

Role of general practice in the utilisation of the NSW Get Healthy Information and Coaching Service

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Abstract. A lifestyle-modification telephone-based service is delivered in New South Wales (NSW; the Get Healthy Information and Coaching Service (GHS)) as an important obesity-prevention, population-wide program. The present study examined referrals from general practitioners (GP) versus self-referral to the GHS in terms of risk profile and effectiveness of outcomes. The study used a pre–post test design to assess changes in outcomes within the setting of a telephone-based lifestyle-support service available to NSW adults (18+ years) who self-referred or were referred by their health practitioner and/or GP, and registered for the GHS between February 2009 and August 2013 ($n = 22\,183$). The GHS has two service components: (1) the provision of an information kit (one off contact) on healthy eating, being physically active and achieving and/or maintaining a healthy weight; and (2) a 6-month coaching program that includes 10 telephone calls aimed at achieving and maintaining lifestyle-related goals. Sociodemographic characteristics, referral source and self-reported anthropometric (height, waist and waist circumference (WC)) and behavioural risk factor (physical activity and nutrition-related behaviours) data were collected at baseline and at 6 months. Analysis revealed that GPs effectively recruited hard-to-reach subtargets, as well as adults who are obese and have an increased WC risk. Participants in the GHS coaching program, irrespective of GHS referral source, reported a mean weight loss of -3.8 kg, a decrease in WC of -5.0 cm and increases in both fruit and vegetable consumption and physical activity. In conclusion, GPs have an important role in GHS uptake (through proactive referral or as an adjunct to practice-based interventions) because they can recruit those most at need and facilitate improvements in their patients' risk factor profiles.

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Introduction

An increasing prevalence of overweight and obesity is evident across Australia (Australian Bureau of Statistics 2013) and, in New South Wales (NSW), nearly two-thirds of the adult population is overweight or obese (Centre for Epidemiology and Research 2008). The implementation of accessible and flexible population-wide initiatives that address overweight and obesity (and, accordingly, the chronic disease risk factor profile of the community) is a public health priority.

One type of intervention that shows promise is that of lifestyle-modification telephone-based initiatives (Eakin *et al.* 2007; Goode *et al.* 2012), which have demonstrated effectiveness in increasing physical activity (PA), improving nutrition and reducing weight. In 2009, the NSW Government launched the Get Healthy Information and Coaching Service (GHS), a telephone-based service aimed at providing information and ongoing support to achieve a healthy lifestyle for NSW adults (www.gethealthynsw.com.au, verified 20 February 2013). There are two pathways of enrolling in the GHS: (1) self-referrals, recruited primarily through mass media advertising and

proactive marketing; and (b) secondary referral pathways through health professionals and general practitioners (GPs).

The role of GPs in obesity prevention, and accordingly lifestyle modification interventions, is already well recognised (Campbell *et al.* 2000; The Counterweight Project Team 2004; Harris 2009). In Australia, approximately 80% of the population consult a GP at least once in a year; approximately 60% of those are overweight or obese (Britt *et al.* 2010), which allows GPs frequent interaction with a large number of overweight and obese individuals; however, incorporating prevention counselling in general practice can be challenging due to time constraints. Although secondary GHS referrals have been used to a small extent, the nature and extent of the relationship with GPs and other health professionals requires exploration. Further, the issue of whether various referral sources have differential impacts on the profile of GHS participants and GHS coaching outcomes has not been explored.

This paper examines whether there are: (1) sociodemographic differences between those who 'self-refer' and those who are referred by their GP or other health professional among all GHS

What is known about the topic?

- General practice and primary health care have a significant role in facilitating improvements in chronic disease risk factors in adults either through direct service provision or through appropriate referral.

What does this paper add?

- Primary health care professionals have referred adults most at need of support to the Get Healthy Service, but more referrals are needed to assist patients at risk of chronic disease.

participants; (2) differences in sociodemographic characteristics and risk factor profiles among coaching registrants based on referral source; and (3) differences in anthropometric and behavioural risk factor changes for those participants who complete the 6-month coaching program based on referral source.

Methods

The GHS is a free telephone counselling service to assist adults with lifestyle changes to improve their health; participants can choose to receive one-off self-help materials (information-only participants) or enrol in a personalised 6-month telephone (10 calls) coaching program (coaching participants). Details of the GHS and its evaluation framework have been reported elsewhere (O'Hara *et al.* 2013). The present study examined only participants who enrolled in the GHS between February 2009 and August 2013. The study was approved by the University of Sydney Human Research Ethics Committee (Reference no. 02–2009/11570 and 20110906/14113).

Measures

Details were collected via a computer-assisted telephone interview (CATI) system and all participants provided information on their sociodemographic characteristics, including age, sex and residential postcode, and referral source. Coaching participants provided information on their weight-related behaviours (weight, height and waist circumference (WC), PA and nutrition). Participants' residential postcode was used to calculate quintiles of socioeconomic disadvantage and their geographical location (urban vs non-urban; Australian Institute of Health and Welfare 2004; Australia Bureau of Statistics 2006). Body mass index (BMI) was calculated and participants were categorised as overweight (BMI 25–29.9 kg/m²) or obese (BMI >30 kg/m²). The WC risk profile was categorised as >80 cm for women and >94 cm for men (World Health Organization 2000; Diabetes Australia Guideline Development Consortium 2001). PA was assessed using a validated questionnaire and participants were categorised according to PA guideline recommendations (Smith *et al.* 2005). Daily consumption of fruit and vegetables was classified according to national guidelines (National Health and Medical Research Council 2003) and participants were also asked to report how frequent they ate take-away meals each week and the volume of sweetened drinks consumed daily.

Referral source

The referral source of each participant was categorised into one of three categories: (1) GP referral; (2) referral from a health professional (e.g. allied health professionals in local area health services); and (3) referral from other sources (e.g. mass media, family and/or friends, workplace, proactive marketing etc.).

Statistical analysis

Unless stated otherwise, data are presented as the mean \pm s.d. Data were analysed using SPSS version 21 (SPSS Inc., Chicago, IL, USA) in October 2013. Chi-squared tests (and linear-by-linear tests) were used to compare sociodemographic and risk factor profiles according to referral source. The significance of differences in anthropometric and behavioural risk factor measurements was examined using matched paired *t*-tests and non-parametric tests (Wilcoxon), where appropriate, stratified according to referral source. A one-way between-group analysis of covariance (ANCOVA) was used to assess the impact of referral source on anthropometric and behavioural risk factor changes following completion of the coaching program, allowing for baseline variable as the covariate.

Results

Fig. 1 shows a flow diagram of participants between February 2009 and August 2013. Overall, 23 384 people registered in the GHS and 94.9% ($n=22\,183$) consented to participate in the study. One-quarter of participants (25.6%) were provided with the one-off information kit and the remaining 74.4% registered interest in the coaching program. Of the coaching participants, 21.6% withdrew from the program before commencement of coaching, and 12 937 participants commenced coaching. At the time of the study census (August 2013), 59.1% of these participants had commenced coaching but withdrew before completing the 6-month program, 12.1% were still active within the coaching program and 28.6% ($n=3701$) had completed coaching.

Sociodemographic profile

Overall, the majority (88.9%) of GHS participants were 'self-referred' (i.e. through mass media, family and/or friends, workplace, proactive marketing), with 7% of participants being referred by other health professionals and only 4.1% of referrals to the GHS being from GPs. The sociodemographic characteristics of participants according to referral source are given in Table 1. Most participants opted for the coaching service (75.3%), whereas one-quarter (24.7%) sought only the information kit. Participants referred by GPs were more likely to participate in the coaching service compared with the other two referral sources ($P<0.001$). A greater proportion of men reported referral from a GP compared with other health professionals (25.8% vs 22.2%, respectively); 54.6% of GP-referred participants had a high school education and 56.9% were not in paid employment (Table 1).

Table 2 shows the baseline demographic characteristics of participants who started the coaching program only. There were significant differences between the sociodemographic characteristics and risk factor profile of coaching participants based on their referral source. Of note, a greater proportion of

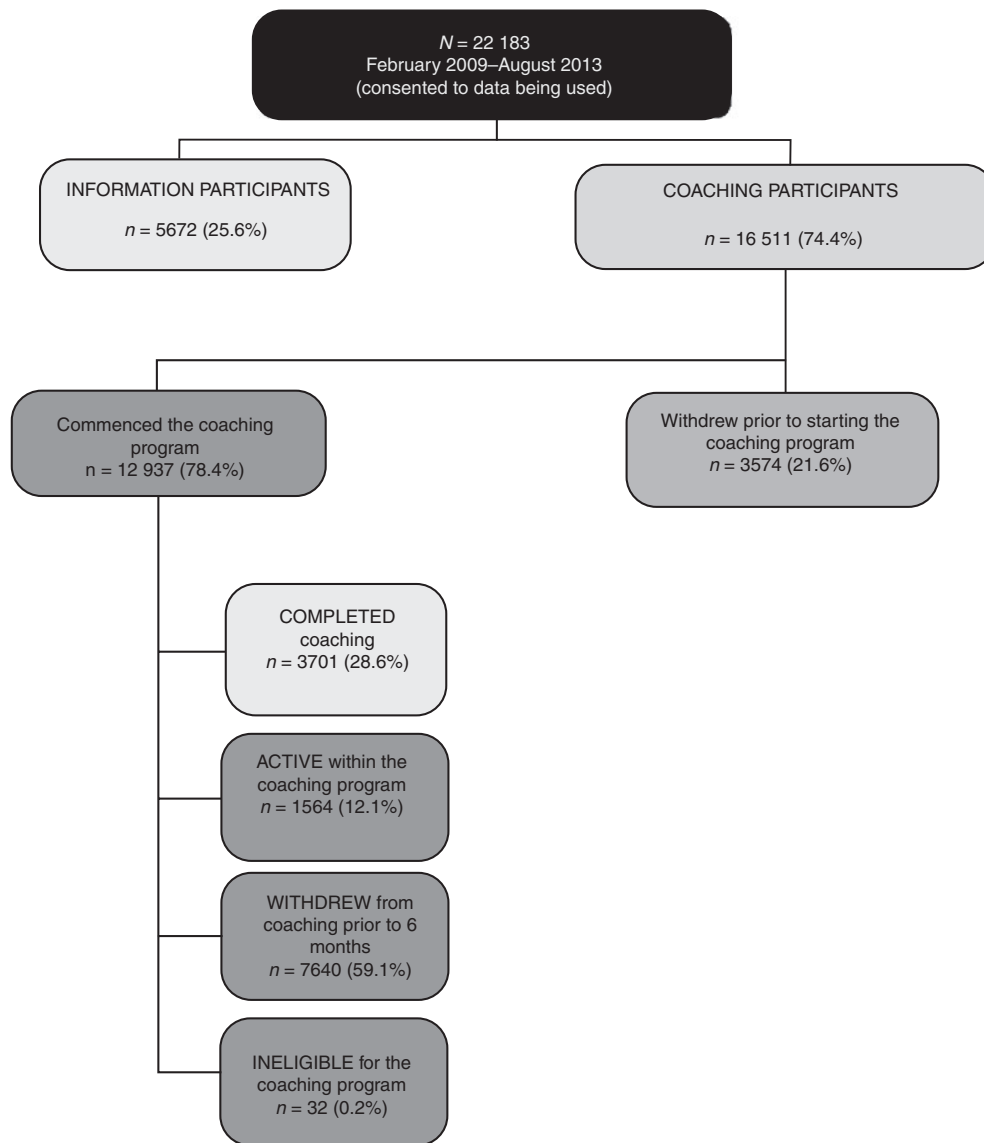


Fig. 1. Participant flow chart.

coaching participants who cited a GP as their referral source were male, aged >50 years, had a high school education, were not in paid employment and were in the lowest three quintiles of socioeconomic disadvantage compared with participants reporting other referral sources. A greater proportion of participants who cited health professionals as their referral source were from locations outside of major cities. Although not significant, there was also a greater proportion of participants being referred from GPs who were obese and at greater risk of chronic disease due to their WC.

Anthropometric and behavioural changes

Overall, coaching participants reported significant improvements from baseline to 6 months in weight (-3.8 ± 5.1 kg; $P < 0.001$), WC (-5.0 ± 6.0 cm; $P < 0.001$), BMI (-1.4 ± 1.8 kg/m²;

$P < 0.001$), daily serves of vegetables (1.3 ± 1.5 serves; $P < 0.001$), daily serves of fruit (0.4 ± 1.2 serves; $P < 0.001$), sweetened drinks per day (-0.3 ± 0.9 serves; $P < 0.001$), takeaway meals per week (0.5 ± 1.1 serves; $P < 0.001$), number of 30-min sessions of moderate PA per week (0.7 ± 2.4 sessions; $P < 0.001$), number of 30-min sessions of walking (1.2 ± 2.9 sessions; $P < 0.001$) and number of 20-min session of vigorous PA (0.4 ± 1.1 sessions; $P < 0.001$). We also examined the effectiveness of the coaching program based on referral source, and found no significant differences in anthropometric changes according to referral source.

Discussion

Since the introduction of Australia's Get Healthy Information and Coaching Service, GPs and other health professionals have

Table 1. Sociodemographic characteristics of participants by referral source (all Get Healthy Service participants)^A
 GP, general practitioner; NS, not significant; SEIFA, Socio-Economic Index for Areas

	Other referral source		Health professional referral		GP referral		<i>P</i> -value ^B
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
All	19 554	88.9	1535	7.0	894	4.1	
Gender							
Female	14 098	72.1	1194	77.8	663	74.2	<0.0001
Male	5456	27.9	341	22.2	231	25.8	
Age (years)							
18–49	9313	47.6	728	47.4	418	46.8	NS
50+	10 241	52.4	807	52.6	476	53.2	
Education							
High school education	8502	43.6	815	53.3	488	54.6	<0.0001
Other	10 996	56.4	716	46.7	406	45.4	
Employment							
Full time/part time/casual	10 708	54.9	703	45.9	385	43.1	<0.0001
Other	8814	45.1	829	54.1	509	56.9	
Aboriginal							
Non-Aboriginal	19 056	97.5	1314	85.7	862	96.5	0.027
Aboriginal	484	2.5	219	14.3	31	3.5	
Language spoken at home							
English	18 039	92.3	1473	96.0	820	91.7	<0.0001
Other	1515	7.7	62	4.0	74	8.3	
Region ^C							
Major city	12 115	62.0	583	38.0	519	58.1	<0.0001
Other	7431	38.0	952	62.0	374	41.9	
SEIFA							
1st and 2nd quintiles (most advantaged)	5608	28.7	297	19.4	257	28.7	<0.0001
3rd, 4th and 5th quintile	13 946	71.3	1238	80.6	637	71.3	
Participant type							
Information	5040	25.8	349	22.7	149	16.7	<0.0001
Coaching participant	14 514	74.2	1186	77.3	745	83.3	

^AInformation only and coaching participants, *n* = 21 983 (missing data for 200 participants in relation to their referral source; missing data for 206 participants for region).

^BLinear-by-linear association test of significance undertaken.

^CMissing data for additional participants for region.

been encouraged to refer individuals to the GHS. The present study shows that these professionals have been able to target those in the community who are most at need (in terms of a patient's sociodemographic and risk factor profiles) and facilitate enrolment in the 6-month coaching program (O'Hara *et al.* 2011). Those who participate in the 6-month coaching program make substantial improvements in anthropometric indices and behavioural risk factors, regardless of reported source of referral.

The overall proportion of participants reporting GP referrals was low (4.0% of total referrals); an increase in GP referral would be in keeping with GP utilisation by the community (Britt *et al.* 2010) and provides for opportunistic prevention referral. Furthermore, GPs have an important role in assisting recruitment of difficult-to-reach subpopulations. For example, it is known that men are less likely to access health services (Smith *et al.* 2006), seek help or be interested in losing weight (Wardle *et al.* 2004), and yet a substantial proportion of men reported GPs as

their GHS referral source. Similarly, a greater proportion of GHS participants with a high school education reported GPs as their referral source. This is of note because the less educated are an important subpopulation for chronic disease prevention given their greater prevalence of health risks, lower levels of health literacy (Australian Bureau of Statistics 2009) and lower likelihood of accessing health services (Berkman *et al.* 2011). Maximising the ability of GPs and other health care professionals to refer particular populations is likely to have a positive impact on those most at need, and early indications that this approach has potential for success has been demonstrated by the number of Aboriginal adults who have been referred to the GHS (and join the coaching program) through health care professionals, namely Aboriginal Controlled Medical Services (19.4%).

Regardless of the referral source, the improvements in anthropometric indices and behavioural risk factors were significant, confirming previous results (O'Hara *et al.* 2012).

Table 2. Baseline sociodemographic, anthropometric and behavioural risk factor characteristics of participants by referral source (coaching participants only)^A

BMI, body mass index; GP, general practitioner; NS, not significant; PA, physical activity; SEIFA, Socio-Economic Index for Areas

	Other referral source		Health Professional referral		GP referral		P-value ^B
	n	%	n	%	n	%	
All	11 270	87.1	944	7.3	678	5.2	
Gender							
Female	8333	73.9	741	78.5	506	74.6	0.03
Male	2937	26.1	203	21.5	172	25.4	
Age (years)							
18–49	5611	49.8	461	48.8	315	46.5	NS
50+	5659	50.2	483	51.2	363	53.5	
Education							
High school education	4502	40.0	506	53.7	365	53.8	<0.0001
Certificate/degree/higher	6745	60.0	436	46.3	313	46.2	
Employment							
Employed (full time/part time/casual)	6478	57.5	444	47.1	307	45.3	<0.0001
Other	4779	42.5	498	52.9	371	54.7	
Aboriginal							
Non-Aboriginal	11 010	97.8	759	80.6	659	97.3	<0.0001
Aboriginal	249	2.2	183	19.4	18	2.7	
Language spoken at home							
English	10 449	92.7	910	96.4	622	91.7	<0.0001
Other	821	7.3	34	3.6	56	8.3	
Region							
Major city	6939	61.6	360	38.1	392	57.8	<0.0001
Other	4327	38.4	584	61.9	286	42.2	
SEIFA							
1st and 2nd quintiles (most advantaged)	3356	29.8	177	18.8	206	30.4	<0.0001
3rd, 4th and 5th quintile	7914	70.2	767	81.3	472	69.6	
BMI classifications							
Under and healthy weight (BMI 10–24.9)	1674	15.7	80	9.6	41	6.5	<0.0001
Overweight (BMI 25–29.9)	3612	34.0	203	24.5	122	19.3	
Obese (BMI 30+)	5346	50.3	545	65.8	468	74.2	
Waist circumference risk ^D							
No risk	910	11.3	47	7.2	37	7.1	<0.0001
Increased risk	1425	17.7	64	9.8	43	8.3	
Greatly increased risk	5732	71.1	541	83.0	438	84.6	
Fruit and vegetable consumption							
Less than 2 serves of fruit daily	5491	52.5	389	50.3	316	53.0	NS
2 or more serves of fruit daily	4971	47.5	385	49.7	280	47.0	
Less than 5 serves of vegetables daily	9266	88.6	665	85.9	522	87.6	NS
5 or more serves of vegetables daily	1197	11.4	109	14.1	74	12.4	
Physical activity ^C							
Insufficient	7094	67.8	517	66.9	436	73.0	NS
Sufficient	3372	32.2	256	33.1	161	27.0	

^An = 12 937 coaching participants who commenced coaching (missing data for ~45–70 participants depending on the referral source and the variable of interest; waist circumference had missing data from 3700 participants; BMI had missing data from 846 participants; fruit and vegetable consumption had missing data from 1105 participants).

^BLinear-by-linear association test of significance undertaken.

^CSufficient physical activity: ≥ 5 sessions/week walking, or ≥ 5 sessions/week moderate activity, or 3–4 sessions/week walking and ≥ 1 –2 sessions/week moderate activity, or ≥ 1 –2 sessions/week walking and 3–4 sessions/week moderate activity (Smith *et al.* 2005).

^DWaist circumference risk: no risk is ≤ 80 cm for women and ≤ 94 cm for men; increased risk is between 81 and 88 cm for women, and between 95 and 102 cm for men; greatly increased risk > 88 cm for women and > 102 cm for men (Diabetes Australia Guideline Development Consortium 2001).

Knowing that the results of those who self-refer are the same as those with a secondary referral provides impetus for health practitioners to arrange GHS referrals, because it places less importance on self-motivation (i.e. self-referral), suggesting that health practitioners can ignite a patient's motivation to make significant lifestyle improvements.

The present research suggests that the potential role for GPs in the GHS is substantial: from general GHS promotion, to facilitation of self-referral by patients, to proactive referral of patients to the GHS coaching program (a key component of the '5As' in regard to 'arrange'; Harris 2009). Evidence suggests that the majority of GPs prefer a practice-based counselling approach to address weight management (The Counterweight Project Team 2004) rather than referral to other professionals (Campbell *et al.* 2000). Feasibly, the GHS could be used as an adjunct to a GP intervention, with the GHS focusing on behavioural change and GPs focusing on history taking and provision of advice (Campbell *et al.* 2000). This role would be supported by the GHS, which provides regular reports to GPs who directly refer clients. This approach has been used successfully in the arena of smoking cessation quitlines (Boldermann *et al.* 2006; Borland *et al.* 2008).

The limitations of the study design need to be noted. The analyses are based on self-report data that may be influenced by recall and social desirability bias. The study did not include a comparison group and so it is unknown whether a practice-based intervention would be more effective than the GHS alone or in conjunction with such an intervention; like many real-world programs there was a substantial number of participants who withdrew from the coaching program before completion. The possibility of results bias cannot be ruled out.

Conflicts of interest

None declared.

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