise counselling. The patient's level of physical activity in metabolic units per week (MET, min/week) was calculated on the basis of the International Physical Activity Questionnaire (IPAQ). Questions about counselling for physical activity and lifestyle were also included.

**Results** The total number of patients was 239. According to the IPAQ, 47% of the patients showed

high (MET  $\geq$  3001), 41% moderate (MET = 601–3000) and 12% low (MET *leq* 600) physical activity during the previous seven days. Higher physical activity was observed in patients living in rural rather than urban areas ( $P = 0.025$ ) and in patients who did not suffer from a chronic disease ( $P = 0.044$ ). Twenty-three percent of participants reported having sought their FD's advice on physical activity and 34% reported that they had received counselling for physical activity.

**Conclusions** Physical activity levels in consecutive family practice patients were high in Estonia: 88% of patients reported a moderate or high level of physical activity. In patients' opinions, FDs mostly counsel elderly and obese patients and those with chronic diseases. By contrast, the overall frequency of counselling for physical activity was low.

**Keywords:** counselling, family practice, IPAQ, physical activity, primary care

## How this fits in with quality in primary care

### What do we know?

Primary care doctors play an important role in promoting physical activity among their patients. Effective counselling is one of the key factors delivering quality patient care.

### What does this paper add?

Improvement in family doctors' awareness of their patients' level of physical activity and understanding of patients' willingness to receive advice on exercise was the main reason for conducting this study. We found that primary care patients in Estonia are physically active. However, in patients' opinions, counselling for physical activity by their family doctor was not sufficient. More attention should be paid to exercise counselling in primary care.

## Introduction

Family doctors (FD) play an important role in promoting lifestyle changes in local communities<sup>1–5</sup> because of their ideal position for preventive work. Patients' expectations of primary care include good preventive services and good doctor–patient relationships<sup>6</sup> based on good communication. Primary care doctors often provide lifestyle advice on physical activity, diet, non-smoking and non-consumption of alcohol, all essential for maintaining good health.<sup>7,8</sup> In relation to physical activity, outcomes are often contradictory because many patients have different perceived barriers to exercise.<sup>9–11</sup> Based on a recent study conducted among Estonian FDs, physical activity was considered the most important alterable lifestyle factor contributing to better health for patients with chronic diseases. The FDs claimed also that they counsel their patients with chronic diseases frequently for physical activity. However, in the FDs' opinion, the patients' own drive to seek advice on exercise was low.<sup>12</sup>

Good doctor–patient communication is essential for counselling for physical activity and an individualised approach is needed to attain a change in behaviour.<sup>13</sup> First of all, FDs should be aware of the patient's level of physical activity, which enables discussion of the impact of exercise on health and encouragement to increase exercise levels.<sup>14</sup> Improvement in FDs' awareness of their patients' levels of physical activity and understanding of patients' willingness to receive advice on exercising was the main reason for conducting this study.

The aims of the study were: (1) to assess the physical activity of consecutive patients in family practice settings in Estonia, (2) to find out how physical activity is related to the general and health-related characteristics of patients and (3) to find out whether family practice patients seek and receive advice from their FDs regarding physical activity.

## Methods

### Patients

The current study was carried out between December 2010 and March 2011 in five family practices across Estonia with family doctors who had shown interest in participating in the study. The FDs received written information about the recruitment procedure. According to the criteria, the FDs included consecutive patients (aged 18–75 years). Patients with a life-threatening disease, severe mental disorder or mental retardation were excluded. The questionnaire was introduced by the researcher after the FD consultation. The participating patients filled in a questionnaire by themselves in the FD's waiting room, with assistance from one of the researchers if needed. Some of the patients completed the questionnaire at home and returned it by post. The questionnaire was anonymous and voluntary and took about 15 minutes to complete. None of the invited patients declined to participate in the study. Overall, 253 questionnaires were returned. Because of incomplete data, 14 questionnaires were excluded. The final study group consisted of 239 family practice patients.

### Questionnaires

The first part of the questionnaire assessed physical activity. The International Physical Activity Questionnaire (IPAQ) short form was chosen to assess physical activity because of its high reliability and validity.<sup>15</sup> The IPAQ has been translated into many languages and used worldwide, including in Estonia. The IPAQ short version estimates how much health-enhancing physical activity, including daily life activities and exercise, the person has undertaken over the previous seven days.

Physical activity is defined as any bodily movement produced by the skeletal muscles. This results in energy expenditure that can be categorised into:

occupational, sports, conditioning, household or other active daily life activities. Exercise is a specific type of physical activity that is planned, structured and done repeatedly to improve or maintain physical fitness.<sup>16</sup> The IPAQ included questions about physical activity including exercise of three intensities (vigorous physical activity, moderate physical activity and walking). Participants had to estimate how many days (frequency) they were physically active and the average time (duration) that they spent being physically active on these days. We calculated the total physical activity, MET or metabolic equivalent (MET min/week), as suggested in the Guidelines for Data Processing and Analysis of the IPAQ for walking, moderate and vigorous physical activity.<sup>17</sup>

The second part of the questionnaire assessed counselling. This part included three questions: whether the patient him/herself had sought his/her FD for advice on physical activity; whether the FD had counselled him/her for physical activity; and what his/her opinion is about the importance of physical activity among other determinants of a healthy lifestyle (non-smoking, non-consumption of alcohol, healthy nutrition).

The third part of the questionnaire included questions about general and health-related characteristics of the participant: age, height and weight, waist circumference, gender, place of residence, education and confirmed chronic disease. We also asked the patient to assess subjectively his/her general health and physical activity status by single item rating scale.

Body mass index (BMI) was calculated using height and weight. A waist circumference of > 102 cm for men and 88 cm for women was considered abdominal obesity.

## Statistics

The Statistical Package for the Social Sciences (SPSS) for Windows Release 10.0.1 was used for data analysis. Standard methods: mean, standard deviation (SD), median and percentage were employed for descriptive statistics. Differences between the patients with low, moderate, and high physical activity and their seeking and receiving of FD advice on physical activity were analysed with the chi-square test. All tests were two-sided and statistical significance was taken as  $p < 0.05$ .

## Ethics

The Ethics Committee of the University of Tartu approved the study.

## Results

The results are presented in three subcategories: general characteristics of the patients, physical activity of the patients and counselling for physical activity.

### General characteristics of the patients

Table 1 presents the general characteristics of the study group. Of 239 participants, 140 (58.6%) were female and 99 (41.4%) male. The participants' age ranged from 18–75 years, the mean age was  $42.26 \pm 15.57$  years (median 41 years). Most of the participants lived in an urban area and had secondary or higher education (91.2%). Normal BMI ( $< 25 \text{ kg/m}^2$ ) was noted in 46.7% of the study group. Mean BMI for the study group was  $25.41 \pm 4.96$  (median 24.91). Normal waist circumference was found in 76.1% of the patients (mean  $87.36 \pm 14.32$ , median 86; men: mean  $94.25 \pm 11.06$  and median 93; women: mean  $82.46 \pm 14.41$  median 80). More than half the patients had a largely sedentary job (52.8%) and 23.6% reported not working (unoccupied, studying, retired). Of the patients, 44.8% were non-smokers. The average time spent sitting per day in minutes was  $396.6 \pm 139.9$  (median 400.0). Sitting more than six hours per day was reported by 28.5% of the patients. More than half the patients reported to have some chronic disease; obesity and high blood pressure were the most common disorders (23 and 22%, respectively). Half the patients estimated their health as excellent or good and 14.3% of the patients regarded themselves as sedentary.

### Physical activity of the patients

The characteristics of the patients according to their level of physical activity are presented in Table 2. According to the IPAQ, 47% of patients showed high ( $\text{MET} \geq 3001$ ), 41% moderate ( $\text{MET} = 601\text{--}3000$ ) and 12% low ( $\text{MET} \leq 600$ ) physical activity during the past seven days. The median physical activity of the patients was 277 MET/week.

Patients living in a rural area had a significantly higher level of physical activity than those living in an urban area ( $P = 0.025$ ). Patients with higher education were significantly less physically active than those with a lower educational level ( $P = 0.05$ ). Most of the persons (73.7%) with higher education reported having a sedentary job. Those whose work consisted mostly in manual labour showed higher physical activity level than patients with a sedentary job or with no work at all ( $P < 0.001$ ). Patients with one or more chronic disease had a lower level of physical activity than patients without any chronic diseases ( $P = 0.044$ ).

**Table 1** General characteristics of the study group

Characteristic		Number	Percentage
Total		239	100
Gender	Female	140	58.6
	Male	99	41.4
Age (years)	18–29	66	27.6
	30–49	89	37.2
	50–75	84	35.2
Place of residence	Urban	43	18.8
	Rural	185	80.8
Level of education	Primary	21	8.8
	Secondary	122	51.3
	Higher	95	39.9
BMI (kg/m <sup>2</sup> )	< 18.5	9	4
	18.5–24.9	106	46.7
	25–29.9	73	32.2
	≥ 30	39	17.2
Abdominal obesity	Not obese	108	76.1
	Obese	34	23.9
Nature of work	Mostly sitting	123	52.8
	Mostly physical	55	23.6
	Not working	55	23.6
Regular smoker	Yes	55	23
	No	184	77
Ever smoked	Yes	132	55.2
	No	107	44.8
General health	Excellent/very good/good	130	54.3
	Average	87	36.4
	Poor	22	9.2
Number of chronic diseases	None	112	46.9
	≥ 1	127	53.1
Time spent sitting (min/day)	≤ 360	135	66.5
	>360	68	28.5
Subjective rating of physical activity	Sedentary	34	14.3
	Low activity	90	37.8
	High activity	114	47.9

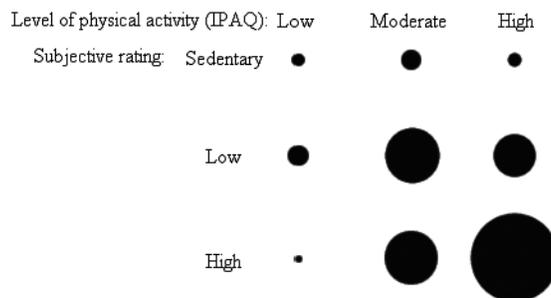
Previous smokers had higher levels of physical activity than those who had never smoked ( $P=0.003$ ). Among the subjects who considered themselves sedentary, 44% had a moderate and 29% had a high level of physical activity according to the IPAQ assessment.

Figure 1 illustrates the patients' level of physical activity according to the IPAQ in comparison with their subjective rating of general physical activity.

There was no significant difference in characteristics such as age, gender, BMI, waist circumference, current smoking and general health status between the patients with low, moderate or high physical activity.

**Table 2** General characteristics of the study group according to the level of physical activity (showing statistically significant results only)

Characteristic	Low physical activity <i>n</i> (%)	Moderate physical activity <i>n</i> (%)	High physical activity <i>n</i> (%)	<i>P</i>
Total	29 (12)	98 (41)	112 (47)	
Place of residence				0.025
Urban	23 (12)	84 (45)	78 (42)	
Rural	3 (7)	12 (28)	28 (65)	
Sitting (min/day)				0.002
≤ 360	11 (9)	37 (32)	68 (59)	
> 360	18 (15)	61 (49)	44 (36)	
Level of education				0.050
Primary	4 (19)	7 (33)	10 (48)	
Secondary	15 (12)	41 (34)	66 (54)	
Higher	10 (10)	50 (53)	35 (37)	
Nature of work				< 0.001
Mostly sitting	13 (10)	66 (54)	44 (36)	
Mostly physical	5 (9)	8 (15)	42 (76)	
Not working	10 (18)	23 (42)	22 (40)	
Chronic diseases				0.044
None	10 (9)	55 (49)	47 (42)	
1 or more	19 (15)	43 (34)	65 (51)	
Ever smoked				0.003
Yes	21 (16)	42 (32)	69 (52)	
No	8 (8)	56 (52)	43 (40)	
Subjective rating of physical activity		< 0.001		
Sedentary	9 (27)	15 (44)	10 (29)	
Low activity	15 (17)	42 (47)	33 (37)	
Physically active	5 (4)	41 (36)	68 (60)	

**Figure 1** Patients' physical activity according to the IPAQ in comparison with their subjective rating of general physical activity.

## Counselling for physical activity

The results of counselling for physical activity are presented in Table 3. Statistically non-significant results are omitted.

Of the participants, 23% reported having sought their FDs' advice about physical activity. Patients aged

50–75 years had asked for FDs' advice significantly more often than younger patients ( $P = 0.001$ ). Similarly, persons with BMI > 25 sought advice more often than patients with normal weight ( $P = 0.008$ ). Those who considered their general health poor sought advice more frequently than those who considered their general health better ( $P = 0.001$ ). Furthermore,

**Table 3** Counselling for physical activity

Characteristic	Sought advice <i>n</i> (%)	Not sought advice <i>n</i> (%)	<i>P</i>	Received advice <i>n</i> (%)	Not received advice <i>n</i> (%)	<i>P</i>
Total	55 (23)	184 (77)		81 (34)	158 (66)	
Age (years)	0.001			0.054		
18–29	7 (11)	59 (89)		16 (24)	50 (76)	
30–49	18 (20)	71 (80)		29 (33)	60 (67)	
50–75	30 (36)	54 (64)		36 (43)	48 (57)	
BMI	< 0.001			< 0.001		
< 25	18 (14)	109 (86)		29 (23)	98 (77)	
≥ 25	37 (33)	75 (67)		52 (46)	60 (54)	
Abdominal obesity	0.002			< 0.001		
Not obese	22 (20)	86 (80)		31 (29)	77 (71)	
Obese	16 (47)	18 (52)		23 (68)	11 (32)	
General health	< 0.001			< 0.001		
Excellent/very good/good	18 (14)	112 (86)		29 (22)	101 (78)	
Average	27 (31)	60 (69)		38 (44)	49 (56)	
Poor	10 (45)	12 (55)		14 (64)	8 (36)	
Chronic diseases	< 0.001			< 0.001		
None	12 (11)	100 (89)		20 (18)	92 (82)	
1 or more	43 (34)	84 (66)		61 (48)	66 (52)	
Subjective rating of physical activity	0.111			0.024		
Sedentary	8 (23)	26 (77)		13 (38)	21 (62)	
Low activity	27 (30)	63 (70)		39 (43)	51 (57)	
Physically active	20 (18)	94 (82)		29 (25)	85 (75)	
Diagnosed IHD*			0.013			0.007
Yes	11 (42)	15 (58)		15 (58)	11 (42)	
No	44 (21)	169 (79)		66 (31)	147 (69)	
Diagnosed hypertension	< 0.001			< 0.001		
Yes	23 (44)	29 (56)		29 (56)	23 (44)	
No	32 (17)	155 (83)		52 (28)	135 (72)	
Diagnosed diabetes	0.065			0.001		
Yes	7 (41)	10 (59)		12 (71)	5 (29)	
No	48 (22)	174 (78)		69 (31)	153 (69)	
Diagnosed obesity	0.027			0.001		
Yes	19 (34)	37 (66)		29 (52)	27 (48)	
No	36 (20)	147 (80)		52 (28)	131 (72)	

\* Ischaemic heart disease.

patients with chronic disease had asked for advice more often than patients without any chronic disease ( $P = 0.001$ ). Patients with diagnosed ischaemic heart disease, hypertension and obesity had asked for advice significantly more often than persons without these disorders.

Of the patients, 34% reported having received advice about physical activity from their FDs. In the patients' opinion, FDs counsel patients with chronic diseases, such as ischaemic heart disease, hypertension, diabetes and obesity more often than patients without these diseases ( $P < 0.001$ ).

Considering the patients' reports, there was no difference in counselling patients regarding their gender, place of residence, level of education, occupation, smoking status or diagnosed depression.

We also asked patients what they considered the most important lifestyle factor contributing to good health. Of the patients, 28.1% thought that it was healthy food or nutrition, 25.8% thought that it was physical activity, 24.2% thought that it was non-smoking and 21.9% thought that it was non-consumption of alcohol.

## Discussion

### Physical activity of the patients

We conducted this cross-sectional study to assess physical activity and related factors in consecutive patients in the family practice setting and to explore patients' opinions about counselling for exercise and physical activity.

We found that primary care patients are physically active: nearly 88% of the participants reported moderate or high physical activity during the past seven days according to the IPAQ. This is a novel finding because a sedentary lifestyle is a problem for most adults visiting primary care practices.<sup>7,18,19</sup> According to global studies, physical inactivity is more prevalent among wealthier and urban countries, and among women and elderly persons.<sup>20</sup> Similarly, we found that patients living in a rural area were more active than those living in an urban area. Rural patients may have spent more time for housekeeping and gardening than urban patients.

Higher physical activity was also noted in patients who were engaged in physical jobs, because IPAQ includes activities of daily life.

Surprisingly, we found that ex-smokers were exercising significantly more intensively than non-smokers or smokers. Although the design of our study does not allow interpretation of this finding, we speculate that as ex-smokers have changed their

lifestyles (by quitting smoking), they also pay more attention to physical activity.

Patients' gender and age were not associated with physical activity, which may relate to the small size of the study. Nor were waist circumference and BMI significantly associated with level of physical activity, contrary to findings from other studies.<sup>21</sup>

Around one-third of the study patients reported that they spent sitting more than six hours a day, which was also associated with lower level of physical activity.

Among the subjects who considered themselves sedentary, 44% had moderate and 29% had high level of physical activity according to the IPAQ assessment. This discrepancy can be explained by the fact that people often think that only exercise with special equipment and supervision can be considered physical activity. They may pay less attention to how to combine healthy exercising with their everyday activities. It requires much effort to encourage patients to increase the level of physical activity by combining tasks of everyday life with more walking, using the stairs instead of using the lift, leaving the car away from the workplace, practising ergonomic gardening, load moving and lifting techniques, etc. In this way, one can integrate physical activity into work and leisure time. FDs can contribute to this process by more frequent counselling. For example, FDs should advise patients to reduce prolonged sitting combining it with current recommendations on exercise activity.<sup>22</sup>

### Counselling for physical activity

According to the survey on health behaviour among the adult population of Estonia conducted in 2010, only 11.1% of the participants had received professional advice to increase their physical activity from the physician or from some other health specialist.<sup>23</sup>

We found that 23% of the participants reported that they had asked for their FD's advice on physical activity and 34% had received it. Moreover, older and obese people were more eager to seek their FD's advice; they also received more counselling for physical activity compared with younger patients or those with lower weight.

Similarly to previous studies, we found that FDs mostly target their advice to patients with chronic illnesses and obesity.<sup>3,24</sup> It has been emphasised that primary care settings often focus on current needs by mostly counselling those at risk.<sup>14</sup> Based on a systematic review, Fleming and Godwin found that it is more effective to concentrate on patients with cardiovascular problems than healthy patients for lifestyle counselling in primary care.<sup>25</sup> Often patients at higher risk are more motivated to seek advice and to implement this advice by changing their lifestyle. In our opinion,

preventive work among healthy subjects also impacts on primary care quality by increasing population physical activity levels as well as by enhancing people's satisfaction with care.

According to a study carried out among Estonian FDs, most reported counselling their patients with chronic diseases for physical activity.<sup>12</sup> The discrepancy between the high level of counselling reported by Estonian FDs and the low level of received advice reported by the patients could be related to counselling style. There is conflicting evidence about whether regular counselling in primary care is sufficient to effect behavioural changes.<sup>26,27</sup> Effective counselling should be patient-centred, a good example of which is motivational interviewing.<sup>28</sup> The impact of motivational interviewing on promotion of physical activity in primary care patients, both healthy and those with chronic diseases, has not yet been studied in Estonia and will most likely be the subject of further studies.

## Strength and limitations

Strengths of the study included interviewing consecutive patients in five different FD practices in Estonia, including urban and rural practices, with large numbers of patients. To the best of our knowledge, no such cross-sectional study has been conducted for primary care patients. Another strength of the study was the high recruitment rate. We involved family doctors who were interested in collaboration. The latter may be seen as a confounding factor, participants desired to please their FD. However, the study questionnaire was voluntary, anonymous and the FD was not involved in filling it.

A limitation of the study is that the questionnaires looked at subjective estimates which could lead to over- or underestimation of physical activity. Also, it may have been difficult for patients to translate activities into an appropriate intensity grade. Investigators have noted both over- and underestimates of physical activity with self-reported IPAQ.<sup>29</sup> However, the IPAQ is upon now widely used in epidemiological studies, has adequate validity and enables comparison of current data with those of previous studies.<sup>30</sup> Based on our experience, the IPAQ Short Form was well-understood and feasible for this type of study. Methods for physical activity assessment in primary care settings is still a subject of discussion and requires further research.

Another limitation was that patients were asked whether they had received advice, but the content and process of counselling was not assessed. Further studies are needed to evaluate the quality of counselling.

## Conclusions

The general level of physical activity of consecutive family practice patients in Estonia was high: 88% of patients reported moderate or high levels of physical activity. In the opinion of patients, FDs mostly provide physical activity counselling for elderly and obese patients and those with chronic diseases. The overall level of counselling for physical activity was, however, low: one-quarter of the patients had sought advice and one-third had received advice on physical activity.

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## ETHICAL APPROVAL

The study was approved by the Ethics Committee of the University of Tartu.

## PEER REVIEW

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## CONFLICTS OF INTEREST

None.

## ADDRESS FOR CORRESPONDENCE

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