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# General Practitioners do not Counsel more Physical Activity after a Public Health Campaign

*Allgemeinärzte raten nach einer Gesundheitskampagne nicht zu mehr körperlicher Aktivität*

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## *Summary*

- **A physical activity (PA)** promotional campaign was launched in June 2018 to raise awareness of the health benefits of PA in patients with chronic diseases in Luxembourg. This study aimed to evaluate the behavior of general practitioners (GPs) regarding PA counselling before and after the campaign.
- **The campaign** consisted of advertisement broadcasts on national TV/radio in June and July 2018 and comprised a toolkit (flyers and a PA evaluation tool) sent in September 2018 to all medical doctors registered in Luxembourg. PA counselling behaviors were evaluated in 59 and 53 GPs who answered a standardized questionnaire before and after the campaign, respectively.
- **Interviewed GPs** declared having advised only a small proportion of their patients regarding PA participation before and after the campaign (29% and 24%, respectively; p<0.001). The campaign had no impact on the GPs' awareness (21%) about the national program offering PA for patients with chronic diseases. Lack of time and knowledge were identified as the main barriers to engaging in PA counselling.
- **Overall,** GPs encouraged only a small proportion of their patients to engage more in PA, and the awareness campaign failed to change their PA counselling behavior, at least in the short term. Barriers to PA promotion within primary healthcare should be addressed before implementing new awareness campaigns targeting healthcare professionals.

## *Zusammenfassung*

- **In Luxemburg** wurde im Juni 2018 eine Werbekampagne für eine Verbesserung der körperlichen Aktivität (KA) gestartet, um das Bewusstsein für die gesundheitlichen Vorteile von KA bei Patienten mit chronischen Erkrankungen zu schärfen. Diese Studie zielte darauf ab, das Verhalten von Hausärzten hinsichtlich der Beratung zur KA vor und nach der Kampagne zu bewerten.
- **Die Kampagne** bestand aus Werbespots, die im Juni und Juli 2018 im nationalen Fernsehen/Radio ausgestrahlt wurden, und umfasste ein Toolkit (Flyer und ein KA-Bewertungstool), das im September 2018 an alle in Luxemburg registrierten Ärzte versandt wurde. Das Beratungsverhalten hinsichtlich KA wurde bei 59 bzw. 53 Hausärzten ausgewertet, die vor und nach der Kampagne einen standardisierten Fragebogen beantworteten.
- **Die befragten Hausärzte** gaben an, vor und nach der Kampagne nur einen kleinen Teil ihrer Patienten bezüglich einer KA-Teilnahme beraten zu haben (29 % bzw. 24 %; p<0.001). Die Kampagne hatte keinen Einfluss auf das Bewusstsein der Hausärzte (21%) für das nationale Programm, das KA für Patienten mit chronischen Erkrankungen anbietet. Als Haupthindernisse für die Durchführung einer KA-Beratung wurden Zeit- und Wissensmangel identifiziert.
- **Insgesamt** ermutigten Hausärzte nur einen kleinen Teil ihrer Patienten, sich mehr körperlich zu betätigen, und die Sensibilisierungskampagne hat ihr Beratungsverhalten für KA zumindest kurzfristig nicht geändert. Hindernisse für die KA-Werbung in der primären Gesundheitsversorgung sollten angegangen werden, bevor neue Sensibilisierungskampagnen für medizinisches Fachpersonal durchgeführt werden.



**KEY WORDS:**
Medical Doctors, Primary Healthcare, Exercise Counselling, Health Promotion

**SCHLÜSSELWÖRTER:**
Ärzte, medizinische Grundversorgung, Bewegungsberatung, Gesundheitsförderung

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## Introduction

Physical activity (PA) contributes to prevent and manage chronic diseases (3,18,28). However, despite the evidence of the health benefits of PA, international data show that the general population, and especially patients with chronic diseases, are still insufficiently active (1,12). In the Grand-Duchy of Luxembourg, only 41% of the adults have sufficient PA levels (35). No data are available for patients with chronic diseases, but only an estimated 400 to 800 patients with chronic diseases (Luxembourg had 625 000 inhabitants in 2020) are participating regularly to the national offer of therapeutical PA, most of them being referred by few medical doctors and physiotherapists (20,21,24). To promote PA participation, the World Health Organization (WHO) published in 2018 the "Global Action Plan on Physical Activity 2018-

2030" to guide their member states to increase the PA levels of their populations. The action 3.2 of this action plan aims to implement systems of patient assessment and counselling on PA in primary and secondary health care and social services (33). However, there is little evidence that PA counselling is provided in a consistent or comprehensive way (25). Indeed, PA counselling varies widely according to the countries, the providers, and the patients. For example, the percentages of general practitioners (GPs) who provide PA counselling to their patients ranged from 21% in Germany, 28% in the UK, 74% in the USA (sport medicine physicians), 85% in Canada, and 86% in Ireland (4,7,27,29,30). In Germany and in Luxembourg, more specialists seems to refer their patients than the GPs (7,21,24). From the patient's perspective, only 33% of them were counselled by their GPs in the USA (2,31). In Germany, 8% to 45% of the patients with chronic diseases were referred by their GPs to engage more in PA (7,8,13). The action 1.1 of the WHO Global Action Plan on Physical Activity 2018-2030 aims to implement social marketing campaigns linked with community-based programs. In light of these two actions and based on our previous experience of PA promotion (23), a national campaign was conducted in Luxembourg in 2018 to raise awareness of the health benefits of PA and to promote PA among medical doctors, patients and the general population. The aim of our study was to evaluate the behavior of GPs regarding PA counselling before and after the campaign.

## Materials and Methods

### National Campaign

Sport-Santé is a program aiming to manage and promote the national PA offer for patients with chronic diseases. The promotional "Sport-Santé National Campaign", hereinafter referred as the Campaign, included two phases and was supported by three ministries and a philanthropic organization which manages the funds of the national lottery. The Campaign was not piloted nor pretested on a representative sample before its large-scale implementation.

The first phase consisted of broadcasting, from 15 June 2018 to 29 July 2018, six PA advertisements in the main Luxembourgish TV and radio programs to inform about the national offer of PA for individuals with chronic diseases. The advertisements (35 seconds for TV and 10 seconds for radio) were based on personal testimonials from patients and medical doctors to present the offer of the therapeutical PA. They were broadcast at prime time twice a day and were also shared on the website www.sport-sante.lu as well as on Youtube, Facebook and Twitter.

The second phase of the Campaign consisted of a letter sent on 3 September 2018 to all medical doctors (including GPs, cardiologists, oncologists, dentists, etc.) registered in Luxembourg (n = 2616). The list of the medical doctors (and their addresses) was provided by the Ministry of Health. Along with the cover letter, the mail contained flyers highlighting the rationale for PA promotion and the local offer of PA for patients with chronic diseases, as well as a Sport-Santé Actimeter. The Actimeter is a cardboard tool designed to assist healthcare professionals in evaluating the PA levels of their patients by asking two questions (19): "On average, how many days per week do you engage in moderate or greater intensity physical activity?" and "On average, how many minutes do you engage in this physical activity on those days?". The Actimeter is then used to multiply the two answers, enabling practitioners to determine whether the adult patient reaches the minimal WHO recommendations for aerobic PA (32,34).

### Sample Size Calculation

The study was designed as a cross-sectional study comparing data recorded before and after the Campaign. Even though the second phase of the Campaign was addressed to all medical practitioners registered in Luxembourg (n = 2616), the present study focused only on the registered GPs (n = 536). We expected GPs to show greater willingness to participate, being in the frontline to recommend PA to their physically inactive patients. In addition, not all the other specialists have the opportunity to promote PA (e.g. dentists, dermatologists). A formula for the comparison of the frequencies from two independent samples randomly selected was used to set the sample size (15):

$$n_1 = \frac{1}{k\Delta^2}\left[U_\alpha\sqrt{\hat{\pi}(1-\hat{\pi})(1+k)} + U_{2\beta}\sqrt{k\widehat{\pi_1}(1-\widehat{\pi_1}) + \widehat{\pi_2}(1-\widehat{\pi_2})}\right]^2$$

Table 1

Characteristics of the surveyed general practitioners (GPs) before and after the Sport-Santé National Campaign. PA: physical activity. † Two GPs who did not answer every question and three GPs who did not see any patients were excluded. ‡ One GP who did not answer every question was excluded. *** $p < 0.001$ (before vs. after the campaign).

| CHARACTERISTICS OF THE SURVEYED GENERAL PRACTITIONERS (GPS) | BEFORE CAMPAIGN N = 54† | AFTER CAMPAIGN N = 52‡ | TOTAL N = 106 |
|---|---|---|---|
| Years of experience, median (Q1, Q3) | 10.0 (5.0, 22.2) | 13.5 (6.2, 31.7) | 10.0 (6.0, 26.7) |
| Number of patients seen by the GPs during the previous working week, n | 4850 | 5393 | 10243 |
| Number of patients advised by the GPs to engage in PA during the previous working week, n | 1430 | 1294 | 2724 |
| Percentage of patients advised to engage in PA during the previous working week, % | 29.5 | 24.0*** | 26.6 |
| Number of patients seen per GP during the previous working week, median (Q1, Q3) | 81 (55, 109) | 100 (80, 123) | 100 (61, 120) |
| Number of patients per GP advised to engage in PA during the previous working week, median (Q1, Q3) | 13 (5, 30) | 17 (8, 40) | 14 (5, 35) |
| Percentage of patients per GP advised to engage in PA during the previous working week (in %), median (Q1, Q3) | 15.5 (10.0, 30.6) | 21.4 (10.0, 33.3) | 20.0 (10.0, 32.8) |
| Number of GPs who felt confident enough to advise their patients to engage in PA, n (%) | 31 (57.4) | 25 (48.1) | 56 (52.8) |
| Number of GPs who knew about the Sport-Santé program, n (%) | 11 (20.4) | 11 (21.2) | 22 (20.7) |

We used k=1, $U_\alpha$=1.96, $U_\beta$=0.84, π = π1=0.32 and π2= 0.57 and Δ= 0.20, where $U_\alpha$ was the U-value with an α risk of first species set at 5%, $U_\beta$ was the U-value with the power of the test set at 80%, π1 was the percentage of patients referred by their GPs in the literature (2), π2 was the hypothetical expected percentage of patients referred by their GPs after the Campaign, and Δ was the minimal difference we would like to detect before and after the Campaign. According to this sample size calculation, 87 GPs were needed to participate before and after the Campaign. Based on a pilot feasibility study we ran in early April 2018, we found that only three out 15 GPs answered our questionnaire, a response rate that would require an a priori target sample size of 435 to reach out for. This aim turned out impossible to achieve given our limited resources, which is why we eventually aimed to obtain answers from at least 50 GPs before and after the Campaign to observe related trends in our main outcome of interest.

## Questionnaires and Data Collection

The complete list of 536 GPs registered in Luxembourg was extracted from the website of the national health agency, including their phone numbers. Before the Campaign (from 23 April to 2 May 2018), 125 GPs were randomly selected from this list using a simple random sampling without replacement design and contacted by phone by three investigators (two research assistants and a postdoctoral researcher) to participate in a pragmatic structured interview. At least three and up to five phone calls were programmed to reach each GP. The recorded answers were strictly anonymized. The GPs were asked to answer six questions, as developed by the research team of the Sports Medicine Research Laboratory of the Luxembourg Institute of Health:

01.How many years have you been in GP practice?
02.How many patients did you see in the previous working week?
03.How many patients did you advise to engage in PA in the previous working week?
04.Do you feel confident to advise your patients to engage in PA?
05.Have you heard about the Sport-Santé program?
06.Do you have any suggestions to better guide patients to engage in PA?

After the Campaign (from 8 October to 16 October 2018), 126 GPs were again randomly selected from the 536 registered GPs using the same sampling design and contacted by phone by three investigators (a GP student, a research assistant, and a postdoctoral researcher). Theoretically, several GPs could have been invited to participate both before and after the Campaign. They were asked to answer to the same six questions plus seven additional questions concerning the Campaign:

07.Did you receive the mail containing the Actimeter and the flyers?
08.Do you think that the content of the mail was useful?
09.Did you make use of the Actimeter during your consultations?
10.Have you heard about the TV Campaign?
11.Have you heard about the radio Campaign?
12.Did your patients speak about the Campaign?
13.Do you have any suggestions to improve the Campaign?

The number of patients seen during the previous working week (question 2) and the number of patients counselled to engage in PA (question 3) were used to compute a percentage of counselled patients, which was the main outcome of this study. GPs' responses to the open-ended questions were independently categorized by the three investigators and then matched by consensus within the four WHO policy action areas, as described in the Global Action Plan on Physical Activity 2018-2030: active societies, active environments, active people and active systems (33).

Table 2

Comparisons of the suggestions of the general practitioners (GPs) to better guide patients to engage in physical activity (PA) before and after the Sport-Santé National Campaign. * $p < 0.05$ (before vs. after the campaign).** $p < 0.01$ (before vs. after the campaign).*** $p < 0.001$ (before vs. after the campaign).

| COMPARISONS OF THE SUGGESTIONS | BEFORE CAMPAIGN N = 59; N (%) | AFTER CAMPAIGN N = 53; N (%) | TOTAL N = 112; N (%) |
|---|---|---|---|
| More active societies | 19 (32.2) | 28 (52.8)* | 47 (42.0) |
| More PA promotion | 2 (3.3) | 2 (3.7) | 4 (3.5) |
| More communication materials | 11 (18.6) | 15 (28.3) | 27 (24.1) |
| More factsheets with specific exercises | 0 (0) | 2 (3.7) | 2 (1.7) |
| More training for healthcare professionals concerning PA | 1 (1.7) | 6 (11.3) | 7 (6.2) |
| More cooperation with PA specialists | 5 (8.5) | 3 (5.7) | 8 (7.1) |
| More active environments | 1 (1.7) | 6 (11.3) | 7 (6.2) |
| Implementation of PA in daily life | 1 (1.7) | 6 (11.3) | 7 (6.2) |
| More active people | 26 (44.1) | 31 (58.4) | 57 (50.9) |
| More PA offers for individuals with chronic disease | 8 (13.6) | 16 (30.2)* | 24 (21.4) |
| More PA evaluation tools | 2 (3.3) | 4 (7.5) | 6 (5.3) |
| Implementation of PA prescription | 2 (3.3) | 2 (3.7) | 4 (3.5) |
| More PA counselling as a part of healthy lifestyle counselling | 3 (5.1) | 3 (5.7) | 6 (5.3) |
| More personalized advice | 4 (6.8) | 2 (3.7) | 6 (5.3) |
| Increase the motivation of the patients | 7 (11.9) | 4 (7.5) | 11 (9.8) |
| More active systems | 1 (1.7) | 12 (22.6)*** | 13 (11.6) |
| More PA reimbursement | 1 (1.7) | 1 (1.9) | 2 (1.8) |
| More time for PA counselling | 0 (0) | 11 (20.7)*** | 11 (9.8) |
| No suggestion | 18 (30.5) | 6 (11.3)** | 24 (21.4) |

### Statistical Analysis

Qualitative variables were expressed as number (n) and percentage (%) and compared using $x^2$ tests or Fisher's Exact Tests. Quantitative variables were expressed as median, first quartile (Q1) and third quartile (Q3). Comparisons between the two phases of the intervention (before and after the Campaign) were produced using non-parametric Mann-Whitney tests (U, independent group comparison test) on account of the non-normality of the data distribution, which was tested with the Shapiro-Wilk test (the log-transformation failed to normalize the data). A 0.05 p-level of significance was set for the analyses. Statistical analyses were performed using SPSS Statistics (version 25).

## Results

Before the Campaign (from 23 April to 2 May 2018), 125 GPs were contacted by phone and 59 agreed to participate in the structured interview (participation rate = 47.2%). After the Campaign (from 8 October to 16 October 2018), 126 GPs were contacted and 53 agreed to take part in the interview (participation rate = 42.1%). Due to the relatively small number of GPs working in Luxembourg (n = 536) and to the sampling design, 24 GPs were randomly selected to participate to the study before and after the Campaign but only four of them answered twice. Lack of interest and lack of time were the most frequent reasons for refusing to participate (Figure 1). The median practical experience was 10 years (interquartile range: 20.7) (Table 1).

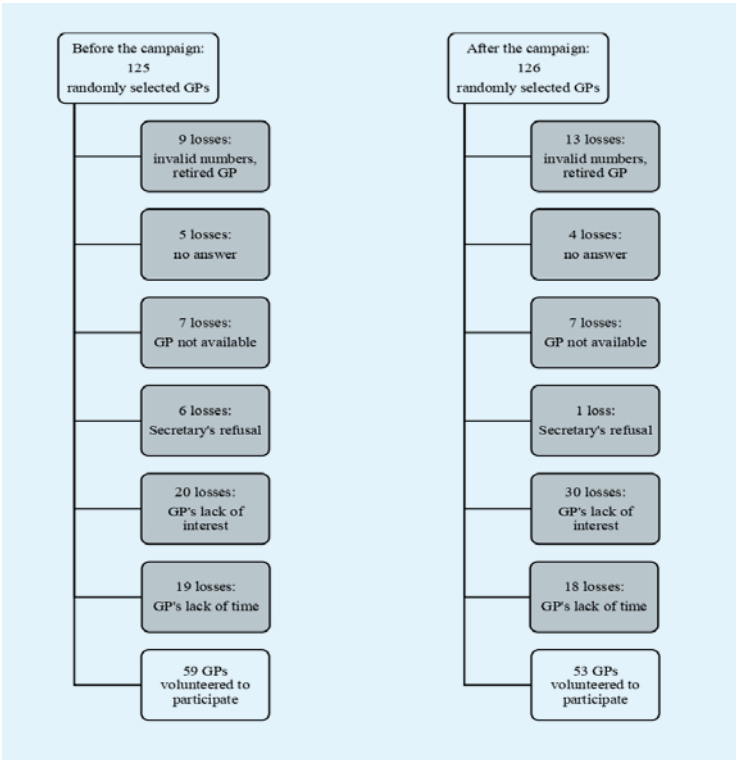


**Figure 1**

Breakdown of the reasons for losing study participants (general practitioners - GP) before and after the Campaign.

Overall, GPs had counselled PA to 26.6% of their patients (2724 patients counselled from a total of 10243 patients) (Table 1) but the overall percentage of counselled patients per GP was lower (median = 20.0%), highlighting that most patients were referred by only a few GPs who might have been particularly sensitive to the issue. Fewer patients were advised to engage in PA after (24.0%) than before the Campaign (29.5%) ($x^2 = 39.40$, $p < 0.001$). In addition, the percentage of GPs who felt confident enough to advise their patients about PA was not significantly different before and after the Campaign, the overall percentage being 52.8%. Only 20.7% of the GPs knew about the Sport-Santé program and the Campaign did not change this percentage (Table 1).

Only 55.8% of the GPs surveyed after the Campaign (n = 29) said they received the promotional mail (the return rate of the mails was 0.3 %). Only 3.8% (n = 2) of the GPs declared having used the Actimeter with their patients, but 32.7% (n = 17) still considered the information provided was useful. The advertisement clips were watched by 7.7% of the GPs (n = 4) on TV and heard by 11.5% (n = 6) on the radio.

The results of the open-ended question concerning GPs' suggestions as to how to improve patients' engagement in PA are presented in Table 2. More GPs surveyed after the Campaign expressed a preference for a more active society, with more communication materials and a reinforcement of the training on PA in both undergraduate and postgraduate medical curricula (52.8% vs. 32.2% before the Campaign; $x^2 = 4.88$, $p = 0.027$). Within the active people category, more GPs surveyed after the Campaign suggested an increased offer of PA for individuals with chronic diseases (30.2% vs. 13.6%; $x^2 = 3.85$, $p = 0.049$). Finally, within the active systems category, more GPs surveyed after the Campaign expressed the wish to have more time to advise their patients about PA (20.7% vs. 0.0%; $p < 0.001$).

## Discussion

Although the GPs frequently engage with the patients who most need PA and are well accepted as providers of lifestyle advice and information (25), they advised, on average, only 26.6% of their patients to become more active. In addition, the Campaign failed to improve this percentage. Even more surprising, a lower PA counselling rate was observed after the Campaign. While a negative causal impact of the Campaign cannot be ruled out, this result may be explained by a seasonal effect. For example, twofold more consultations for acute respiratory illnesses were observed in October than in May 2018 (17). Therefore, GPs may not have had the opportunity to recommend PA after the Campaign as the patients seen may have differed between May and October, and PA may not be recommended for everyone at any time. Moreover, the Campaign failed to modify GPs' confidence for PA counselling and GPs' awareness of the Sport-Santé program (21%), although more than half recalled having received the Campaign mail. We could assume that GPs did not connect the content of the mail to the Sport-Santé program, which may be reflective of the GPs' lack of interest and/or a suboptimal illustration of the mail content. In addition, the effect of the Campaign may also be limited as it was not promoting an important change, such as a significant increase in the PA offer for the patients, the implementation of a PA referral scheme, or the creation of a new training for the GPs. However we observed in a separate analysis a transient increase in the number of visitors of the Sport-Santé website (which was promoted by the Campaign) and the participants to the phase III cardiac rehabilitation after both phases of the Campaign (22). We may speculate that the content of the Campaign (e.g. flyers) may have been used by the GPs who were already inclined to promote PA, possibly contributing to increase the visibility of the ›

Sport-Santé program and motivating some patients to attend the classes of the therapeutic PA.

A greater number of GPs surveyed after the Campaign were in favor of more time for PA counselling, a greater PA offer for the patients, and promotion for a more active society, including more communication materials and a reinforcement of the training on PA in both undergraduate and postgraduate medical curricula. The average duration of a GP's consultation is less than 10 minutes (5,14), whereas the consultation duration with other specialists, such as a cardiologist, is approximately 30 minutes (11). It may explain why patients with chronic diseases are more often referred to participate to the PA offer of the Sport-Santé program by their specialists and physiotherapists than their GPs (21,24). Longer consultation times might be more adapted for lifestyle counselling, and increased duration of GP consultations must therefore be encouraged and financially supported by the community. Interestingly, the PA prescription, which is not yet implemented in Luxembourg (20), was not often spontaneously suggested by the GPs (3.5%) to better guide patients in PA. The GPs suggested to increase the PA offer for the patients and to improve its promotion. Furthermore, training on PA counselling is essential, since it is directly related to the number of PA consultations provided by healthcare professionals (16). PA counselling should thus be already implemented and evaluated in the medical curriculum (9,10), which is not yet consistently done in the main countries (Belgium, France, Germany and Luxembourg) where the GPs registered in Luxembourg are trained. Moreover, dedicated workshops should be organized as they contribute to increase the GPs' knowledge, confidence, and PA counselling behaviors (6). Finally, GPs' habits regarding their own PA practice could be another barrier/facilitator (which was not raised in our study) that should not be neglected, as it is well known to influence PA counselling practices (26).

Our study is not without limitations. Due to the sampling design, four GPs participated in the study before and after the Campaign, which may have led to a small bias, either masking or exacerbating the differences before and after the Campaign. Another sampling method should have been used to avoid the participation of the same GPs before and after the Campaign. Moreover, there was a high refusal rate for our survey and thus a high risk of bias, which could mislead the interpretation of the results. The method (phone calls and open-ended questions) could have induced an investigator bias, as we did not record the conversation and no precise verbatim record was made. In addition, the Campaign focused on patients with chronic diseases whereas we investigated GPs' PA counselling behavior with all patients.

In conclusion, based on the present data, the Sport-Santé National Campaign failed to increase the number of patients counselled by their GPs to be more active. It also failed to increase knowledge of the Sport-Santé program among the GPs, highlighting the difficulty in motivating change in GPs. The PA counselling rate (26.6%) and its barriers observed in Luxembourg are like those observed in other countries. These barriers should be addressed before the implementation of new awareness campaigns targeting healthcare professionals.

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**Conflict of Interest**

*The authors have no conflict of interest.*

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