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The Effect of a Personalized Newsletter to Physical Therapists on Patient Recruitment: A Cluster Randomized Trial in Primary Physiotherapy Care

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Abstract

Objective: To assess the effect of a personalized newsletter compared with a standard newsletter on patient recruitment in physiotherapy research.

Methods: We performed a cluster-randomized trial including 120 physiotherapists who recruited patients for a prospective cohort and were randomly assigned to either receiving personalized feedback in a newsletter (intervention group) or a standard newsletter (control group). We calculated the difference in the number of patients included in the study corrected for inclusion time between both groups.

Results: The physiotherapists in the control group (n = 59) included 110 patients (35.4% of the total number of patients included) compared with an inclusion of 200 patients (64.6% of the total number of patients included) by the physiotherapists in the intervention group (n = 61), a difference of 90 patients in favor of the intervention group. However, when corrected for inclusion time and a cluster effect, we found no statistically significant difference between both groups. In addition, therapists who did not include a single patient (inactive therapists) were evenly divided between the 2 groups (n = 29 [49%] in the control group; n = 30 [49%] in the intervention group).

Conclusions: A personalized newsletter does not significantly increase the number of recruited patients by physiotherapists. However, therapists receiving personalized feedback recruited nearly double the number of patients compared with the ones receiving standard feedback. (J Manipulative Physiol Ther 2020;43:476-482)

Key Indexing Terms: *Patient Recruitment; Primary Care; Physiotherapy; Psychology; Clinical Trials, Randomized*

Introduction

Primary care is pivotal for building a strong health care system,[1] and evidence-based health care is becoming increasingly important.[2,3] Several types of research are useful to improve knowledge, such as randomized controlled trials (RCTs) and cohort studies. Recruitment of patients is a necessity for a successful research project, and it is estimated only half of all trials achieve their recruitment targets.[4-7]

Insufficient recruitment can lead to an extension of the research period and increasing costs.[4] Moreover, poor recruitment can lead to an underpowered study, potentially resulting in a type 2 error.[4,5,8-10] Consequently, an ethical problem rises, as participants have been exposed to an intervention but the researchers are still unable to answer the research question and clinically relevant effects can be reported to be statistically nonsignificant.[4,5,8-10] Nevertheless, decision makers are increasingly looking at the results of RCTs to guide practice.[11,12]

Lasagna's law is an important phenomenon in research, where researchers and clinicians overestimate the number

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of suitable patients they will be able to include in a study.[6,12-17] Recruitment rates depend on the willingness of patients to participate. Although it is important to be aware of the barriers and facilitators from a patient's perspective,[18-20] a first step of inclusion, namely introducing the study to potential participants, is mostly obtained by the recruiters (eg, general practitioners [GPs] or physiotherapists [PTs]). The motivation and efficient inclusion strategy of these recruiters is therefore essential to the success rate of a research project.

Evidence shows that GPs involved in an existing research network are more willing to participate in a research project than others, although it does not always result in higher inclusion rates of patients.[6] Commonly reported barriers to recruitment from a clinician's perspective were a lack of eligible patients and a range of other logistical and practical issues that made recruitment challenging.[21] A systematic review of recruitment strategies for primary care research highlighted the lack of current research evidence.[22] Moreover, there are no known effective strategies to increase patient recruitment aimed at the recruiters, such as GPs and PTs.[11,23] However, compliance of GPs regarding patient recruitment was positively affected by personal contact between researchers and health care providers and utilization of pre-existing patient contacts.[5,6,24] Unfortunately, personal contact is time-consuming and costly. A proposed low-cost method is to send a newsletter via e-mail with general information on the research performed, as this appears to have a positive effect on compliance regarding patient recruitment.[25,26]

Feedback is widely used to influence achievements.[27] Written feedback is a powerful feedback method, which can be used in a positive manner to reward or in a negative manner to penalize.[27] Both have been shown to be effective in learning.[27-29] Personalized feedback is frequently applied in (psychological) studies in an attempt to influence participants.[30-32] In the field of management, feedback is regarded as more effective when it is personalized and includes an evaluation about how participants individually perform compared with their peers.[33] It is unknown if this mechanism also applies for primary care professionals and whether this can be used to influence patient recruitment.

Therefore, we aimed to evaluate whether there is a difference in patient recruitment between PTs receiving a standard newsletter[25,26] and PTs receiving a personalized newsletter.[30-33]

Method

Design

This study is a cluster RCT focusing on inclusion rates and is part of a larger project (Shoulder Complaints and the use of Diagnostic Ultrasound in Physiotherapy practice [ShoCoDiP]). The Medical Ethics Committee of the Erasmus Medical Center in Rotterdam approved the study protocol of the prospective cohort study (MEC-2011-414). Clusters consisted of physical therapy clinics participating in the ShoCoDiP study, including patients with shoulder complaints. Details of the prospective cohort design are presented elsewhere.[34]

Setting

The ShoCoDiP cohort study was performed in a primary physiotherapy setting, and patients with shoulder pain were included.[34]

Participants

PTs participating in this cluster RCT were part of the ShoCoDiP-study. Only PTs working in a primary care physiotherapy clinic were able to participate. Potentially interested PTs were contacted by one of the 2 researchers by phone or through existing networks. Networks such as the national shoulder network (an expert group of PTs concerning shoulder patients) and 2 smaller local physical therapy networks contacted members themselves. Subsequently, an introduction meeting was organized for PTs interested in participating. Study procedures were explained. The inclusion of participating PTs was open during the entire study period. Those starting later were informed individually at the start of their participation period. The information was standardized, for example, presentation, letter with information etc. None of the therapists were paid or compensated as the model of Benabou and Tirole states that material incentives undermine intrinsic motivation.[35]

Selection Criteria

Physiotherapists indicating that they wanted to participate in the ShoCoDiP study were included in the cluster RCT. Physiotherapists were not informed about the allocation, therefore they were unaware of the existence of different newsletters and considered blinded for the intervention. PTs not blinded for the allocation or aim of this specific study were therefore excluded (eg, PTs who were part of the research team), as this could potentially influence the results.

Baseline

Physiotherapists received an online questionnaire concerning relevant personal and professional characteristics. Items such as age, years of experience in primary care physical therapy, specialization, sex, working hours (full-time, part-time), enrolment in a shoulder network, and experience with diagnostic ultrasound were part of the

form. All forms were available online, using LimeSurvey software.

All PTs were given a welcome package including preprinted envelopes with information about the ShoCoDiP study, a flowchart regarding eligibility of patients for inclusion, and informed consent forms.

Randomization

To maximize blinding, allocation was performed per clinic, so PTs would not become aware of the existence of the different newsletters. Randomization was concealed by using a computer-generated scheme. The first PT per clinic who entered the study was randomly appointed to the intervention (personalized newsletter) or control (standard newsletter) group. All subsequent PTs from this particular clinic were automatically allocated to the same group.

Interventions

Control Group (Regular Newsletter). The involved PTs personally received a monthly newsletter via e-mail by the research group. Patient recruitment took place from November 2011 until December 2012, during which newsletters were sent. The newsletters were sent monthly throughout the year (with the exception of the summer vacation), leading to 10 newsletters. Standard items in the newsletter included the number of patients included in the study up to that point, news on the progression of the study, a patient inclusion graph, some background information, and oncoming events such as symposia and workshops. Each newsletter included different incentives to promote active inclusion, such as chocolate presents or awarding accreditation points for the Dutch physical therapist registration system when including at least 5 patients. The inclusion of at least 1 patient was sufficient to be granted free admission to a shoulder symposium organized by the research group. These incentives were the same for both groups.

Intervention Group (Personalized Newsletter). The intervention is based on the incentive theory[29] and the self-determination theory.[36] The assumption is that people care about social esteem and therefore want to portray favorable traits. Many people are sensitive to social esteem, and their pride is a source of pro−social behavior. A person may work hard not only to contribute to society, but also to make a favorable impression.[29] Therefore, it is important to show participants that the research team notices their effort (recognition) and to enable them to compare their results with peers.

Personalized feedback is frequently applied in psychological studies to influence, for instance, alcohol consumption by adults, and has been noted to be effective as reported in 2 meta-analyses.[30,31] Personalized feedback can be given in absolute numbers[32] or using visual feedback (smileys or frowneys).[37] Ranked feedback allows someone to compare their individual performance with peer performance. The premise of ranked feedback holds that viewing personal performance within the context of peer performance is a motivator for change in companies.[38,39]

Therefore, the personalized version of the newsletter additionally reported the actual number of patients included by the specific PT compared with the entire group of participating therapists. This information was given using visual feedback in the form of 3 different smileys. Each newsletter contained personal information concerning the inclusion of the particular therapist for that month. Three categories were shown to the therapists in the following manner: "Your score is," followed by 1 of the 3 following options: below average (<50%), just above average (50%-75%), and high above average (>75%) (Fig 1).

Data Analysis

Baseline characteristics were described using a mean with a standard deviation (SD) for continuous data, and frequencies and percentages for dichotomous data.

Patients included were presented as an absolute number and as a percentage of the number of patients included per group.

To assess if the mean number of patients per therapist differed between the 2 groups, a Generalized Estimating Equations model (exchangeable correlation matrix) was used to correct for a cluster effect, the newsletter being the predictor and the number of patients being the outcome, using the offset term to correct for the number of inclusion time. To compare the mean number of patients on group level, corrected for inclusion time, a Welch 2-sample *t* test and a Wilcoxon rank sum test with continuity correction were performed.

All analyses were performed using SPSS version 24 (IBM Corp, Armonk, New York).

Results

Participants

Of the 125 therapists who participated in the cohort study, 120 therapists were included in this RCT, as their blinding was successful. The intervention group consisted of 61 therapists and the control group of 59 therapists. The 120 therapists worked in 88 clinics; most clusters (63) consisted of 1 therapist who participated in this research project (Fig 2). The inclusion period per group is presented in Table 1.

Baseline

Baseline characteristics of the therapists are presented in Table 2, based upon available data, as not all therapists answered all questions. The proportion of men in this study was high. Overall, the included therapists were regarded as experienced ones (mean of 14-16 years' work experience) and had a special interest in the shoulder (67%-71% enrolled in a shoulder network), which was the topic of the ShoCoDiP study.

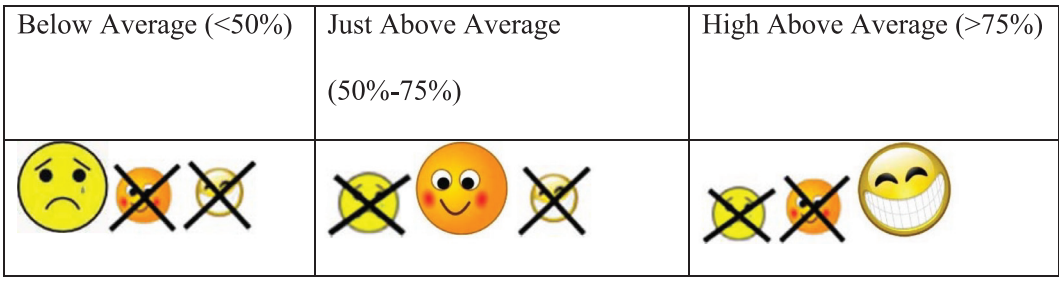

Fig 1. *Visual feedback.*

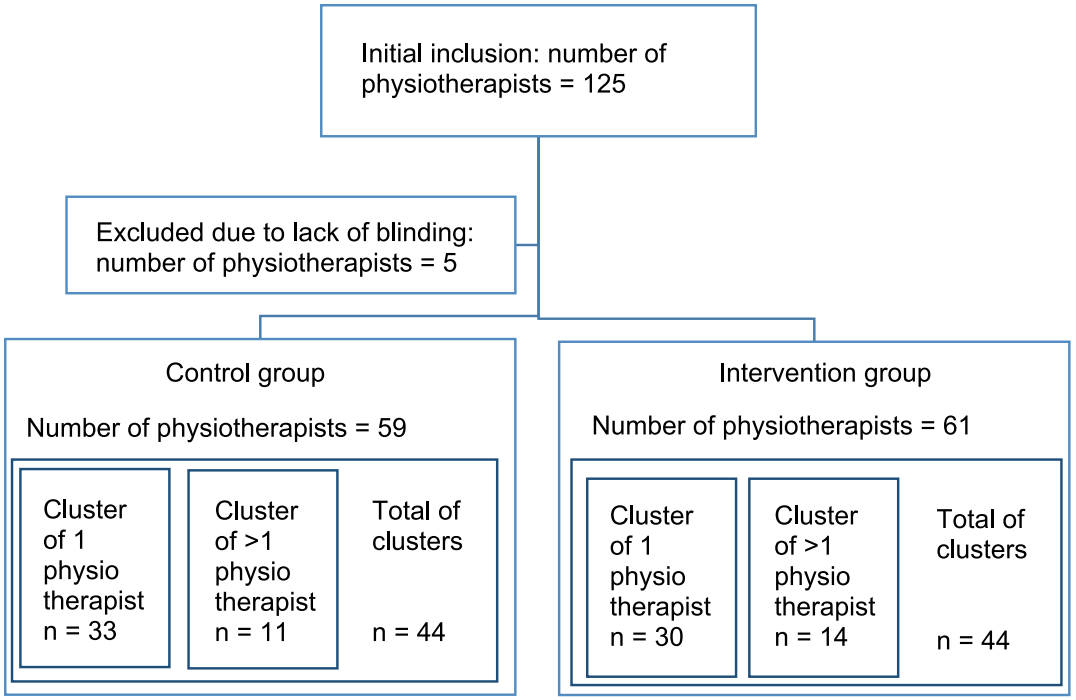

Fig 2. *Flowchart: group allocation and inclusion.*

Outcome

The PTs included a total of 310 patients during the course of 1 year. The control group (n = 59) included 110 (35.4%) patients and the intervention group (n = 61) included 200 (64.6%). The crude difference is 90 patients in favor of the intervention group. The average inclusion per therapist was 3.3 (SD 6.8) patients in the intervention group and 1.9 (SD 2.9) patients in the control group.

When corrected for the inclusion time and a cluster effect, the mean number of included patients per PT in the control group was 0.20 per month (95% CI: 0.13-0.29), compared with 0.32 (95% CI: 0.19-0.53) in the intervention group. The difference between both groups per therapist was nonsignificant (*P* value = .15).

Also, on a group level, when corrected for inclusion time, the difference between both groups was not statistically significant (Welch 2-sample *t* test, *P* = .3; and Wilcoxon rank sum test with continuity correction, *P* = .8).

Number of Patients Included

There were 29 (49%) inactive therapists (PTs who did not successfully recruit any patients during the inclusion period) in the control group compared with 30 (49%) in the intervention group.

Both groups had 40 therapists including less than 2 patients during 12 months, but the range of patient inclusions included per therapist varied from 0 to 38 in the intervention group, compared with 0 to 12 in the control group. Six therapists in the intervention group included more than 12 patients each, which is 58.6% of the total inclusion of the intervention group.

Table 1. *Inclusion of Physiotherapists per 3 Months*

Inclusion Period	Regular Newsletter n (% of the control group)	Personal Newsletter n (% of the intervention group)
(1) Enrollment between November 1, 2011 and January 1, 2012	28 (47.5)	29 (47.5)
(2) Enrollment between January 1, 2012 and May 1, 2012	47 (79.7)	56 (91.8)
(3) Enrollment between May 1, 2012 and September 1, 2012	55 (93.2)	60 (98.4)
(4) Enrollment between September 1, 2012 and December 31, 2012	59 (100)	61 (100)

Table 2. *Characteristics of the Physiotherapists*

	Regular Newsletter (n = 59)	Personal Newsletter (n = 61)
Male, n (%)	45 (78.9)	45 (75.0)
Age, mean (SD)	37 (10.3)	40 (10.4)
Years of experience, mean (SD)	14 (9.9)	16 (10.3)
Full-time work, n (%)	31 (75.6)	36 (67.9)
Specialization (categories), n (%)	36 (81.8)	49 (86.0)
Enrollment in a shoulder network, n (%)	30 (71.4)	37 (67.3)
Experience with ultrasound, n (%)	17 (38.6)	20 (35.1)

Based on available data.
SD, standard deviation.

Discussion

We found that PTs receiving a personalized newsletter included nearly twice as many patients compared with the ones receiving a standard newsletter. However, on a group level and when corrected for inclusion time, the personalized newsletter did not statistically significantly influence the recruitment rate of PTs. The difference in recruitment between both groups was largely caused by 6 therapists in the intervention group with high inclusion rates.

There was a high number of inactive PTs in our study (49% in both groups); this resulted in an average low recruitment rate per therapist. The equal distribution of inactive therapists across both groups shows that the intervention had no effect on number of inactive therapists.

Our results are in line with studies evaluating other interventions.[2,11,15] Our results may be explained by the negative feedback most therapists were consistently receiving. If a "unhappy" smiley did not affect them at the beginning of the study, it is unlikely they will change their behavior after receiving it the ninth or 10th time. Moreover, negative feedback (a frowney) might be a bad stimulator; in a study using smileys and frowneys as direct feedback for learning, positive rewards had a greater impact on changing behavior than negative ones.[37] However, to use ranked feedback, a contrast has to be provided, implying negative feedback will be given to the non-participants.

More detailed information during the introduction meeting may enhance awareness of the importance of their active participation, which is in line with the self-determination theory.[36] Therefore, increasing the extrinsic motivation of therapists, and thereby possibly reducing the number of inactive therapists, should be considered in future studies.

Several clinician characteristics have been described that can influence the success rate of patient recruitment, such as sex, age, and specialization.[2,5,6,24,40] We found no differences in these baseline characteristics between both groups.

Our study revealed that a personalized newsletter does not reduce the number of inactive therapists. However, the recruitment rates of some therapists in the intervention group were obviously higher than the average number of included patients per therapist. Due to the low number of these therapists, we could not further analyze the characteristics of this particular group on which this intervention might be successful, which was a limitation of our study. A larger study might have been able to create a therapist profile for which the intervention could be useful. We did not collect information regarding, for example, internal motivation or interest, which could be of influence.

To our knowledge, this is the first study assessing if personalized newsletters influence recruitment rates. No studies regarding the influence of patient recruitment have been performed in a physiotherapy setting. Another

strength was that PTs were blinded to the intervention and therefore the results of this study are less biased. Our study demonstrates the potential for rigorous methodological research to define optimal recruitment strategies in primary-care studies.

In conclusion, therapists receiving personalized feedback recruited nearly double the number of patients compared with the ones receiving standard feedback. Although the difference per therapist was not statistically significant, the overall increase might be clinically relevant.

Funding Sources and Conflicts of Interest

This study was financed by the SIA-RAAK grant serving exclusively for lectureships and knowledge networks at Universities of Applied Sciences. No potential conflict of interest relevant to this article was reported.

Contributorship Information

Concept development (provided idea for the research): A.P.V., W.S.P., E.D., Y.K., M.T.G.
Design (planned the methods to generate the results): A.P.V., W.S.P., E.D., Y.K., M.T.G.
Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): A.P.V., W.S.P.
Funding acquisition: A.P.V., W.S.P.
Project administration: Y.K., E.D., M.T.G.
Formal analysis: D.R., M.T.G., R.W.
Writing—original draft (responsible for writingPlease check funding information and confirm its correctness. a substantive part of the manuscript): M.T.G., R.W., E.D.
Writing—review & editing: M.T.G., R.W., A.P.V., W.S.P., B.S., D.R.

Practical Applications

- Physical therapists participating in research might be sensitive to feedback.
- Feedback using peer comparison can be used to motivate participants in research.
- Negative feedback, however, is possibly less useful.

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