

Systematic counselling by general practitioners for promoting physical activity in elderly patients: a feasibility study

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Summary

Research questions: To investigate how the daily physical activities of elderly patients can be enhanced by systematic counselling conducted by general practitioners (GPs).

Methods: In this feasibility study with pre-post design, 29 people (14 females, mean age 72.2 years, SD = 6.1) were enrolled during routine visits by two general practitioners. A baseline assessment of current physical activity based on the stages according to the Transtheoretical Model was followed by a counselling session. The target behaviour was defined by performance of 30 minutes of daily moderate-intensity activities that increase the breathing rate, on five days per week. At the 2-month follow-up, subjects were assessed for improvement in stage of physical activity since baseline. After the end of the intervention, participating GPs and patients were asked questions focusing on the feasibility, acceptance and usefulness of counselling.

Results: Interview results showed that the two

GPs considered the counselling protocol easy to handle and useful for promoting physical activity. Counselling sessions were especially encouraging for the not sufficiently active people. Most of them would like to have additional counselling session. At baseline, 9 of 29 people were sufficiently active. After 2 months, this proportion was 21 of 29. The mean of the number of minutes of physical activity during the previous 4 weeks increased from 247 to 436 minutes (weekly).

Conclusions: The programme was judged positively by the general practitioners and the participating elderly patients. Systematic counselling by general practitioners led to an increase in the physical activity behaviour. Therefore, a more rigorous randomised controlled trial with adequate follow-up is recommended.

Key words: promotion of physical activity; general practitioner; systematic counselling; elderly

Introduction

The conditions for healthy aging become increasingly significant in view of the demographic development of the population in highly technological countries. The promotion of physical activity is therefore central. Studies show [1-3] that the risk of metabolic disorders, obesity, cardiac-circulatory disturbances, accidents, osteoporosis, different types of cancer and affective disorders can be reduced and that the quality of life can be enhanced through the promotion and maintenance of physical activity and strength training [4-7].

Based on international recommendations on the amount of physical activity that promotes health [8-9], stepped exercise recommendations

for the whole population were developed in the form of an "exercise pyramid" [10] in Switzerland in 1999.

The first stage of the pyramid (basic recommendation) recommends at least 30 minutes of physical activity every day for 5 days a week in the form of moderate-intensity activities that increase the breathing rate. These 30 minutes can be taken in three 10-minute sequences. The intensity can be achieved by everyday activities such as brisk walking, climbing stairs, bike riding, gardening or housework and by participating in organised exercise activities.

The second stage corresponds to additional

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training for endurance or strength and mobility. The top of the pyramid provides for additional sporting activities including competitive sport. The dose-effect relationship of physical activity shows that any increase in the use of energy results in a health benefit and applies to all age groups [10].

Despite the great importance of regular physical activity for the individual, there is still great potential for development in Switzerland. A representative survey on exercise in Switzerland (N = 1529) [11] showed that 25.6% were active with moderate intensity according to the basic recommendation of the exercise pyramid of at least 30 minutes every day, 37.3% performed additional sporting endurance training, while 37.1% were not sufficiently active. Among those over 65 (65-92 years), 49.7% were inactive. As these figures are based on self-assessment, they are likely to be an overestimate [12-13]. A more precise assessment of the minutes of activity per day [14] showed that 70% of 60- to 74-year-old people were inactive. A longitudinal analysis of the Swiss health survey [15] has shown that the proportion of inactive people increased by about 4% from 1992 to 1997.

For elderly patients the general practitioners (GP) play an important role in terms of behavioural changes; they are regularly consulted, a relationship of trust exists between them and the patients, they are perceived as health experts and therefore, their recommendations are taken seriously [10, 16, 17, 40]. Although questions have been raised about the effectiveness of Transtheoretical Model (TTM)-based interventions [41], physician interventions using the TTM framework are promising. In the intervention study by Calfas et al. [18], short systematic counselling based on the Transtheoretical Model of behavioural change was conducted by the doctor (at the baseline), and by a qualified exercise expert (2 weeks later), with 255 inactive people (average age 39 years, 84% women). In the intervention group, after 4 to 6 weeks, there was a significant increase in the time regularly spent on brisk walking. In a similarly designed study by Goldstein et al. [19], the doctor conducted two short consultations with 354 patients over the age of 50 within 4 weeks. After 6 weeks, the intervention group was more frequently physically active than the control group. At the 8-month follow-up, however, these differences no longer existed. Recently Bolognesi et al. [40] reported a randomised controlled trial on GPs' brief physical activity counselling for overweight and obese Italian patients recruited during routine physician visits. The experimental group (n = 48) receiving the Patient-centred As-

essment and Counselling for Exercise (PACE) protocol had significantly better BMI and abdominal girth compared to the usual care control (n = 48) after a 5-6 month follow-up. Stage of physical activity progression and increased self-efficacy was also documented for the experimental group.

The difficulty of long-term maintenance of positive outcomes is also indicated in two reviews. Eakin, Glasgow and Riley [20] conducted a review of primary care-based physical activity intervention studies published between 1980-98. Results showed that these interventions were moderately effective in the short term. Studies in which the interventions were tailored to participant's characteristics and which offered written materials to patients produced stronger results. A similar review [21] showed positive, statistically significant results in five of eight trials, but significant biases or limited clinical relevance of the outcomes were found in all trials. Benefits of physical activity were found in short-term trials of less than one year, single-risk-factor trials, randomised clinical trials and those assessing moderate levels of physical activity.

Research questions

Based on the review of the literature, it appears that significant positive behavioural changes with regard to promotion of physical activity have been attained through physical activity counselling with different age groups. The target group of the present study consisted of people aged 65+, who lived independently at home. Counselling was conducted by the GP and mainly related to moderate-intensity physical activities that increase the breathing rate. We did not find either internationally published studies or a counselling programme in the German-speaking area containing these guidelines. Therefore, in 2002 and 2003 we investigated how to promote daily physical activities of elderly patients through systematic counselling conducted by general practitioners (GPs).

The following questions were addressed in this article:

1. How do the participating general practitioners judge the counselling system in terms of feasibility, acceptance and usefulness?
2. How do the participating elderly people judge the physical activity counselling in terms of feasibility, acceptance and usefulness?
3. Does the chosen procedure reach active or inactive patients in comparison to the elderly Swiss population?
4. Did the older participants increase their physical activity after the GP counselling?

Methods

Study design

This feasibility intervention study is based on a pre-test design without a control group. Two general practitioners and a sample of their patients aged 65+ from the region of Zurich participated in the study.

Baseline assessment was followed by physical activity counselling in the GP's practice and there was a follow-up after 2 months. In addition, 4 months after baseline, qualitative assessments addressed the feasibility, acceptance and usefulness of the intervention with the GPs and the participants. For the GPs, this 4 month follow-up consisted of a written questionnaire and a 30-minute telephone interview; the elderly people received a 15-minute telephone interview. The telephone interviews, were evaluated qualitatively by two coders [22].

Participating general practitioners and their training

The participating GPs, were very interested in this study and had their practice in the area of Zurich. After receiving a written documentation they took part in a two hour training concerning the counselling procedure. In addition, the medical practice assistants, who were responsible for administrative elements of the counselling, were briefed. After the first 3 counselling sessions, the project management phoned the GPs to clarify any questions.

Sampling procedure and sample of the elderly people

Inclusion criteria were being at least 65 years and voluntarily consenting, while exclusion criteria were living in an old-age or nursing home, being in need of care at home, having dementia, a terminal illness or severe psychological problems. As of September 2002, the elderly patients making a routine visit to the GPs' practice who met the criteria for the study were asked to participate, until about 15 people per GP were reached. Due to a lack of time GP 1 could not inquire 9 out of 35 patients over 65 years, while 13 individuals could not participate because of the exclusion criteria. 13 (37%) persons were included. Of 22 individuals approached by GP 2 for the continuous recruitment, 5 patients could not be inquired due to a lack of time, 1 person did not want to participate and 16 (73%) individuals were included.

All 29 participants (14 [48%] female; mean age = 72.2 years, range 65 to 89, SD = 6.1) signed a written informed consent. 21 of 29 participants could be included in the final telephone interviews 4 months after the baseline: 3 people could not be contacted and 5 people had no interest in taking part in a telephone interview.

Operationalization and measurement of physical activity

The counselling programme is based on a systematic procedure: activity assessment, classification of the physical activity behaviour, adapted physical activity counselling and logging the behaviour changes. Only the activity assessment and the classification of the physical activity behaviour were conducted at the 2-month follow-up. As part of the activity assessment, questions were asked about which type of activity performed regularly in the past four weeks involved an increase in the breathing rate and for how many minutes this had been the case. The instrument for investigating the physical activity levels can further be developed, and was validated in intervention studies [30, 31, 36] and under test conditions [37, 38].

Counselling based on the transtheoretical model

The physical activity intervention is based on the Transtheoretical Model (TTM) of behavioural change, which has been applied to health behaviour and for different age groups, eg for physical activity, alcohol and drug abstinence [23–31, 34]. An important construct of the Transtheoretical Model is the consideration of the temporal perspective of motivation on the behaviour change with specific stages and processes. The five stages include precontemplation, contemplation, preparation, action and maintenance. Cognitive-emotional and behavioural processes are identified as affecting behaviour change. Further, decisional balance [32] attributed to a new behaviour, and self-efficacy expectations [33] are important. Studies showed that stage-specific physical activity interventions have led to more behaviour change than in non-stage specific interventions, where general information material is distributed [20, 35].

Precontemplators received information aiming to facilitate cognitive-emotional processes, specifically to increase perceived advantages of regular physical activity of at least moderate intensity. The GP and patient then agreed on activities that increase breathing rate, and contemplation strategies were applied. The person also received a stage-matched leaflet. The precontemplation leaflet described the advantages (pros) of exercise for older adults and defined the beneficial "dose" of three times 10 minutes almost every day to increase the breathing rate. To begin to encourage thinking about the behavioural processes, concrete tips were given, for example how activities can be built into everyday life and how contacts can be found (increase helping relationships). Also, a list of suitable exercise courses in the area was given out and discussed. With people in the contemplation stage, the benefits and costs of exercise and activity preference were discussed by the GP. The self-efficacy for everyday moderate-intensity or sport activities was a central theme in the discussion. Finally, it was again agreed, in writing, which physical activities the older person would like to engage in regularly until the next counselling session in 2 months' time. The participant was also given a stage-matched leaflet, which deals with the advantages and disadvantages of exercise, similar to the stage 1 leaflet. Also, the list of suitable exercise courses in the area was discussed.

The GP asked preparation stage people what additional activities they would like to do in order to increase their breathing rate more frequently or for longer. Options for physical activities were suggested and a list of local exercise courses was handed out. The stage 3 leaflet was structured in the same way as that of stages 1 and 2. To encourage behavioural processes it also contained an explanation, with examples, of activities involving endurance/increased breathing rate, coordination, strength and flexibility.

With people in the action stage, physical activity options were provided to avoid boredom. The leaflet for stage 4 was similar to the leaflets for stages 1–3. In addition it included examples of everyday moderate-intensity activities or sport of at least moderate intensity. With people in maintenance stage the GP asked whether the person receiving the counselling would also like to do strength training. Local fitness centres were mentioned and an information sheet on strength training for seniors was handed out. If they wanted, the stage-matched leaflet was also handed out. This leaflet had a similar structure as the stage 4 leaflet, containing the exercise pyramid in addition [10].

For preparation, action and maintenance an agreement with regard to physical activity behaviour was made and written down. At the 2 month follow-up, the GP conducted an activity assessment with all participants. More

information on the stage-specific counselling as well as on the tailored information material can be found elsewhere [36].

Results

Descriptive analyses were performed using SPSS 11.0 for Windows® (SPSS Inc., Chicago, IL, USA).

Assessment of the physical activity programme by the two GPs

Both GPs found the counselling easy to administer after 3–4 counselling sessions. Both wished that the amount of paperwork involved could be reduced. On average, GP 1 required 20 minutes for the baseline counselling (incl. post-processing, ie complete filling out of all forms) and GP 2 required 10 to 15 minutes. Both GPs planned to continue the counselling but cited lack of time for physical activity counselling as a barrier to recruitment of GPs. Both GPs thought that, with few exceptions, patients reacted very positively to the free physical activity counselling. GP 1 thought the approach was a very appropriate and GP 2 thought this was somewhat appropriate (since those who were poorly motivated would rarely be reachable).

Assessment of the physical activity programme by the elderly people participating (n = 21)

Of the 29 participants, telephone interviews could be conducted with approximately 21 people, asking questions about the feasibility, acceptance and usefulness of the counselling programme.

When asked about the frequency of counselling, 5 proposed once every 3–6 months and 7 indicated once every 6 months. Additionally, seven people said, the physical activity counselling should ideally be combined with another consultation.

Twelve liked the tailored materials and 2 did not like it. The majority (14) would like to receive the materials again, whereas 3 would not like it again. However 5 would like to continue with the physical activity counselling (all of these five were in stage 3 – preparation), 5 would not and the remainder (11) did not know. Over 50% (13) said that they changed their behaviour, eg brisk or increased walking incl. increased breathing rate, climbing stairs. 5 of the 8 people who did not alter their physical activity behaviour based this mainly on the fact that they were already very physically active. To put this in context, ten individuals said they would not have changed their behaviour without the GPs counselling, but 10 said they would have changed (1 did not answer). Five of the 10 who thought they could do it without the GP counselling thought that physical was necessary.

Physical activity level of the study group in comparison to the Swiss population

The baseline level of activity in our study was 31%, comparable with a representative study of 60–74 year old people [14], in whom the proportion was 30%.

Changed physical activity behaviour from the baseline (T1) up to the 2-month follow-up (T2)

Table 1 shows that at T1 there were no people in stage 1–2. 20 people were not sufficiently active (stage 3) and 9 people were sufficiently active (stages 4–5). At T2, after 8 weeks, 8 people were not sufficiently active and 21 people were sufficiently active. 15 people advanced a stage, 3 people decreased a stage and 11 people remained at the same stage.

Time spent on physical activities

The GP inquired which activities were performed regularly in the past four weeks and for how many minutes at baseline (mean = 247 minutes, median = 145 minutes, (SD = 275)/typical week) and after 2 months (mean = 436 minutes, median = 310 minutes, (SD = 361)/typical week) (table 2). Between the baseline and the 2-month follow-up, there was an increase in the time regularly spent on physical activities in 22 people, there was a decrease in 5 people and the time remained the same for 2 people.

Table 1
Classification at baseline (T1) and follow-up (T2) in TTM stages (N = 29).

	Baseline (T1)		Follow-up (T2)	
	Frequency	Percent	Frequency	Percent
Stage 1–2	0	0	0	0
Stage 3	20	69	8	27
Stage 4	1	3	11	38
Stage 5	8	28	10	35
Total	29	100	29	100

Table 2
Time spent on regular physical activity during one week, at baseline and after 2-months.

	Stages 3–5 at baseline N = 29	Stage 3–5 at follow-up N = 29
Mean, in minutes	247	436
SD	275	361
Median, in minutes	145	310

Discussion

This was the first study to examine the feasibility and preliminary effectiveness of a Transtheoretical Model based counselling protocol for healthy older adults. The overall goal was the promotion of everyday activities according to recommendations [10]. Similar to other findings of physical activity counselling in other settings and in other target groups [18–21], we found positive short-term results.

GP follow-up showed that they judged the counselling programme to be easy to handle and useful for promoting physical activity among the elderly. Both GPs could handle the instruments well, required on average 15 minutes for a counselling session including paperwork and would use it again in the future. If the amount of paperwork, which was rated to be too high, could be reduced, the counselling time could be reduced to 10 minutes.

The patients' interview results showed that the physical activity counselling by the GP was judged positively by the majority. More than half of the 21 interviewed perceived positive behaviour changes in terms of physical activity, for example, increased walking incl. increased breathing rate and more stair-climbing. Half of those responding thought that they would not have changed their physical activity behaviour without the counselling of the GP. This illustrates the importance of the role of the GP in the promotion of health behaviour changes. The people, who did not change their physical activity behaviour in conjunction with the intervention, based this mainly on the fact that they were already physically active. The majority of the not sufficiently active participants wanted to continue counselling. The reason for no further counselling was mainly due to the fact that after two consultations the patients knew what they should do or already did enough. With regard to counselling frequency, the majority of those responding indicated that two counselling sessions per year were sufficient, although counselling could be more frequent in the initial phase.

The tailored information material on healthy physical activity was judged positively and two-thirds would like to receive the information material again. This supports the positive findings re-

ported elsewhere on the success of tailored information material to support the behaviour change processes [20, 35].

Regarding physical activity behaviour, baseline levels of physical activity were similar to representative data of the elderly Swiss population [11–14], with more than two-thirds of the participants not being sufficiently active. However, the physical activity counselling led to a behaviour change. After the one-time counselling, over two-thirds were sufficiently active at the 2-month follow-up. Just over half of the participants increased by one stage, less than half remained at the same stage and very few decreased a stage. The average time spent in physical activity increased from 247 minutes per week to 436 minutes per week (a 76% increase). These findings extend the positive findings from a basic 4–6 week recommendation study for walking [18], the stage progression of a 6 week TTM based counselling study for participants over 50 years of age [19], and from a GP based counselling study in overweight or obese individuals [40]. Our GP's counselling approach, based on the Transtheoretical Model, appears to work well in German speaking individuals over 65. Similarly, in an intervention study in a rural area of Switzerland (canton of Solothurn) [39], participants over the age of 65 (N = 448, mean age = 74 years) showed significant, positive physical activity changes over 12-months due to physical activity consultations by specially trained nurses: over half of those participants spent more time exercising and progressed their stage of change. The same instruments were used as in the present study for the counselling and for the assessment. However, the consultations did not take place in the GP setting, but during home visits by nurses. Therefore, desired changes in the physical activity can be achieved in different settings for older adults, with the same counselling and assessment instruments. Research should be conducted to investigate if these approaches reinforce each other.

These findings appear to contradict conclusions of a recent review [41], at least for short-term success. The reasons for these seemingly contradictory findings remain unclear.

Limitations

The following limitations should be taken into account when interpreting these findings. It is likely that the GPs represent a motivated subset of GPs for conducting physical activity counselling, resulting in a greater than average effect. Therefore, a wider spectrum of GPs should be included in future studies. Further, the assessment was self-report and not blinded to condition, possibly

introducing some expectations and social desirability biases. It is important to note that the 4-month follow-up was done by social science students over the phone. The recruitment procedure may have resulted in selecting motivated people who may have increased their activity levels during the follow-up period anyway. A control group design is recommended to confirm that observed

changes can be attributed to the counselling intervention alone. No statements on long-term effects can be made. However, historical effects and maturation may be excluded as the observed increase

is opposite to the expected decreases of physical activity levels due to both historical trends and age-related trends observed in Swiss population surveys [11].

Conclusions

This study showed that the promotion of physical activity in healthy elderly people through Transtheoretical Model based GP counselling is feasible. Both the participating GPs and the elderly participants evaluated the process positively. To produce more valid results on effectiveness, a follow-up study should use a larger representative group of GPs, a control group and a follow-up time of at least one year. To facilitate broad dissemination of this counselling approach, the procedure and materials used for recruiting and counselling patients in a GP's office need to be further simplified and the reimbursement of the GPs for this

service needs to be assured in the future under the mandatory health insurance.

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