



**Physical activity on prescription (PAP) as a
resource of treatment in Iceland:
General practitioners' view**

Laufey Ásta Guðmundsdóttir

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Author: Laufey Ásta Guðmundsdóttir
ID number: 150689-2369

Department of Psychology
School of Business

Forewords and acknowledgements

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I would like to thank the introduction team of PAP in Iceland and The Association of Icelandic General Practitioners (Félag íslenskra heimilislækna) for their cooperation in this study. Also, I want to thank the general practitioners who participated in the study and took time out of their schedule for the interviews. I want to give special thanks to my supervisor for excellent advice and moral support throughout this project. Finally, I want to thank my family and friends for all the patients and support during my study at the BSc Psychology program at Reykjavík University.

Abstract

The aim of the research was to examine Icelandic general practitioners' (GPs) attitude towards physical activity on prescription (PAP), as well as finding ways to improve and increase the use of the resource of treatment in Iceland. Physical activity has proved effective as a treatment for and in prevention of many health problems. PAP is a resource of treatment to increase a patient's physical activity level when appropriate. The study is both qualitative and quantitative. A questionnaire was sent to 239 e-mail addresses from a post list obtained from The Association of Icelandic General Practitioners. 93 GPs participated, while 92 were valid. Out of the six GPs who were contacted, five participated in interviews. The interviews were between 15-20 minutes in length and the interviewer used an interview frame for guidance throughout the interviews. Results indicate that GPs' attitudes towards PAP were more positive than expected. The attitude did not differ from the GPs' gender or employment age but a low significant correlation was found between attitude and the GPs' physical activity level. Prescriptions of PAP in Iceland could be increased with more public knowledge about it, to increase awareness, and by constantly reminding the GPs about it so the usage of PAP eventually becomes a part of their routine.

Keywords: Physical activity on prescription (PAP), general practitioner (GP), attitude, lifestyle illnesses, health promotion.

Útdráttur

Markmið rannsóknarinnar var að kanna viðhorf Íslenskra heimilislækna til hreyfingar samkvæmt lyfseðli sem nefnist Hreyfiseðill, auk þess að leita leiða til að bæta og auka notkun úrræðisins hér á landi. Hreyfing hefur reynst áhrifamikil meðferð og fyrirbyggjandi fyrir ýmis heilsuvandamála. Rannsóknin er bæði eigindleg og meiginleg. Spurningalisti var sendur á 239 tölvupóstföng á póstlista Félags íslenskra heimilislækna (FÍH) og 93 svöruðu könnuninni, en 92 svör reyndust gild. Fimm af sex heimilislæknum, sem boðið var til viðtals, samþykktu þátttöku í eigindlega hluta rannsóknarinnar. Viðtölin voru um það bil 15-20 mínútur að lengd og stuðst var við spurningaramma í gegnum viðtölin. Niðurstöður rannsóknarinnar leiddu í ljós að viðhorf heimilislækna voru almennt jákvæðari gagnvart hreyfiseðlum en von var á. Það reyndist ekki marktækur munur á milli kynja né mismunandi starfsaldurs á viðhorfum, en það var marktæk neikvæð fylgni á milli viðhorfa heimilislækna og virkni þeirra sjálfra á sviði hreyfingar. Notkun Hreyfiseðla gæti aukist með því að athygli almennings yrði vakin og fólk gert meira meðvitað um úrræðið. Auk þess mætti minna heimilislækna reglulega á Hreyfiseðilinn til að halda vitundinni um hann á lofti og gera hann að daglegu starfsumhverfi þeirra.

Lykilord: Hreyfiseðill, heimilislækna, viðhorf, lífsstíllssjúkdómar, heilsuefling.

Physical activity on prescription (PAP) as a resource of treatment in Iceland:

General practitioners' view

A systematic analysis on the global burden of disease found that non-communicable diseases became more common between 1990 and 2010. Some of these diseases develop due to lifestyle, habits like smoking, drinking, unhealthy diet and physical inactivity (Lozano et al., 2012). Lee et al. (2012) found that 6-10% of the major non-communicable diseases are due to physical inactivity worldwide. The findings of Lee et al. also indicate that physical inactivity is no less of a lethal risk factor than smoking or obesity.

Physical activity (PA) is defined as any bodily movement that requires the use of striated muscles and can be looked at as the opposite of sedentariness (Straub, 2014). PA has shown to be beneficial for recovery, treatment and prevention of many common illnesses. Research on PA as a treatment for various diseases has been widely acknowledged for some time (Kallings, 2010; Sundhedsstyrelsen, 2011). The Danish handbook on the prevention and treatment's effect on PA (Sundhedsstyrelsen, 2011) compiles research evidence of the beneficial effects of PA as treatment for various illnesses and as a health promoting lifestyle to prevent lifestyle illnesses. PA is also of great importance in rehabilitation process after and during illnesses. (Sundhedsstyrelsen, 2011).

Physical activity on prescription (PAP) is a resource for general practitioners to make PA a bigger and more influential part of their patients' treatment. The patients are motivated, encouraged and receive guidance from general practitioners and physiotherapists (Auður Ólafsdóttir, 2013). PAP is called *Hreyfiseðill* in Icelandic. This resource of treatment has been in development in Iceland since 2011. All GPs in Iceland have had access to PAP since May 2014 (Velferðarráðuneytið, 2014, n.d.).

The process of prescribing PAP varies between countries. The process of prescribing PAP in Iceland (*Hreyfiseðill*) starts with the general practitioners evaluating the patient's need of PAP alone or along with medication. The next step is an interview with an assigned physical activity trainer, a physiotherapist, who supervises the practical part of the therapy and the follow-ups. After each PA session, the patient calls a phone number or signs in to a webpage to confirm the activity. By doing this, the physiotherapist, the GP and the patient himself can keep track of their activity and the patient gets appropriate feedback (Auður Ólafsdóttir, 2013). Figure 1 shows the prescription process for PAP graphically.

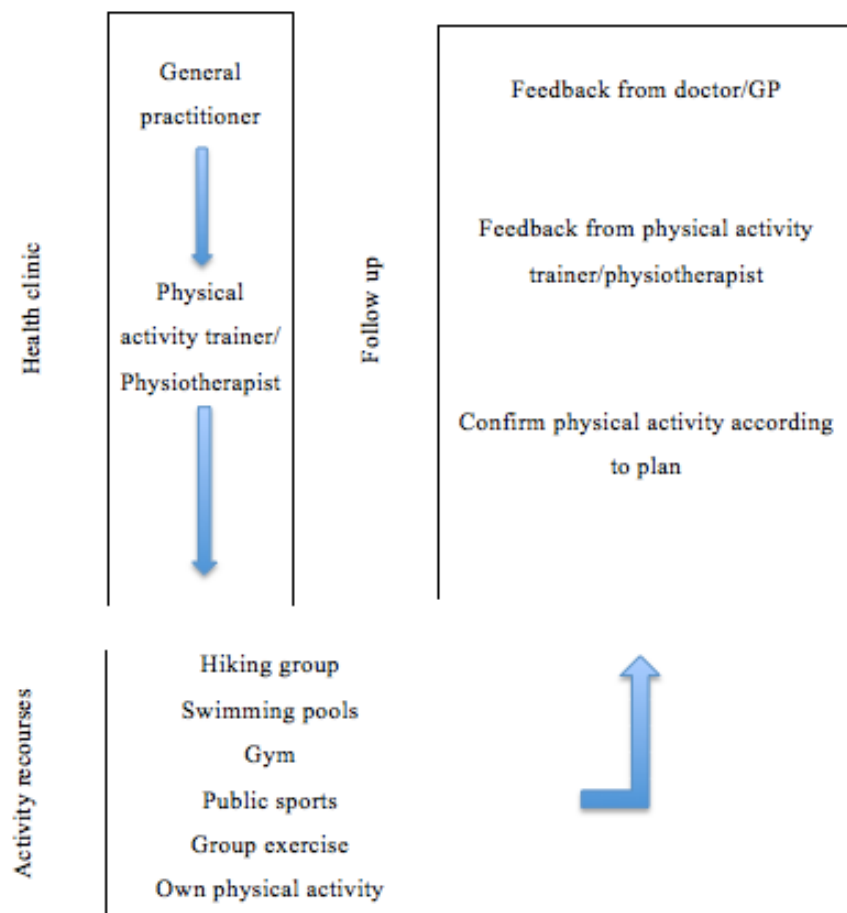


Figure 1. The steps in the process of the PAP program in Iceland (*Hreyfiseðill*).

PAP requires some changes in the GPs' work procedures, therefore, their opinion and attitude towards PAP is important (Auður Ólafsdóttir, inducer of

Hreyfiseðill, interview December 11th 2014). The following researches from France, New Zealand and Sweden show that PAP have received various reactions from GPs in different countries (Attalin, Romain, & Avignon, 2012; Patel, Schofield, Kolt, & Keogh, 2011; Persson, Brorsson, Ekvall Hansson, Troein, & Strandberg, 2013).

In a cross-sectional survey of 254 GPs (80% response rate) in southern France, the GPs were asked about their opinion on PA as a treatment for obesity (Attalin et al., 2012). The results from this study show that the main hindrance for the practitioners to prescribe PAP was their lack of experience in giving PA advice, which led them to use other types of treatment, like for instance diet advice. The GPs BMI, their experience of weight loss and physical activity level, had a significant influence on their attitude towards PA as a treatment for obesity (Attalin et al., 2012). Interviews with the GPs, in addition to the cross-sectional study, could have given a more profound understanding of the GPs' attitude towards PAP.

In a qualitative Swedish study, 15 of 43 invited GPs agreed to discuss the PAP program in three focus groups (Persson et al., 2013) to understand their perspective and any dissatisfaction about PAP. The discussion findings were mainly four topics. First, use of medication is traditional in general practice and changing is difficult. Second, the practitioners missed the feeling of shared responsibility with the PAP care team. The third topic was the belief in PAP. Some practitioners doubted that PAP would be more beneficial than general PA advice. Last, the lack of routine and guidelines for the prescription of PAP. The fact that only 35% of contacted GPs agreed to participate in this study is limiting. However, the method of focus groups is a good source of the GPs' view.

In New Zealand 15 GPs (5 men and 10 women) were interviewed to examine why they prescribe PAP (called Green Prescription in New Zealand) and their

experience of advising PA to patients with depression (Patel et al., 2011). Out of 15 GPs, 11 said they encouraged their patients to be more physically active. Asked about the benefits of PAP, eight GPs felt better with prescribing their patients less medication and one of the practitioners thought the patient would get better information and guidance than from the general practitioner alone. Half of the GPs mentioned time, as a barrier to PAP use. Also, the GPs wished to use PA not only as treatment but also as a preventive resource. When asked about PAP for depression management, all 15 GPs mentioned the benefits of increased endorphins and serotonin. Both of these neurotransmitters are known to make people feel better (Patel et al., 2011).

These sample studies from Sweden and New Zealand give constructive critiques on the PAP. The critique could be used to improve the treatment and its usefulness for GPs and their patients. According to the studies, the main barriers are the time it takes to prescribe PAP and the lack of training in advising physical activity. Persson (2014a) mentions that after 15 years in use, prescriptions of PAP are still few in Sweden. One of the reasons could be that both patients and GPs are looking for a quick solution. Therefore, they choose medicine over behavioral change. GPs today don't have the time to personalize the treatment and motivate the patients (Persson, 2014a). Persson (2014b) suggested the involvement of other health care employees to personalize the treatment and spare the GP's time. This should preferably be a physiotherapist, educated in personalizing the treatment and motivational interviewing. In the design of PAP in Iceland this conclusion of Persson was taken in to account with the introduction of a physical activity trainer, preferably a physiotherapist, as mentioned above.

As can be seen from the scarce literature above, it is important to conduct further research in this field. The current study will examine GPs' attitude towards PAP in Iceland, *Hreyfiseðill*. The study will also seek to find ways to improve and increase the use of PAP in Iceland. The first hypothesis is that the GPs' attitude towards PAP in Iceland would be quite negative. The second hypothesis is that the main barrier would be time limitation. The third hypothesis is that the GPs' attitude would get better with higher personal physical activity level (PAL). The fourth hypothesis, the GPs' attitude would get better with lower employment age. The fifth hypothesis is that the GPs' attitude would not be different by gender.

Method

Participants

The participant sample included general practitioners working in Iceland and who were members of The Association of Icelandic General Practitioners (*Félag íslenskra heimilislækna*). The exact number of the GPs in the sample was hard to obtain. The reason is the lack of access to the number of members and the difficulty of sorting e-mail addresses where some GPs had more than one address. Paying members in the association in the year 2014 were 189 and the questionnaire was sent to 239 e-mails. A total of 93 doctors participated in the quantitative part of the research but one was excluded because he worked abroad. Participants were 92 in the end, 38.7% female (n=36) and 60.2% male (n=56). The response rate was somewhere between 40-50%. The participants' employment age was from 5 years or less to 36 years or more.

For the qualitative part of the study, six GPs were selected to be interviewed and five GPs agreed to participate. When selecting the GPs for the interviews, a few things were kept in mind. They were equal gender balance (3 male and 3 female), as

well as, one GP who was known to be openly against PAP in Iceland and another who was known to be in favor of this resource of treatment. The opinion of the other four GPs who were contacted was not known. All participants either had studied abroad and/or had some work experience abroad. No GPs had experience of PAP in countries other than Iceland.

Measures

The quantitative questionnaire contained 12 multiple-choice questions. The questions regarded attitudes towards PAP in Iceland as well as a few background questions about gender, employment age and physical activity level (PAL). The quantitative questionnaire was designed by the researcher with respect to results from existing studies on PAP. Also, advice was sought from two innovators of PAP in Iceland, Jón Steinar Jónsson, general practitioner and Auður Ólafsdóttir, physiotherapist. Most of the questions were on a scale with the five following variables “strongly agree, agree, neither agree nor disagree, disagree, strongly disagree”. Examples of questions are: “*Hreyfiseðill* has benefits above other treatments that also increase the patient’s physical activity level” and “I prescribe *Hreyfiseðill* to my patients when appropriate”. The whole questionnaire is available in Appendix A. The questionnaire was submitted through the questionnaire program Survey Monkey and a direct link to the questionnaire was sent by e-mail. Therefore, a computer or a smartphone was required to participate. The interviews were recorded with an iPhone.

The frame for the interviews was a guideline for the interviews and it contained four introducing questions such as “What is your education?” and “Where have you been working as a general practitioner, in the countryside or abroad?” Next, open-ended questions in four categories were put forward: Attitude, experience,

theoretical background and the future of PAP in Iceland. The researcher designed the questionnaire frame for the interviews in cooperation with Jón Steinar Jónsson. The interview frame is available in Icelandic in Appendix B. The interviews were typed in to Word and examined by the four categories. They were attitude towards PAP in Iceland, experience with PAP in Iceland, theoretical background and the future and compensations of PAP in Iceland.

Validity was tested by having one of the innovators of PAP in Iceland proofread the questionnaire and the interview frame. Items were revised according to the comments.

Procedure

The quantitative part of the research was submitted before the qualitative part. Before submitting the questionnaire the association of Icelandic general practitioners sent an e-mail to all general practitioners on their post list to inform them that the questionnaire would be sent in a few days. They were asked to respond to the e-mail if they didn't want to participate. The research was submitted to all the GPs who did not respond. The questionnaire was sent to 239 e-mails as a direct link through Survey Monkey along with research introduction and instructions (see Appendix A). A reminder was sent after one week and then again two weeks after the submission. After all three e-mails, there were a number of automatic responds noting the GPs' absence for a certain period of time because of vacation or other reasons. Three weeks after submission the study was considered finished.

For the qualitative part of the study, six GPs were selected for the interviews. The researcher then called the selected GPs' workplaces and asked if they would like to be interviewed. The interviews took place in the GPs' workplace at a planned time that suited both the researcher and the interviewee. Before the interview, the GP read

and signed an informed consent (see Appendix C) and the researcher received permission to record the interview before it started. The same researcher interviewed all GPs and each interview lasted between 15 to 20 minutes.

Research design

The independent variables were the GPs' gender, employment age and PAL. The dependent variable was the GPs' attitude towards PAP in Iceland.

The gender variable was divided into male and female. Employment age and PAL was originally divided into five categories. Employment age: 5 years or less, 6 to 15 years, 16 to 25 years, 26 to 35 years, 36 years or longer. PAL: Never, 1 to 2 days a week, 3 to 4 days a week, 5 to 6 days a week, every day of the week. To make the groups more identical some groups were recoded. The last two groups for employment age were added together and renamed "26 years or longer". In PAL the first two groups were added together in to a group called "rarely". The middle group, before known as "3 to 4 days a week", was renamed "sometimes" and the last two groups were added together and called "often". The GP's attitude was measured with 9 questions (Q3, 4 and 8a-g). The questions were computed into a scale and subtracted with 9. The scale reached from 0 to 45 and it was incremental, 0 measuring the most negative attitude towards PAP and 45 the most favorable. The reliability of the attitude scale was calculated with Chronbach's alpha. The reliability was $\alpha = 0,842$ which reflects a good internal consistency. None of the items would increase the reliability, more than the minimum noteworthy change ($\alpha \geq 0.05$), if deleted from the instrument.

Correlation was calculated with Spearman's rho, and comparison of the GPs' attitude means was calculated with ANOVA (Analysis of variance).

Results

The results from the two study parts were put forward separately, first the quantitative part and then the qualitative part.

Quantitative

Descriptive statistics tables 1, 2 and 3 show percentage of the GPs answers to the questions.

Table 1

Percentage of the GPs answers by questions about their communication with their patients about PA and their access to PAP in their workplace.

Questions	Strongly agree/ Very easy	Agree/ easy	Neither nor	Disagree/ Difficult	Strongly disagree/ Very difficult	Missing data/ Don't know
1. I ask my patients about their history when appropriate	35.9	54.3	5.4	4.3	0	0
2. I believe that my patient's, which I advise to increase their physical activity, follow my advice	38	0	41.3	20.7	0	0
7. How easy or difficult is the access to <i>Hreyfisedill</i> in your workplace?	55.4	20.7	8.7	4.3	4.3	6.5

Most GPs agreed and strongly agreed (90.2%) that they ask their patients about their history of PA when appropriate and none strongly disagreed. The answers were more diverse to the next question. It asked the GPs if they thought their patients followed their advice about increasing their PA. Most neither agreed nor disagreed (41.3%), a similar number of GPs strongly agreed (38%) and 20.7% disagreed. Lastly, most GPs thought they had very easy or easy access to PAP (76.1%), still there was 8.6% that did not think they had easy access to PAP.

Another question asked the GPs if they prescribed PAP with other treatments such as medication. A majority or 72% of the GPs found it dependent on each individual case. It is noticeable that 12% never prescribe PAP. A question about the theoretical background asked if the GPs agree or disagree that increased PA and stamina have positive effect on the following illnesses: Diabetes 2, cardiovascular

disease, musculoskeletal problems, mild depression, anxiety and stress, overweight/obese. All (100%) GPs chose diabetes 2, cardiovascular disease, musculoskeletal problems and all but one (98.9%) chose mild depression, anxiety and stress, overweight/obese. In an open-ended question that asked for other diseases or health problems that PA might have positive effect on, the GPs mentioned that it had good effect on, sleep difficulties, self-esteem, mortality and morbidity, constipation, lung problems, addiction and cancer.

There was a question about what restrained the GPs from prescribing PAP. Table 2 shows the GPs answers to the question.

Table 2

Percent of the GPs answers by questions measuring what may restrain them from prescribing PAP.

9. How much do you agree or disagree that the following item restrain you to prescribe *Hreyfiseðill*?

	Strongly agree	Agree	Neither nor	Disagree	Strongly disagree	Missing data
a) Time limitation	6.5	23.7	21.5	30.1	12.9	5.4
b) Lack of practice in motivating the patient	8.6	12.9	21.5	33.3	19.4	4.3
c) Disbelief in the resource of treatment	6.5	11.8	15.1	34.4	29.0	3.2
d) Bad experience with <i>Hreyfiseðill</i>	5.4	4.3	19.4	34.4	32.3	4.3
e) Lack of clear guidelines for the resource of treatment	3.2	12.9	23.7	32.3	18.3	9.7
f) The patient's lack of interest	22.6	33.3	22.6	15.1	3.2	3.2
g) Other resources to increase physical activity are better	4.3	6.5	36.6	31.2	15.1	6.5
h) I'm not in favor of distributed responsibility in the health care system	1.1	1.1	12.9	37.6	38.7	8.6
i) Collaboration with a physical activity trainer	2.2	5.4	19.4	29	39.8	4.3

The GPs agreed that the item “The patients’ lack of interest” restrained them from prescribing PAP, therefore, the second hypothesis was not met. Most GPs answers strongly disagreed or disagreed that the following did not restraint them from prescribing PAP: “Lack of practice in motivating the patient”, “Disbelief in the resource of treatment”, “Bad experience with *Hreyfiseðill*”, “I’m not in favor of distributed responsibility in the health care system”, “Lack of clear guidelines for the resource of treatment” and “Collaboration with a physical activity trainer”. There was more distribution in answers to the question regarding “Time limitation” and regarding “Other resources to increase physical activity are better” even though they were more disagreeing for both questions that it restrained them from prescribing PAP. There was an open-ended question where the GPs could mention other things, than those mentioned in the questionnaire, that restrained them from prescribing PAP. The GPs mentioned issues like forgetting about the treatment, the lack of success in other countries, no subsidy with the resource of treatment, not in routine yet, no access and the patients lack of interest. The first thing to note is that the majority ($\geq 50\%$) of the GPs agreed or strongly agreed with all of the questions. Therefore it can be assumed right away that the first hypothesis was not met. Almost 80% found that PAP in Iceland had benefits above other treatments that also increase PA. There were 73.1% of the GPs that agreed or strongly agreed that they prescribe PAP to their patients when appropriate, however, 12,9% disagree or strongly disagree. The majority agreed or strongly agreed that the patients’ interest (86%) and their believe in the treatment (87,1%) had a lot to do with the GP’s prescribing PAP. Other measures that also encouraged most GPs to prescribe PAP to their patients when appropriate were “Distributed responsibility in the health care system”, “Belief in the resource of treatment” and “Collaboration with a physical activity trainer”. There was an open-ended question where the GPs could mention other things, than those

mentioned in the questionnaire, that encourage them to prescribe PAP. The thing they mentioned was that the resource is beneficial and favorable to the patient.

Table 3 shows percentage of the GPs' answers to the questions that measure attitude that explains what leads to their positive attitude.

Table 3

Percent of the GPs answers by questions measuring attitude.

Questions	Strongly agree	Agree	Neither nor	Disagree	Strongly disagree	Missing data
3. <i>Hreyfiseðill</i> has benefits above other treatments that also increase physical activity level	25.8	53.8	8.6	5.4	4.3	2.2
4. I prescribe <i>Hreyfiseðill</i> to my patients when appropriate	33.3	39.8	11.8	5.4	7.5	2.2
8. How much do you agree or disagree that the following item encourage you to prescribe <i>Hreyfiseðill</i>						
a) The patient's interest	63.4	22.6	7.5	3.2	1.1	2.2
b) My believe in the resource of treatment	53.8	33.3	5.4	2.2	2.2	3.2
c) The lack of other resources to increase physical activity	21.5	29	33.3	10.8	3.2	2.2
d) Good experience with <i>Hreyfiseðill</i>	22.6	34.4	31.2	2.2	5.4	4.3
e) Distributed responsibility in the health care system	33.3	39.8	16.1	4.3	1.1	5.4
f) Collaboration with a physical activity trainer	39.8	38.7	15.1	2.2	2.2	2.2
g) Clear guidelines for th of <i>Hreyfiseðill</i>	32.3	36.6	19.4	4.3	5.4	2.2

The GPs' attitude was measured with the questions in table 3. They were added together to make a scale. Figure 2 shows descriptive statistics with a negative skewed distribution in GPs' attitude towards PAP. The most frequent value was 25, the mean was 26.9 and the median 27.9. The lowest and highest value was 7 and 35 respectively. The whole scale range was 0 to 45.

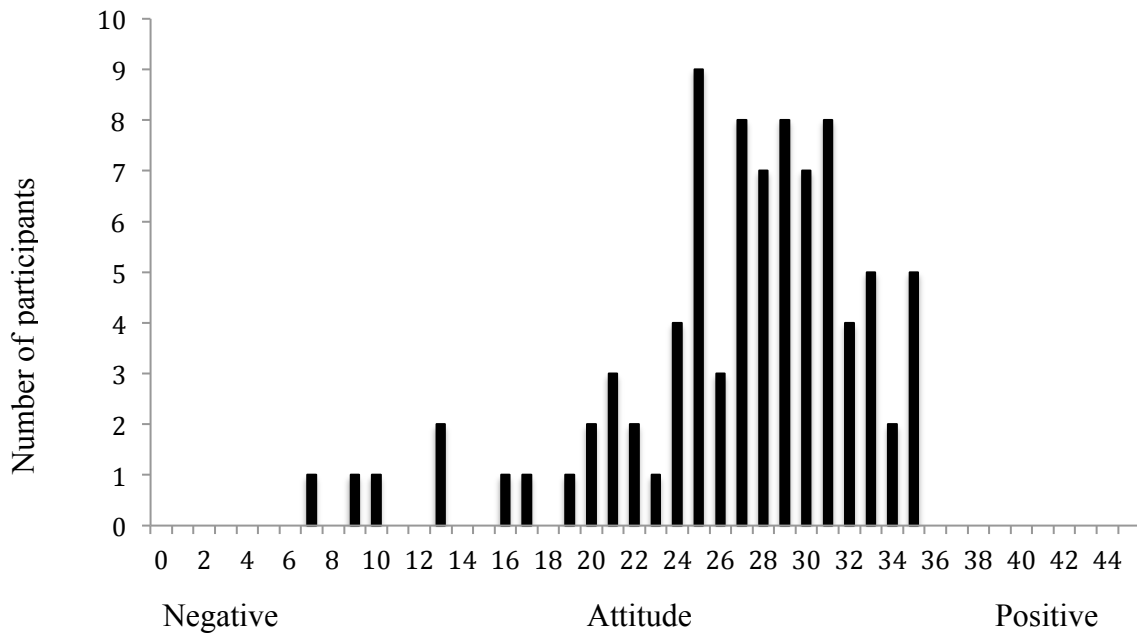


Figure 2. Distribution of the GPs' attitude score

The first hypothesis was that the GPs' attitude would be rather negative. If the middle of the scale (22.5) is used as a perceived average the GPs' attitude mean is higher, as well as the median and the most frequent value. As a result the GPs' attitude is quite positive towards PAP in Iceland, which does not confirm the first hypothesis.

Table 4 shows the 92 participants background information of age, PAL and employment age as well as the group's attitude mean. Most GPs were rarely or sometimes PA for both genders. Male GPs had a higher employment age than the female GPs. Most male GPs had an employment age of 26 years or longer and most female GPs had 5 years or less of practitioners' experience. The GPs' attitude mean was more negative with higher PAL and with higher employment age.

To test the third and fourth hypothesis the relationship between attitude and PAL and attitude and employment age was tested with Spearman's rho correlation. The correlation showed a significant negative relationship between attitude and PAL ($r = -0.26$; $p = 0.017$). That is the opposite relationship that was hypothesized. There was no significant relationship between attitude and employment age ($r = -0.17$; $p = 0.126$).

Table 4

Descriptive statistics of the GPs' gender, PAL and employment age. The number of GPs in each group by gender, groups attitude mean and standard deviation (SD).

Background information		Male	Female	Total	Attitude mean	SD
PAL	Rarely	22	13	35	28.4	5.6
	Sometimes	20	15	35	26.2	5.6
	Often	14	8	22	25.4	6.7
Total		56	36	92	26.9	5.9
Employment age	≤ 5 years	6	12	18	29.1	4.1
	6-15 years	9	10	19	27.6	5.1
	16-25 years	13	8	21	25.7	6.3
	≥ 26 years	28	6	34	25.9	6.7
	Total		56	36	92	26.9

To analyze the relationship between attitude and PAL better ANOVA was used to compare the attitude means between the PAL groups. The calculations showed no significant difference between the groups of PAL ($F(2, 83) = 2; p = 0.142$). The fifth hypothesis was tested with ANOVA to compare the GPs attitude between genders. There was no significant difference between male ($\bar{x} = 26.1$) and female ($\bar{x} = 28$) attitude towards PAP in Iceland ($F(1, 84) = 2.3; p = 0.133$).

Qualitative

Five interviews were analyzed with the four categories in mind. The categories were attitude towards PAP in Iceland, experience with PAP in Iceland, theoretical background and the future and compensations of PAP in Iceland. In tables 5, 6, 7 and 8 the main result for each category is presented with quotes from the participants.

Attitude towards PAP in Iceland. From the quotes in table 5 we can see that the first thoughts about PAP in Iceland were quite positive. Motivation and supervision in the patients near-environment, that some would hopefully benefit from. However, there was doubt that it would make a difference. After gaining some

experience, the GPs were positive but still not prescribing many PAPs and no consistent answer why.

Table 5

Quotes from interviews for the category “Attitude towards PAP in Iceland”

Category	Question	Quotes
Attitude towards PAP in Iceland	What was your first thought when you first heard about <i>Hreyfiseðill</i> ?	<p>“I liked it from the beginning, it was exciting and something that would be helpful for people.”</p> <p>“I thought it was interesting...this is support in peoples near environment that have not done much for themselves and might have some motion disabilities and need motivation and supervision.”</p> <p>“I felt positive vibes, that we had something that we could use in practice that the patients could benefit from.”</p> <p>“That this would probably help, especially disciplined people...”</p> <p>“Maybe at first I didn’t have much belief that it would work...I wondered about the research background.”</p>
	Has your opinion changed after some time of experience with <i>Hreyfiseðill</i> ?	<p>“No, this is of course very important.”</p> <p>“No not really...this has not disappointed me...I have not necessarily been the most active in sending people to this project of my colleagues.”</p> <p>“I have been disappointed because I feel the patients are skeptic somehow.”</p> <p>“This is a great idea and a good instrument...I have prescribed some but not much I have to admit.”</p>

Some suggested that the Icelanders were not disciplined enough. Another theory was that the patients have tried many ways to be more physically active without succeeding. That could expose them to skepticism when the idea is brought up. Others mentioned that a few in their patient group were suited for this kind of treatment. All GPs that had access to PAP mentioned that it was not easy to remember the existence of the resource of treatment. Still there was interest in increasing the use of PAP or try it out when access had been finalized, which was the case for one of the GPs.

Experience with PAP in Iceland. As mentioned above most GPs had prescribed few PAPs. One of the GPs did not have access to PAP but had received two requests from patients about the resource of treatment without being able to prescribe them.

Table 6

Quotes from interviews for the category “Experience with PAP in Iceland”

Category	Question	Quotes
Experience with PAP in Iceland	How has the experience of <i>Hreyfiseðill</i> been for you and your patients?	<p>“I have not really prescribed any”</p> <p>“I send patients to normal physiotherapy more”</p> <p>“It’s not as easy to motivate people as I hoped... The patients that need this the most are the least interested for some reason”</p> <p>“I have had one patient that could take advantage of the treatment... I also have one or two examples where it started well but then faded out when people have not been self-motivated enough”</p> <p>“This is quite impersonal so it’s probably not for everyone”</p> <p>“There come dry spells but it’s one of those instruments you learn to use... Some people are inactive and this has been a very important additional treatment for them”</p>

One GP mentioned that it is too impersonal for some patients. Most GPs talked about the difficulty of motivating the patient; especially the ones that need it the most and have multimorbidity problems. One GP talks about that PAP is especially helpful for people who go from no activity to little activity. Some examples where brought up, that were memorable for the GPs, of patients in the PAP program in Iceland. A lady had started the program to get better usage of future treatment in the rehabilitation center in Hveragerði. Another example was a young overweight couple on the verge of getting type 2 diabetes. They would stand by each other and encourage each other through the treatment. An old lady had started swimming gymnastics by herself and noticed the good effect it had on her. She had heard about

PAP and asked her GP if she could start the program to get the guidance and feedback according to the program.

Table 7

Quotes from interviews for the category “Theoretical background”

Category	Question	Quotes
Theoretical background	What do you feel about the theoretical background?	<p>“There are so many researches that support this now”</p> <p>“I don’t think that any of us, that work in the health industry, lack the knowledge of the importance of physical activity.”</p> <p>“I got the introduction in Sweden and I have the handbook “Fyss på recept” which is really impressive and interesting...”</p> <p>“I would like to see a good long term research that proves the benefit of this resource of treatment”</p> <p>“<i>Hreyfiseðill</i> has existed in Sweden for many years and people disagree about the treatment. Some people want to continue and others don’t and say that there is little benefit from this.”</p>
	Are there any illnesses you prefer prescribing <i>Hreyfiseðill</i> for?	<p>“Yes maybe we have been focusing on people with type 2 diabetes, musculoskeletal problems and fatigue symptoms.”</p> <p>“All the common problems that lead to invalidity like musculoskeletal problems, osteoarthritis, overweight, mental health problems and circulatory, respiratory problems and others... the large categories.”</p> <p>“The problem is the depressed people with arthritis or other... the group of people that have multimorbidity.”</p> <p>“I have mentioned diabetes, obesity and high blood pressure... than we have a lot of musculoskeletal problems, osteoarthritis, arthralgia and back problems.”</p> <p>“ I have a special interest in people that are getting close to metabolic syndrome and then there are diabetes, obesity and cardiovascular diseases.”</p>

Despite these positive examples the GPs agreed that it was more common that people would enter the program with a good start and then their motivation would fade away despite the feedback from the physical activity trainer and the GP.

Theoretical background. The GPs know the effect that PA can have on people's health. Also, the public is aware of the importance of PA and it is increasing for some people according to the GPs. When asked about what illnesses they preferred to prescribe PAP for, they had similar answers even though they had a different focus in regard of their clientele. The health problems mentioned were type 2 diabetes, musculoskeletal problems, osteoarthritis, obesity, mental health problems, circulatory, respiratory problems and cardiovascular diseases. Before PAP came to use the GPs encourage their patients to be physically active, and they still do. One GP stated the fact that 5% quit smoking when advised from their GP. Therefore, it can be assumed when GPs advise their patients to be more physically active there is a percent of patients that take their advice. The GPs want a longitudinal research to see if the effect of the PAP in Iceland is still there in a few years time and if there is in fact increased morbidity and mortality.

The future and compensations of PAP in Iceland. The GPs hoped for a bright future for PAP in Iceland, if it is beneficial for the patients. However, they agree that some more effort and funding are needed for the project to forge ahead. Some ideas on how to increase the success rate of the treatment came up; advertising PAP for the general public in the clinics' waiting rooms, in newspapers and on posters. A discount to the gym or the swimming pool could help. Two GPs mentioned ideas that could help the GPs' practice. A handout for GPs to give to their patients with information about PAP in Iceland and a little motivation could simplify their practice and the introduction of PAP for each patient. The issue concerning GPs having problem with remembering the resource could be solved with a monthly "fun fact" about PAP in Iceland sent by e-mail. That could keep a higher state of awareness

about PAP amongst GPs since passive motivation is really the essential thing that is missing to increase the usage of PAP.

Table 8

Quotes from interviews for the category “The future and compensations of PAP in Iceland”

Category	Question	Quotes
Future of PAP in Iceland and compensations	Is there something you think can be done for the innovation of <i>Hreyfiseðill</i> in the future?	<p>“I think there will be a testing of the treatment for a period of time. Then the question is how the benefits will be analyzed. Like with other new treatments, medication or other, the benefit has to be analyzed.”</p> <p>“I hope it gets a good response...but it would be preferred to get more money for this.”</p> <p>“Maybe have more of pop-up advertisement “Have you asked your general practitioner about <i>Hreyfiseðill</i>?””</p> <p>“To make people more aware with public advertisement, some propaganda and posters...”</p> <p>“It would be a good idea to have some kind of handout with information about <i>Hreyfiseðill</i> and some motivation attempt.”</p> <p>“The problem is, how do we activate people to take responsibility for their own problems.”</p> <p>“If research shows that there is benefit from this and if there is money available, then there might be more advertisement e.g. here in the reception...we could get information sent by e-mail ... to lift our awareness level of this new resource of treatment.”</p> <p>“It’s important to remind and draw attention to this.”</p> <p>“We need motivation ... more public discussion and advertisement.”</p>

The real problem, according to the GPs, is the mindset and attitude of patients and of society towards the concept of PAP. People have to take responsibility for their own health not hand their problems over to the health care system to fix with a short-term solution. This propaganda has to start at a young age, it is not only the health

care system's problem; it society's problem, according to one of the GPs. PAP is a resource of treatment to help people take responsibility of their health with PA.

Discussion

The first hypothesis was not met. The GPs' attitude towards PAP in Iceland was more positive than expected. The GPs' positive attitudes towards PAP in Iceland are helpful and it is good to know that they have an open mind for a new resource of treatment. Most GPs think the resource of treatment has benefits over other resources they have been using before, for the same purpose of increasing their patient's PA. The second hypothesis was that time limitation would be the main barrier of the GPs' lack of prescribing PAP. Time limitation was not the main barrier but clearly one of the restrains. The design of the Icelandic PAP relies based on Persson's (2014b) idea of distributing responsibility with the PAP care team. That may have reduced the barriers of time limitation even though it is still an issue. PAP in Iceland is not well known by the public and it is time consuming to introduce the treatment to each patient. Hypothesis three, four and five focus on the GPs' attitudes relationship with the GPs' PAL, employment age and gender. The two later background characteristics do not have a significant relationship with attitude. However, there was a significant relationship between the GPs' PAL and attitude. With higher PAL the GPs' attitude decreases. That is the opposite of the correlation hypothesized. It is difficult to find the explanation for this relationship. Possibly, GPs that are more physically active believe they can advise their patients about suitable PA and, therefore, don't feel the need to prescribe PAP.

What seems to encourage, as well as restrain, the GPs the most from prescribing PAP is the patient's interest. The patient takes the final decision whether the PAP is prescribed or not and that depends entirely on his interest. The patients'

interest could be molded with motivation but according to the interviews it is hard to motivate the patients who need PAP the most, those with multimorbidity problems. The patients as well as the GPs are used to quick solutions with medication, which has an immediate reinforcement when PAP has a delayed reinforcement (Persson, 2014a). In the interviews the GPs point out the barrier of people's mindset. The public must take responsibility of their health, treat and prevent health problems with reduction of risk factors in their lifestyle.

There was one barrier that was not predicted for this study. That was the fact that the PAP is not in the GPs' routine and they forget about the existence of the treatment. It was stated in the open-ended question as one of the reasons that restrained the GPs from prescribing the PAP. Also, the GPs mentioned the difficulty of keeping a high awareness stage of PAP. One of the GPs in the interviews did not have access to the PAP, additionally close to 10% of the GPs thought PAP was hard to access within their workplace. That does not encourage the GPs to use PAP.

There were a number of improvements suggested in the interviews to increase the usage of PAP in Iceland. A practical change could be done with handouts with information about PAP in Iceland. It would give the patient time to make an informed decision and adapt to the idea of behavioral change and it would also be a timesaver for the GPs. With more advertisement and evoking awareness of PAP within the public, patients could be more receptive of the treatment. A reminder for the GPs could, for example, be a monthly e-mail with "fun facts" or a short informative message to keep them tuned and aware of the treatment. Another point made in the interviews, was the importance of knowing if PAP is making more of a longtime difference than other resources with the same purpose that may cost less. Have the GPs been doing the same for their patients as the PAP is doing now, only by giving

their patients general advice about increasing PA? Interesting future subjects of research would be the long time effect of PAP in Iceland. As well as, if the long time benefits of PAP is greater then general advice about increasing PA for the patient.

The advantage of the research was the mixture of qualitative and quantitative research design to get a wider perspective on the subject. The response rate was good in the qualitative part, 5 out of 6. The interviewer was the same for all the GPs and the interview frame helped construct the interviews to be similar to each other and equal for each GP.

The disadvantages of the research were that the interviewer was not experienced, which resulted with some leading questions. The response rate of the quantitative part was between 40-50%, it was not as high as hoped. The interviews where resourceful and conducting, more interviews could have revealed other perspectives and ideas of how to increase the success with PAP in Iceland.

The GPs' positive attitude towards PAP in Iceland is a pleasant surprise. Hopefully, with time, more experience and some changes to decrease the barriers, like the ones mentioned above, the usage of PAP will increase. That is, if the treatment turns out to have a longtime positive effect.

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Appendix A

Questionnaire, research introduction and instructions.

This questionnaire is one part of a Bachelor assignment of a psychology student in the University of Reykjavík, Laufey Ásta Guðmundsdóttir. The study is implemented with the cooperation of Jón Steinar Jónsson, general practitioner, and Félag íslenskra heimilislækna (FÍH) (e. The Association of Icelandic General Practitioners). The Association sent e-mails to all general practitioners on their mailing list to inform them that the questionnaire would be sent in a few days. They could respond to the e-mail if they didn't want to participate.

The questionnaire consists of 12 questions that will take only 4 to 6 minutes to answer. By sending in your answers you agree to participate in this part of the study. All answers are confidential and cannot be traced to each participant.

The goal/aim of this study is to examine Icelandic general practitioners attitude towards *Hreyfiseðill*. *Hreyfiseðill* is a new resource of treatment to increase a patients' physical activity if appropriate. Hopefully the results will help the implementation of the resource of treatment in Iceland and make it more user friendly for general practitioners.

Please answer the questions and statements about *Hreyfiseðill*.

- 1. I ask my patients about their history of physical activity when appropriate (how often and how long they exercise)**
 - Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree

- 2. I believe that my patients, whom I advise to increase their physical activity, follow my advice**
 - Strongly agree
 - Agree
 - Neither agree nor disagree
 - Disagree
 - Strongly disagree

- 3. *Hreyfiseðill* has benefits above other treatments that also increase the patients physical activity level**
 - Strongly agree
 - Agree
 - Neither agree nor disagree

- Disagree
- Strongly disagree

4. I prescribe *Hreyfiseðill* to my patients when appropriate

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

5. If you prescribe *Hreyfiseðill*, do you prescribe it alone or with other treatment options?

- I prescribe *Hreyfiseðill* only
- I prescribe *Hreyfiseðill* with other treatments such as medication
- It depends on the circumstances each time
- I never prescribe *Hreyfiseðill*

6. Do you believe that increased physical activity/increased stamina has a positive effect on the following diseases or health problems? You can choose one or more options.

- Diabetes 2
- Cardiovascular disease
- Musculoskeletal problems
- Mild depression
- Anxiety and stress
- Overweight/obese
- Other? _____

7. How easy or difficult is access to *Hreyfiseðill* in your workplace?

- Very easy
- Easy
- Neither easy nor difficult
- Difficult
- Very difficult
- Don't know

8. How much do you agree or disagree that the following statement encourage you to prescribe *Hreyfiseðill*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
a) The patient's interest					
b) My belief in the resource of treatment					
c) The lack of other resources to increase					

physical activity					
d) Good experience with <i>Hreyfiseðill</i>					
e) Distributed responsibility in the health care system					
f) Collaboration with a physical activity trainer					
g) Clear guidelines for the use of <i>Hreyfiseðill</i>					

h) Are there other factors encourage you to prescribe *Hreyfiseðill*? If so, what? :

9. How much do you agree or disagree that the following statements restrain you to prescribe *Hreyfiseðill*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
a) Time limitation					
b) Lack of practice in motivating the patient					
c) Disbelief in the resource of treatment					
d) Bad experience with <i>Hreyfiseðill</i>					
e) Lack of clear guidelines for the resource of treatment					
f) The patient's lack of interest					
g) Other resources to increase physical activity are better					
h) I'm not in favor of distributed responsibility in the health care system					

i) Collaboration with a
physical activity trainer

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j) Are there other factors that restrain you from prescribing *Hreyfiseðill*? If so, what?
: _____

Please answer a few background questions.

10. How long have you been working as a general practitioner (including years in specialized training)

- 5 years or less
- 6 to 15 years
- 16 to 25 years
- 26 to 35 years
- 36 years or longer

11. How many days a week do you exercise (for 30 minutes or more) normally?

- Never
- 1 to 2 days a week
- 3 to 4 days a week
- 5 to 6 days a week
- Every day of the week

12. What is your gender?

- Female
- Male

Appendix B

Question frame for the interviews in Icelandic.

Til að byrja með langar mig að spurja þig nokkrar spurningar um þig:

Hver er menntun þín?

Hvað hefur þú starfað lengi sem heimilislæknir

Hvar hefur þú stafað, úti á landi, í útlöndum og fl.?

Hefur þú reynslu af PAP í öðrum löndum?

Upplifun af Hreyfiseðlum

1. Hver var hugsun þín þegar þú heyrðir fyrst af Hreyfiseðlum?
2. Hvað finnst þér núna þegar þeir hafa verið í notkun í tæplega eitt ár á Íslandi?
3. Hvað finnst þér um þessa viðbót í safn meðferðarúrræða fyrir skjólstæðinga þína? (miðað við þá reynslu sem þú hefur af þeim)

Reynsla af Hreyfiseðlum

4. Hvernig hefur Hreyfiseðill reynst þér og þínum skjólstæðingum (ef þú hefur skrifað út Hreyfiseðil)?
 - Má kannski spurja um dæmi?
 - Hefur skjólstæðingur komið til þín og beðið um Hreyfiseðil?
 - Þekkja skjólstæðingar þínir úrræðið?

Fræðilegur bakgrunnur

5. Hvernig finnst þér fræðilegur bakgrunnur ?
6. Fyrir hvaða sjúkdóma notar þú Hreyfiseðil helst?

Framtíð Hreyfiseðla

7. Er eitthvað sem þú telur vera hægt að gera fyrir Hreyfiseðla og innleiðingu þeirra til að notkun verði meiri hjá heimilislæknum (og síðar öðrum læknum þegar kemur að því að þeir fái aðgang að þeim)?
8. Hvernig sérðu fyrir þér framtíð Hreyfiseðla á Íslandi?

Appendix C

Information consent signed before interview.

Upplýst samþykki þátttakanda

Í rannsókninni sem ber yfirskriftina; Physical activity on prescription as a resource of treatment: General practitioners view, er fyrirhugað að útvaldir þátttakendur veiti eitt viðtal þar sem notast verður við hálfopnar eða óformlegar spurningar.

Í viðtölunum er verið að kanna hver sé upplifun og viðhorf íslenskra heimilislæknatil Hreyfiseðla.

Viðtölin verða hljóðrituð en nöfn þátttakenda eða aðrar persónurekjandi upplýsingar koma aldrei fram í rannsóknargögnum. Ekki verður því hægt að rekja svör til einstakra þátttakenda. Svörin verða flokkuð eftir efnispáttum sem ein heild en ekki eftir svörum hvers þátttakanda fyrir sig. Viðtölin munu taka um það bil 20-30 mínútur og fara fram á fyrirfram ákveðnum stað í samráði við rannsakanda og þátttakanda.

Rannsóknaraðili mun hafa samband við viðkomandi þátttakanda til að segja til um mánaðardag og tímasetningu viðtala.

Undirrituð(aður) hefur kynnt sér upplýsingatextann hér að ofanverðu og hefur verið upplýst(ur) að fullur trúnaður mun ríkja með allar þær upplýsingar sem hann mun koma til með að gefa rannsakanda og að hann geti hvenær sem er óskað eftir því að hætta í rannsókninni. Rannsakandi mun með undirskrift sinni staðfesta þennan trúnað

Með undirskrift minni samþykki ég þátttöku mína í umræddri rannsókn.

Staður og dagsetning: _____

Undirskrift þátttakanda

Undirskrift rannsakanda

Rannsakandi staðfestir að heita fullum trúnaði gagnvart þeim upplýsingum sem þátttakandi gefur í rannsókninni.