

Do South African general practitioners believe that ‘Exercise is Medicine’?

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Background. Physical activity (PA) has been described as medicine, owing to the clear evidence for its role in the prevention and management of various diseases.

Objectives. To determine the knowledge, perceptions and attitudes of South African general practitioners (GPs) towards the promotion of PA.

Methods. A total of 255 private-sector GPs from various provinces in SA participated in our cross-sectional study, by completing a self-report questionnaire surveying their knowledge, perceptions and attitudes towards the promotion of PA.

Results. The findings indicated that South African GPs in general do promote PA to their patients for treatment and health promotion. The majority of GPs in our study strongly believed that promoting PA is an important part of primary healthcare. The GPs frequently promoted exercise in the treatment of obesity, type 2 diabetes and hyperlipidaemia.

Conclusion. South African GPs appear to be recommending PA to their patients at a primary-care level. Clear practice guidelines are needed to promote PA in a way that will have a population-level impact. To aid this, GPs are encouraged to provide written information to promote PA in a way that will have an effect.

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Exercise is a type of physical activity (PA) that is structured, planned and designed to improve fitness. It is well established that PA is associated with positive health gains. There is clear evidence for its role in prevention and management of various non-communicable diseases such as heart disease, diabetes mellitus, hypertension and some cancers.^[1,2] Furthermore, regular PA is an essential tool in maintaining a healthy body weight.^[3] Finally, PA is associated with decreased mortality and morbidity.^[4] It can, therefore, confidently be seen as a much-needed treatment to prevent chronic disease and prolong life.

Despite this evidence, South Africa (SA) appears to be a relatively inactive nation. An estimated 46% of South Africans do not meet the required 150 min of moderate exercise per week.^[5] Furthermore, physical inactivity in SA accounts for 3.3% of deaths per year and 1.1% of disability-adjusted life years (DALYs).^[6] Non-communicable diseases account for 21% of life years lost in SA.^[7] Diabetes alone is estimated to have caused 4.3% of all deaths in SA in 2000.^[8] Without a doubt, physical inactivity in SA is a costly healthcare burden.

Promoting PA in primary care could provide a cost-effective solution. It has been termed public health's ‘best buy’ and ‘exceptional value for money’.^[3,9] For example, a sedentary patient is estimated to cost the healthcare system R2 200 more per year than an active patient, and that cost may increase to as much as R13 000 with

associated overweight or obesity.^[10] In contrast, engaging in PA can lower healthcare charges by up to 4.7% per active day per week.^[11] In Canada, a reduction in physical inactivity by as little as 10% has the potential to reduce expenditure by US\$150 million per year.^[12] Therefore, with its clear benefits and cost implications, exercise has been termed a possible ‘wonder drug’.^[3]

However, exercise prescription is not yet a part of standardised practice in primary care. Various exercise-referral schemes have aimed to tackle this issue, making activity assessment and prescription a standard part of disease prevention and management. One such initiative, Exercise is Medicine (<http://www.exerciseismedicine.org>), has recently included the South African Sports Medicine Association (SASMA) into its Exercise is Medicine Global Network.^[13] Yet, there is considerable uncertainty regarding the effectiveness of such exercise-referral schemes. In a recent systematic review, Pavey and colleagues^[14] found weak evidence for a short-term increase in PA of sedentary patients with such schemes. However, the review demonstrated the lack of quality research in this area. In addition, little is known about the attitudes towards exercise prescription in mainstream medicine. It has been suggested that general practitioners (GPs) have insufficient knowledge to give effective PA advice.^[14] In contrast, it may be that GPs have the knowledge needed, but do not promote PA in a way that will have an impact.^[15] To date, no research has yet been done

to determine the knowledge, perceptions and attitudes of SA GPs towards PA promotion.

Methods

A total of 255 GPs from various provinces in SA participated in the cross-sectional survey. GPs were excluded if they were working for the public sector, in practice for <3 years, not registered with the Health Professions Council of South Africa (HPCSA), or specialist physicians. A questionnaire was adapted from a previous study by Lawlor *et al.*^[15] and piloted for content and construct validity. Questions were designed to require the selection of answers from a list of options or a Likert-type scale. Questionnaires were distributed: (i) via an appointment at GP practices located from the HPCSA website (<http://www.hpcsa.co.za>); and (ii) electronically via an email containing a hyperlink to the questionnaire housed online on Survey Monkey (<http://www.surveymonkey.com>). In addition, a medical directory service, MEDpages, circulated the hyperlink to their distribution list of GPs. Informed consent was obtained by selecting the link to the questionnaire. Ethics approval was obtained from the Human Research Ethics Committee (HREC) of the University of the Witwatersrand (reference M120405).

Table 1. Demographic distribution of GP participants

Province	n (%)
Gauteng	83 (38)
Western Cape	47 (22)
KwaZulu-Natal	31 (14)
Eastern Cape	17 (8)
Limpopo	11 (5)
Free State	11 (5)
Mpumalanga	6 (3)
North West	6 (3)
Northern Cape	5 (2)
No answer	39 (15)

Results

The demographic distribution of the participant GPs is shown in Table 1. The majority (38%) were practising in Gauteng Province.

Perceptions, attitudes and beliefs

When asked 'Do you promote PA to your patients?', 213 (84%) GPs answered 'yes', 2 (1%) answered 'no', and 39 (15%) responded 'sometimes'. Of those who answered the question affirmatively, 217 (87%) stated the reason as being for treatment and health promotion, 6 (2%) stated the reason as being for treatment alone, and 23 (9%) stated that the sole reason was for the purposes of health promotion.

The response of the GPs to a number of attitudinal statements is depicted in Table 2. Almost all GPs stated that they regularly advised their patients on the benefits of PA. Over three-quarters believed that they could be effective in persuading patients to increase their PA levels, and most believed they were equipped with the necessary knowledge. The majority of responders strongly believed that promoting PA is an important part of primary healthcare.

Table 3 summarises the responses of GPs to statements regarding conditions for which they were most likely to give advice. The condition most likely to receive frequent advice on PA was overweight and obesity followed by type 2 diabetes mellitus (DM). A large majority of responders also indicated that they would provide PA advice for hyperlipidaemia, type 1 DM and hypertension. On the other hand, approximately one-third indicated that they would never provide PA advice to patients with cystic fibrosis, multiple sclerosis (MS), Parkinson's disease (PD) and Alzheimer's disease.

Knowledge

The GPs' knowledge of the conditions for which there is evidence for the beneficial effects of PA is shown in Table 4. The GPs' knowledge of the evidence for the benefits of PA in hypertension, psychological wellbeing, muscular strength and weight control was good. Responses varied across the spectrum for the evidence for PA in Alzheimer's disease and risk of breast cancer. The GPs' knowledge of exercise prescription and current recommendations of the levels of activity required was further assessed through a series of questions. The

Table 2. Responses to statements relating to attitudes of GPs towards promoting PA

Statement	n (%)				
	Strongly agree	Agree	Disagree	Strongly disagree	Unsure
I regularly advise my patients about the benefits of PA	146 (58)	99 (39)	9 (4)	0 (0)	0 (0)
I believe that I can be effective in persuading patients to increase their PA levels	89 (35)	120 (48)	28 (11)	4 (2)	11 (5)
I have sufficient knowledge to advise patients about PA	71 (28)	142 (56)	29 (12)	2 (1)	9 (4)
I try to encourage as many patients as possible to increase or continue their PA levels	106 (43)	123 (49)	16 (6)	1 (0)	3 (1)
I only discuss PA if the patient mentions it	7 (3)	19 (8)	106 (42)	114 (45)	9 (4)
Promoting PA is an important part of primary healthcare	190 (75)	61 (24)	1 (0)	2 (1)	0 (0)
Any amount of PA is beneficial to health	134 (54)	95 (38)	17 (7)	5 (2)	0 (0)
Only vigorous/strenuous activity is beneficial to health	4 (2)	12 (5)	133 (53)	90 (36)	14 (6)

PA = physical activity.

Table 3. Conditions for which GPs indicated they would give advice regarding PA

Condition	n (%)			
	Always	Sometimes	Occasionally	Never
Arthritis	109 (45)	89 (37)	34 (14)	12 (5)
Rheumatoid arthritis	86 (36)	83 (35)	51 (21)	18 (8)
Sports injuries	152 (62)	65 (27)	18 (7)	10 (4)
Occupational injuries	102 (42)	96 (40)	36 (15)	8 (3)
Back pain	162 (65)	62 (25)	21 (8)	5 (2)
Hypertension	178 (72)	53 (21)	15 (6)	3 (1)
Heart failure	74 (30)	76 (31)	60 (24)	36 (15)
Hyperlipidaemia	188 (75)	40 (16)	15 (6)	7 (3)
Angina/ischaemia	88 (36)	86 (35)	38 (16)	31 (13)
Asthma	97 (40)	81 (33)	43 (18)	23 (9)
COPD	60 (25)	89 (37)	55 (23)	37 (15)
Cystic fibrosis	44 (20)	52 (23)	40 (18)	88 (39)
Obesity/overweight	230 (91)	16 (6)	6 (2)	0 (0)
Type 1 DM	183 (73)	42 (17)	23 (9)	3 (1)
Type 2 DM	210 (84)	28 (11)	11 (4)	0 (0)
Thyroid disorders	62 (26)	80 (32)	60 (25)	41 (17)
MS	39 (17)	49 (22)	69 (30)	71 (31)
Depression	152 (61)	60 (24)	25 (10)	14 (6)
PD	39 (17)	58 (25)	67 (29)	69 (30)
Alzheimer's disease	36 (16)	50 (22)	70 (30)	74 (32)
Opportunistically in all patients	83 (36)	96 (41)	38 (16)	17 (7)

COPD = chronic obstructive pulmonary disease; DM = diabetes mellitus; MS = multiple sclerosis; PD = Parkinson's disease.

Table 4. GP knowledge regarding evidence for the beneficial effects of PA on various conditions

Statement regarding condition	n (%)			
	Strong evidence	Some evidence	No evidence	Unsure
Reduces risk of hypertension	212 (83)	37 (15)	4 (2)	2 (1)
Reduces blood pressure in known hypertensives	212 (83)	37 (15)	2 (1)	3 (1)
Reduces death from ischaemic heart disease	175 (69)	61 (24)	4 (2)	12 (5)
Reduces risk of Alzheimer's disease	40 (16)	87 (35)	39 (16)	83 (33)
Improves psychological well-being	211 (84)	35 (14)	1 (0)	4 (2)
Reduces risk of breast cancer	42 (17)	79 (32)	45 (18)	84 (34)
Improves muscular strength	231 (91)	21 (8)	0 (0)	2 (1)
Assists in weight control	223 (88)	31 (12)	0 (0)	0 (0)

majority of GPs (96%) indicated that they would recommend aerobic exercise 3 - 5 days per week. Most (89%) indicated that they would advise a 20 - 40-min duration of PA to gain benefits; however, over half (55%) believed that exercise at 70 - 80% of the maximum heart rate (HR_{max}) was required to obtain such benefits. The majority of the GPs (86%) agreed that resistance training results in health benefits, and 96% believed that flexibility exercises result in health benefits.

Patient education and referral

Fifty-four (21%) GPs indicated that they provided written material regarding PA to their patients, typically disseminated in the form of their own advice (65%) or available brochures (44%). Other handouts and online information were used in less than one-third of cases. The most common type of PA recommended by GPs was walking (89%), followed by running (46%), joining a gym (44%), swimming

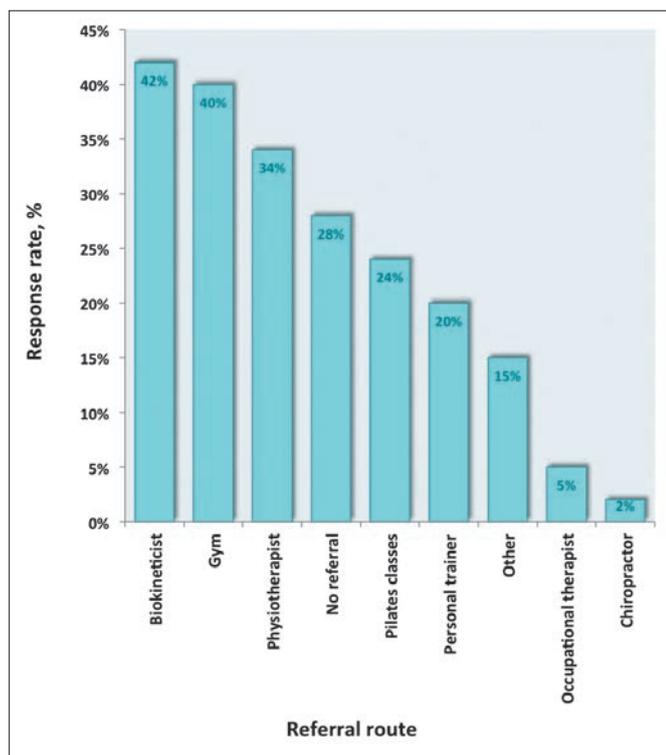


Fig. 1. GPs' preferred route of referral.

(43%) and cycling (38%). In response to being asked to whom they would most likely refer their patients, the most popular route of referral by the GPs was to a biokineticist, followed by to a gym and a physiotherapist (Fig. 1).

Discussion

GPs are in a unique position to provide advice on, and promote, PA on a primary-care level. This study indicates that SA GPs regularly advise on the benefits of PA, and promote PA to as many of their patients as possible. In addition, they appear to be confident and enthusiastic about providing PA advice. Our study found that more SA GPs felt that they had sufficient knowledge to advise patients on PA, than their UK counterparts.^[15,16] The belief that promoting PA is an important part of primary healthcare was felt more strongly in our group than in any other study.^[15-17] This implies that SA GPs have bought into the notion that exercise is medicine, and agree that they have a role to play in promoting PA to their patients.

The patients most likely to receive advice on PA were those with chronic diseases of lifestyle, such as overweight, diabetes, hyperlipidaemia and hypertension. We compared the present data with those of other studies and found that SA GPs consistently had one of the highest rates of 'always' advising PA for these conditions.^[15,17-19] In addition, our findings showed that SA GPs frequently provide advice opportunistically in all patients. This is perhaps reflective of their beliefs on the importance of PA in primary healthcare. On the other hand, despite the growing body of evidence to suggest that regular PA may improve the physical outcomes and reduce the rate of progression of neurological diseases such as PD and MS,^[20,21] only a minority of GPs advised patients with these diseases on the benefits of PA.

It is important for patients to receive the correct information in order to undertake sufficient PA for health benefits. Large-scale epidemiological studies have reported on the dose-response relationship between PA and health. This has led to recommendations for PA to include 150 min of moderate-intensity aerobic activity or 70 min of vigorous-intensity aerobic activity, or a combination of the two, each week.^[3] Generally, the knowledge of GPs regarding the frequency and duration of PA required for health benefits was good. However, over half of the GPs believed that one needed to exercise at vigorous intensity in order to gain health benefits. This is despite several published guidelines that include both moderate- and vigorous-intensity exercise, with the former being presumably safer and more practical for the general public.

Perhaps the area where GPs require assistance is in the method in which PA is promoted. In our study, very few GPs reported providing any written information to their patients. To this end, exercise-referral schemes, specifically Exercise is Medicine, provide useful resources such as information and brochures. Likewise, GPs should be encouraged to refer their patients to other professionals. SA is unique in that it is one of the only countries to have a dedicated healthcare professional type, a biokineticist, specialising in the prescription of exercise and promotion of PA. Notably, over one-quarter of the GPs in our sample did not refer their patients for exercise, and less than one half referred their patients to a biokineticist and gym, in line with a similar study by Barrett *et al.*^[18] This is despite encouragement in the current literature to connect primary care with other professionals in the pursuit of promoting PA.^[3]

Study limitations

A limitation of our study is the traditionally low response rate in GP surveys; albeit, our study had a similar response rate to that of other studies.^[16] Admittedly, it is hard to believe that, with the majority of GPs promoting PA, it has not made a bigger impact on the health of the nation. Therefore, it is safe to assume that this study may not be reflective of SA GPs as a whole. Further studies should be aimed at adding to this research on a wider scale. A second limitation is that our study did not address the possible barriers to PA promotion. Time constraints, lack of protocols, education and training, and other priorities have all been cited in the literature as possible barriers to promoting PA on a primary care level.^[22] Further research should address the potential and perceived barriers to the implementation of the Exercise is Medicine scheme in SA.

Conclusion

GPs are the cornerstone of public health, and they have the potential to influence population levels of activity on a large scale. Physicians have been shown to be effective in changing smoking behaviours, and we should expect the same for physical inactivity.^[23] In patients who require more supportive measures, GPs are encouraged to provide standardised educational material and to refer to specialised professionals such as biokineticists, physiotherapists or fitness trainers.

It can be concluded that GPs agree on the importance of PA promotion in primary care, and believe they have a role to play in this area. Clear practice guidelines are needed to promote PA in a way that will have an impact at the population level. To this effect, Exercise is Medicine in the SA context brings with it exciting prospects. Moreover,

PA is free and consequently a viable alternative to pharmaceuticals. For a resource-scarce country such as SA, the promotion of PA at a primary care level could have a massive impact on the health and longevity of the nation.

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