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Original Article

Increased training of general practitioners in Ireland may increase the frequency of exercise counselling in patients with chronic illness: A cross-sectional study

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KEY MESSAGES:

- In Ireland, a minority of GPs have had previous training in exercise counselling.
- Almost all GPs report that they would use guidelines on exercise counselling in chronic illness if available.
- Improved training of GPs may improve the frequency of exercise counselling in Ireland.

ABSTRACT

Background: Recent systematic reviews have established that brief interventions in primary care are effective and economic at promoting physical activity. Lack of training has previously been identified as a barrier to lifestyle counselling in Ireland.

Objectives: This study evaluates frequency of exercise counselling (EC), in patients with six chronic illnesses (type 2 diabetes mellitus, stable coronary heart disease, hypertension, depression, obesity, osteoarthritis) and healthy adults, by general practitioners (GPs) in the mid-west of Ireland, as well as, whether training in EC influences the frequency of EC.

Methods: A questionnaire survey of GPs based in the mid-west of Ireland was conducted during February and March 2012. The questionnaire was distributed to 39 GPs at two continuing medical education meetings and posted to 120 other GPs in the area. The questionnaire assessed the frequency of EC, use of written advice and frequency of recommending resistance exercise in the above patient groups. It also assessed training in EC.

Results: 64% of GPs responded ($n = 102$). Frequency of EC varied among the chronic illnesses evaluated. Use of written advice and advice on resistance exercise in EC was low. Only 17% of GPs had previous training in EC. If available, 94% of GPs would use guidelines to prescribe exercise in chronic illness. The association of previous training in EC with frequency of EC was variable, with significantly higher counselling rates found in T2DM, obesity and healthy adults.

Conclusion: Improved training of GPs and development of guidelines may increase the frequency of EC in Ireland.

Keywords: General practice, public health and community medicine, medical education, skills training, cross-sectional design

INTRODUCTION

The World Health Organization (WHO) report that physical inactivity is the fourth leading cause of global mortality, with an attributable risk of 6% (1). The importance of physical activity in preventing and treating many chronic diseases is indisputable and has been the subject of guidelines from Sweden and the USA (2,3). In particular, there is strong evidence that exercise is an effective treatment for type 2 diabetes mellitus (T2DM), coronary

heart disease (CHD), hypertension, depression, obesity and osteoarthritis of the hip and knee (4–10).

A recent systematic review and meta-analysis established that interventions in primary care to promote physical activity increased self-reported activity levels at 12 months of follow up (11). The meta-analysis found that the number needed to treat (NNT) for any intervention in primary care for one additional sedentary adult to reach recommended physical activity levels at 12

months was just 12, comparing favourably with smoking cessation advice, which has a NNT of 50–120 (12). Additionally, a systematic review of randomized controlled trials of the cost-effectiveness of physical activity interventions concluded that exercise on prescription in a face-to-face consultation or brief advice delivered by mail or telephone were more cost effective than gym-based or instructor-led programmes (13).

Exercise counselling (EC) involves identifying patients who are physically inactive and advising them of the potential benefits of increased exercise and how to achieve it. This should ideally involve a personalized written prescription, which is seen as the gold standard in physical activity promotion in primary care (3). A personalized written prescription has been shown to be an effective way of promoting physical activity (14,15).

Lack of training has been one of several barriers to increased lifestyle counselling in Ireland (16). Brotons et al.'s European study of health promotion activities included 220 Irish general practitioners (GPs) and found that 57% and 54% of Irish GPs would advise a healthy but sedentary 52 year old male and 57 year old female, respectively to increase their physical activity (17). This study did not include EC in chronic illness. EC in chronic illness was evaluated in a Scottish study of 757 primary care staff, including 376 GPs and showed high levels of EC in six chronic illnesses (18). To date, no study has assessed frequency of EC in chronic illness in Ireland.

Similarly, the effect of training GPs about EC on frequency of delivery of EC has not been evaluated. However, an Australian study did find, on post-hoc analysis, that those who had attended a seminar on physical activity were more likely to counsel their patients on physical activity (19).

Consequently, the hypothesis of this study was that a lack of training in EC among GPs has led to a low frequency of EC. The objectives of this study were:

- To determine how often GPs counsel patients with six chronic illnesses (type 2 diabetes mellitus, stable CHD, hypertension, depression, obesity and osteoarthritis) and healthy adults without any chronic illness on exercise.
- To determine if GPs feel they are adequately trained to counsel patients on exercise.
- To elicit if GPs have received any formal training in EC and to determine if this has an influence on exercise counselling practice.

METHODS

Study design

This study employed a quantitative cross-sectional questionnaire-based design. The study participants were 159 GPs based in the mid-west region of Ireland, and they were consulted during February and March 2012.

Questionnaire

A structured questionnaire was devised following a review of existing literature and based on questionnaires from two previous studies (20,21). The first part included demographics questions on gender, age and practice location. The second part assessed the frequency of EC in the aforementioned six chronic illnesses and healthy adults. Participants were also asked about their use of written advice and advice on resistance exercises. Frequency for each variable was assessed on a five-point Likert scale; possible responses were 'never/rarely/sometimes/usually/always.' The final part assessed GP's training in EC. GPs were asked if they felt adequately trained in EC, if they felt they would benefit from further training, and if they had ever received training specifically on EC. Adequacy of training was assessed on a three-point Likert scale; possible answers were 'not at all/somewhat/highly.' GPs were also asked if they would use guidelines on EC in chronic illness if they were available and if they had undertaken any postgraduate courses relevant to sports and exercise medicine (SEM).

Study population and measurements

The questionnaire was initially given to 39 GPs attending two continuing medical education (CME) meetings in Ennis, Co. Clare and Limerick city in February 2012. These meetings were not targeted at clinicians with an interest in SEM; rather they involved teaching on cardio-pulmonary resuscitation and elder abuse.

A sample of 120 other GPs was then randomly selected from a list of General Medical Services (GMS) and private GPs in the mid-west area encompassing counties Limerick, Clare and North Tipperary. This list was obtained from the local Health Service Executive (HSE) primary care unit and was up to date as of December 2011. GMS GPs are those who hold a state contract with the HSE to supply services to means-tested medical cardholders free of charge. Each GP received a cover letter explaining the background to the survey, a questionnaire, and a pre-paid addressed envelope to return the questionnaire in. No further reminders were sent. The 39 GPs who had attended the CME meetings were excluded from the postal questionnaire by cross-referencing with CME attendance sheets. Data was collected in February and March of 2012.

Analysis

The Statistical Package for the Social Sciences (SPSS) for Windows Release 19 was used for data analysis. Descriptive statistics were used to calculate measures of central tendency and statistical dispersion for continuous

scale variables, and frequencies and percentages for categorical variables. Mann–Whitney U tests were used to compare statistically Likert scale responses across the survey items, between those GPs who had previous training in EC and those had no previous training in EC. A *P* value of less than 0.05 was considered statistically significant.

RESULTS

Response and characteristics of the responding GPs

In total, 39 GPs attended the CME meetings and 37 questionnaires were returned. Overall, 120 questionnaires were posted, and 65 were returned. The total response rate was 64%. Table 1 shows the demographic characteristics of the 102 GPs who responded to the questionnaire.

Frequency of exercise counselling (EC)

Exercise counselling frequency for each chronic illness and in healthy adults is shown in Table 2. GPs use of written advice and advice on the use of resistance exercises is shown in Figures 1 and 2, respectively.

Training in exercise counselling (EC)

Overall, 83% of GPs had never received training specifically on EC. Of the 17% ($n = 17$) that have received such training, three received it at a CME meeting, six during a masters or diploma in SEM, three from written material, one each from e-learning and during postgraduate GP training. There were five who responded other.

Adequacy of training among GPs is shown in Table 3. Figure 3 shows GPs opinion of whether they would benefit from further training in EC. 94% of GPs said they would use guidelines to prescribe exercise in chronic illness if they were available to them. Overall, 17% ($n = 17$) of GPs had undertaken postgraduate courses relevant to SEM.

Does training influence exercise-counselling practices?

The association of previous training in EC with frequency of EC was variable. This group had significantly

Table 2. Frequency of reported exercise counselling by general practitioners for each chronic illness and healthy adults, *n* (%).

	Always	Usually	Sometimes	Rarely	Never
Type 2 diabetes mellitus	37 (37)	49 (48)	14 (14)	1 (1)	0
Stable coronary heart disease	23 (23)	57 (56)	16 (16)	4 (4)	1 (1)
Hypertension	31 (31)	48 (47)	15 (15)	7 (7)	0
Depression	34 (33)	32 (32)	25 (25)	8 (8)	2 (2)
Obesity	42 (42)	46 (46)	11 (11)	1 (1)	0
Osteoarthritis	17 (17)	40 (40)	34 (34)	6 (6)	3 (3)
Healthy adults	10 (10)	46 (45)	36 (35)	6 (6)	4 (4)

higher counselling rates in those with T2DM (Mann–Whitney $U = 497.5$, $z = -2.03$, $P < 0.05$), obesity (Mann–Whitney $U = 421.5$, $z = -2.81$, $P = 0.005$) and in healthy adults (Mann–Whitney $U = 505.5$, $z = -1.97$, $P < 0.05$). There was, however, no significant difference between those who had previous training and counselling in stable CHD, hypertension, depression or OA (all $P > 0.05$).

Those who had previous training in EC also had significantly higher use of written advice in EC in patients with stable CHD (Mann–Whitney $U = 534$, $z = -2.02$, $P < 0.05$), hypertension (Mann–Whitney $U = 534.5$, $z = -2.04$, $P < 0.05$) and OA (Mann–Whitney $U = 516.5$, $z = -2.26$, $P < 0.05$). In the other three chronic illnesses, the association of previous training with use of written advice neared statistical significance: T2DM (Mann–Whitney $U = 540.5$, $z = -1.92$, $P = 0.055$), depression (Mann–Whitney $U = 249$, $z = -1.85$, $P = 0.065$) and obesity (Mann–Whitney $U = 536$, $z = -0.065$, $P = 0.052$). There was no significant difference for use of written advice in healthy adults in those who had training in EC ($P = 0.19$).

Similarly, those who had previous training in EC had significantly higher rates of recommending resistance exercise in EC in five of the six chronic illnesses; T2DM (Mann–Whitney $U = 479$, $z = -2.31$, $P < 0.05$), stable CHD (Mann–Whitney $U = 536$, $z = -2.05$, $P < 0.05$), depression (Mann–Whitney $U = 482.5$, $z = -2.27$, $P < 0.05$), obesity (Mann–Whitney $U = 514$, $z = -2.22$, $P < 0.05$) and OA (Mann–Whitney $U = 514.5$, $z = -2.22$, $P < 0.05$). There was no significant difference in the recommendation of resistance exercise in hypertension (Mann–Whitney $U = 512$, $z = -1.4$, $P = 0.16$) or healthy adults (Mann–Whitney $U = 537$, $z = -1.78$, $P = 0.07$) in those who had training in EC.

DISCUSSION

Main findings

Our findings indicate that GPs in the mid-west of Ireland report that they are counselling patients with

Table 1. Characteristics of study group ($n = 102$ general practitioners).

Demographics	Number (%)
Sex, Female	34 (34)
Age mean \pm SD (range)	48.5 \pm 9.5 (30–67)
Practice location	
Rural	34 (33)
Urban	32 (31)
Mixed	36 (35)

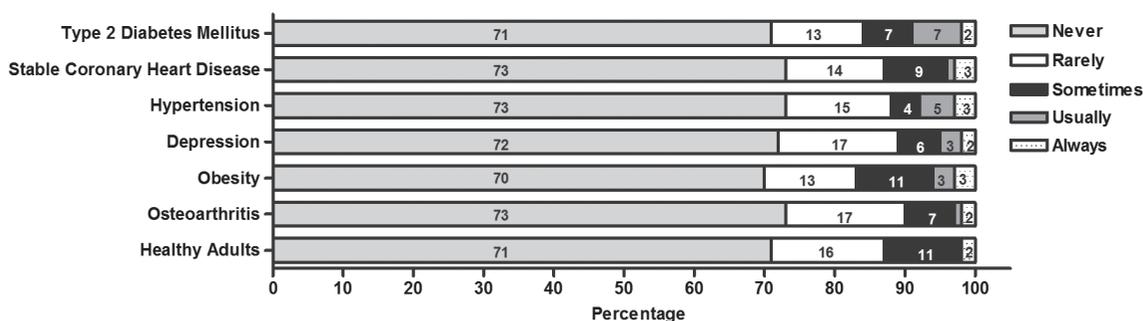


Figure 1. General practitioners response to ‘In the last six months, how often have you given personalized written advice on exercise counselling/prescription to patients with the following chronic illnesses?’.

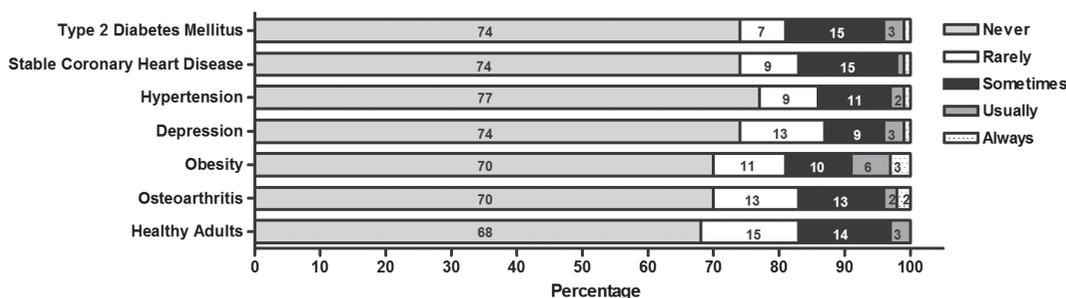


Figure 2. General practitioners response to ‘In the last six months, how often have you advised patients with the following chronic illnesses to use resistance exercises e.g. weights, resistance bands?’.

chronic illness about physical activity regularly. However, despite that exercise counselling should be a part of most consultations, only 17% of GPs report that they have ever received training in EC. Findings showed that the highest counselling rates were observed for patients with obesity, followed by those with diabetes mellitus. The lowest reported EC frequency was observed in healthy adults and patients with osteoarthritis. Most GPs reported that they ‘never’ used written advice or recommended resistance exercise in all patient groups.

Comparison to other studies

The previously mentioned Scottish study had higher EC rates among GPs in hypertension, ‘overweight’ and CHD

with 89%, 97% and 89% answering ‘always’ or ‘often,’ respectively. EC rates in depression were identical to our cohort but lower in diabetes in the Scottish study (80% answered ‘always’ or ‘often’) (18). This was on a similar, albeit, four-point scale. Similar to Brotons’ study, 55% of GPs in our study answered ‘always’ or ‘usually’ to counselling healthy adults (17). In this study, 83–90% of GPs ‘never’ or ‘rarely’ used personalized written advice in the patient groups. However, our figures concur with a Canadian study of 13 166 primary care physicians, which showed that 15.8% ‘provided written prescriptions to improve physical activity levels’ (22). Heterogeneity in assessment tools and healthcare systems may limit all these comparisons.

Table 3. General Practitioners response to ‘Do you feel adequately trained in counselling patients on exercise/physical activity in the following patient groups?’.

	Not at all	Somewhat	Highly
Type 2 diabetes mellitus	25	68	7
Stable coronary heart disease	28	67	5
Hypertension	26	68	6
Depression	29	65	5
Obesity	26	66	8
Osteoarthritis	31	63	6
Healthy adults	27	64	9

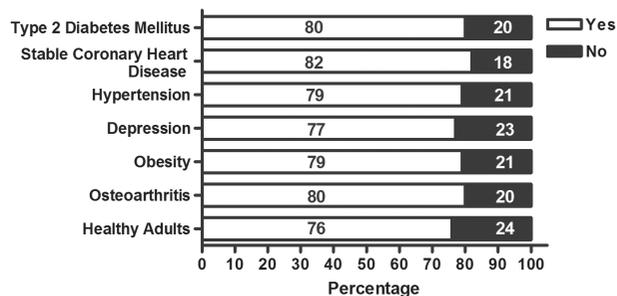


Figure 3. General practitioners response to ‘Do you feel you would benefit from further training with regard to exercise counselling in the following patient groups?’.

Strengths and limitations

This is the first quantitative study, to our knowledge, to evaluate the frequency of EC in chronic illness in Ireland. It is also the first study to assess GP's training in EC. Although the sample size was small, the sample was representative of GPs nationally based on gender and practice location (23). Most GPs responded.

Use of self-report measures has inherent limitations. The high reported levels of EC may reflect what is socially desirable rather than what has actually occurred in consultations. EC frequency tends to be much lower when reported by patients (24). A postal questionnaire was used. This method of measurement is prone to response bias, as only GPs interested in EC may have replied, leading to falsely elevated levels of EC in this study.

Additionally, using a Likert scale to assess the frequency of EC can lead to bias as each participant may interpret 'usually' or 'sometimes' differently. The training in EC among respondents was heterogeneous, which may have influenced the association observed between previous training and increased frequency of counselling.

Implications

This study highlighted the lack of training that GPs have in EC, that most GPs only feel somewhat trained in EC and their belief that they would benefit from further training. Thus, further training of GPs needs to be prioritized but should form part of a multi-disciplinary approach to improve physical activity levels. Training should include education on the benefit of written prescriptions and resistance exercise. Furthermore, there was a positive association between previous training in exercise counselling and the use of both written advice and resistance exercises, which suggests that further training may result in more comprehensive counselling.

In total, 94% of GPs report that they would use guidelines to prescribe exercise for chronic illness if they were available. The evidence for guidelines improving patient outcomes is, however, conflicting, and any guideline produced will need to be accompanied by an implementation strategy (25). While Ireland and the UK have guidelines on physical activity in the general population (26,27), the development of guidelines specific to chronic illnesses should be a component of a multi-faceted approach to increase physical activity in these patients.

Conclusion

There is a need for increased training of GPs in exercise counselling. Almost all GPs report that they would use guidelines on exercise counselling in chronic illness if available. Improved training of GPs may improve the frequency of exercise counselling in Ireland.

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Ethical approval

The Clinical Research Ethics Committee of the Cork Teaching Hospitals granted ethical approval for the study.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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