Obesity management and determinants of waist measurement in primary care: results of a Swiss survey

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Abstract

Background: The worldwide increase in obesity is becoming a major health concern. General practitioners (GPs) play a central role in managing obesity. We aimed to describe the Swiss GPs’ self-reported practice in managing and dealing with obesity and cardiovascular risk factors of their patients.

Methods: A structured self-reported questionnaire was mailed to 323 GPs recruited from four urban physician networks in Switzerland. Measures included professional experience, type of practice, obesity-related continuing medical education (CME) and practice in dealing with obesity such as waist measurement. We tested the effect of CME on the performance of waist measurement by multivariate ordered logistic regressions.

Results: A total of 187 GPs responded to the questionnaire. More than half of the GPs felt confident in managing cardiovascular risk factor and obesity. The majority of the GPs (73%) spent less than 4 days in the last 5 years on obesity-related CME. More than half of GPs gave advice to reduce energy intakes (64%), intakes of high caloric and alcoholic drinks (56%) and to increase the physical activity (78%). Half of the GPs seldom performed waist measurement and documentation. The frequency of obesity-related CME was independently associated with the performance of waist measurement when controlled for GPs age, sex, work load and setting by multivariate ordered logistic regression.

Conclusions: The majority of GPs followed guideline recommendations promoting physical activity and dietary counselling. We observed a gap between the increasing evidence for waist circumference assessment as an important measure in obesity management and actual clinical practice. Our data indicated that specific obesity-related CME might help to reduce this gap.
Introduction

Obesity is a major health problem associated with increasing risk of diabetes mellitus, hypertension, heart disease, cancer, decreased life expectancy [1] and substantial impact on health-care costs [2-3]. Prevalence of obesity has significantly increased in developed countries over the past two decades [4]. Currently, a national survey in U.S. revealed that more than 65% of adult Americans are classified as either overweight or obese (body mass index [BMI] between 25 to ≥ 35) [5]. The results from recent Swiss Health Survey also showed that overweight and obesity increased considerable in the last 15 years. The overweight and obesity among adult population increased from 30% in 1992 to 37% in 2007 and the increase is mainly due to the increase of overweight [6]. Weight problems were generally determined by body mass index (BMI), but waist circumference could also be a very useful and important indicator to identify those who are at risk and should seek weight management [7-8]. Compared to waist measurement, BMI measurement is not able to differentiate between muscle and fat induced weight increase [9]. Furthermore, it has been shown that the waist circumference is a better predictor of obesity-related health risks such as the risk of metabolic syndrome, hypertension and dyslipidemia [1, 7, 9-10] than BMI. The high prevalence of overweight and obesity results in an urgent need for improved obesity-related assessment, treatment and management. General practitioners (GPs) have an important role in preventing and diagnosing weight problems [11-12]. Obese persons were more likely to visit their GP than individuals without obesity [13]. Furthermore, most of patients considered that GPs have a significant role in weight management, have the necessary knowledge and skills to manage weight and consequently would ask their GP for weight loss advice [14].
GPs’ practices and attitudes in the management of obesity have been studied in different countries across Europe, but not so far in Switzerland. The purpose of the present study was to examine GPs practice in diagnosis and treatment of obesity with a special focus on the performance of waist measurement. In addition, determinants of the performance of waist measurement such as GP’s sociodemographics, years of practice, type of practice (single/group practice) and obesity-related continuous medical education (CME) were examined.

Methods

Study design

The present study is part of an intervention project titled “Management of Obesity and Cardiovascular Risk Factors in Urban Swiss General Practitioners Networks” which aimed to improve GPs’ approach in diagnosis and treatment of obesity by a multifaceted intervention program. The program included a baseline assessment, followed by a one-year intervention and a follow-up assessment after the intervention. The intervention was offered to the members of one urban GP network. The members of three other urban networks served as controls. However, the present study reported only the results from the baseline assessment from all four networks. All GPs aged between 35-55 years old from four urban networks in the German speaking part of Switzerland (168 from the intervention group and 155 from the control group) were eligible to participate.

Questionnaire & procedure

A self-administered structured questionnaire including 73 questions was developed
to assess GPs attitudes, practice, and knowledge as well as management in obesity and cardiovascular risk factors. The questionnaire was modified from a commonly used Australian questionnaire, which was also used in French and Israeli studies in an adapted form [15-19]. Questions about GPs obesity related clinical education were added as well as questions concerning their work setting (e.g. working alone or in group). Most of the item responses were based on a three or five point Likert scale. The response categories of items related to the management of obesity treatment were defined as rare practiced (<10%), occasional practiced (10-50%) and regular practiced (>50%).

The baseline questionnaires were sent to 323 GPs in March 2006: first, an invitation letter with the questionnaire; second, a reminder postcard was sent two weeks later; finally, a second copy of the questionnaire and a reminding letter was sent to the non-responders another two weeks later.

Statistical Analysis

First a descriptive analysis was performed presenting categorical and continuous variables as frequencies and means (SD). The primary outcome was the self-reported frequency of GP’s performance of waist measurement consisting of three ordered categories (performance in less than 10%, between 10 and 50%, and in more than 50% of obese patients). We assessed the independent association between waist measurement performance and GP’s characteristics by ordered logistic regression modelling.

The odds ratios can be interpreted as a comparison of the chances of the outcome being equal or higher than a specific category as a ratio of the chances of being lower [20].
The final model included the following variables: sex, age vs. categorized as (< 55 years vs. ≥55 years), professional experience (in years), work load (full-time vs. part-time), work setting (working alone vs. working in group) and number of days attending obesity related CME in the last five years (categorized as <1 day, 1-3 days and >3 days). The validity of the final model was tested by applying the proportional odds test (Brant test of parallel regression assumption) [21]. Statistical analysis was performed with STATA 10.0 (stata corp.).

Results

A total of 187 GPs responded to the questionnaire (response rate: 57.8%). The characteristics of the participating GPs are shown in Table 1. The respondents included 144 male (78.3%) and 40 (21.7%) female. About half (47%) of the GPs were 55 years or above and two thirds of them worked full-time (64.3%). The average years of professional experience were 17.0 (±7.9). The majority of the GPs had a group practice (59.1%). About 45% of the GPs reported seeing more than 100 patients per week. On average, GPs reported about 16% (±10.5) of their patients having an obesity problem and about 30% (±26.5) of these obese patients required special treatment according to the assumption of the GPs. More than half of the GPs felt confident in managing cardiovascular disease and/or obesity due to their membership in a physician network. In the past 5 years, most of the GPs (about 74%) attended less than four days of obesity–related CME.
Giving advice of weight management and obesity management

Table 2 shows GPs’ self reported practice about giving advice of weight management to their patients. More than half of the GPs regularly (> 50%) give advice to their patients to reduce energy intake (64.0%), lipid intake (53.0%) and intakes of high caloric and alcoholic drinks (56.2%). 78.2% stated to give advice to increase daily physical activity and 65.9% reported to motivate patients to perform sports. In contrast, most of the GPs rarely (<10%) gave advise in practical instructions for buying food (58.9%) and cooking (68.0%), urged the patient to keep a food diary (54.7%), and clarified interest and willingness to improve the health status by (support) groups (64.4%).

Table 3 shows GPs’ approaches to obesity management. More GPs regularly handled obesity (>50%) in excluding secondary forms of obesity (40.7%), in total cholesterol measuring (80.1%), in HDL and triglyceride measuring (77.9%), in making a total-risk-assessment and discussing the related factors with patients in detail (43.9%), in declaring a common goal and time frame with the patient (48.3%) and in checking and discussing the achievement of the patient in short intervals (51.4%). In contrast, many GPs reported rarely (<10%) handling obesity with consulting together with the spouse or partner (65.6%), asking for weight and physical activity of their children (65.2%), performing waist measurement and documentation (50.0%), assessing the basal metabolic rate and total energy to provide a basis for consultation (71.9%) and applying a valid prognostic tool for this assessment (59.2%).
Ordered logistic Regression Analysis

To assess the association between waist measurement and associated factors, we performed a multiple ordered logistic regression model, as described above. Results are displayed in table 4, showing that the number of days of attending obesity-related CME was the only significant determinant of GP’s performance of waist measurement. GPs who attended more than three days of obesity related CME in the past five years were more likely to perform waist measurements (OR: 4.67, p<0.01) compared to those who attended less than one day of the obesity related CME. Checking the final model did not provide evidence that the parallel regression assumption has been violated.

Discussion

The present study examined GPs’ characteristics and self-reported practice in obesity management based on a cross-sectional study of 187 GPs in Switzerland. Slightly more than half of the GPs reported that they felt confident in managing obesity and cardiovascular diseases. These results are consistent with previous studies which have also found that primary care physicians have confidence in dealing with health consequences of obesity and overweight [16, 22]. Recent literature showed that the waist circumference is an important determinant of the cardiovascular risk [9-10]. Due to its easy assessment, it is recommended to measure it in daily practice and document it in the patient file. Although waist measurement has proved to be an efficient measure to predict cardiovascular risk status, our results showed that this procedure is performed only in a minority of cases. Interestingly significant determinants of performing this procedure are
number of days attending obesity related CME. This finding suggested that CME can help improve GP´s knowledge about treatment and handling of obesity or increase awareness for appropriate risk assessment and handling of patients at risk. Consistent with other studies, GPs who had attended CME[23] programmes felt more conscious in obesity treatment [12]. Unfortunately we do not have information about what kind of CMEs that they attended. Previous studies showed that CME activities are efficient regarding changing behaviour if GPs have to participate actively and have the opportunity to practice skills [24-25]. Our results also showed that most of the GPs attended obesity related CME less than four days per year in average and only about 25% GPs attended more than four days of obesity related education during the past five years.

Our study is the first study in Switzerland to evaluate the specific behavioural strategies that GPs advised their obese patients for weight control. Consistent with previous studies [19] and guidelines and recommendation for weight loss [26-28], our results showed that most of the GPs gave advice on lifestyle, dietary and physical activity. Among the recommendations, the most frequently given advice was to increase physical activity. Similar results have been found in previous studies [17-18, 29-30].

Moreover, our study revealed that most of the GP’s recommended various dietary strategies such as reducing energy intake, lipid intake, consumption of alcoholic and high caloric drinks, and carbohydrate and proteins. Only a minority reported to give detailed instructions for cooking and for buying food as recommended in several guidelines [11, 31]. It has to be acknowledged that nutritionists do only marginally exist in Switzerland, so if the GP does not give these advices, no one will do it.
The main limitation of the revealed effect should be acknowledged. Our data reflect self reported behaviours, which can differ from daily practice. Regarding the main result, that CMEs have substantial influence on the reported behaviour, details about attended CMEs were not asked for.

One of the strengths of our survey is that the survey included a large number of GPs who could be considered to represent GPS in urban German-speaking part of Switzerland. Furthermore, our study provides an excellent opportunity to study the empowerment of primary health care providers in cardiovascular risk factors and obesity.

**Conclusions**

GPs reported a surprisingly high self-confidence in dealing with obesity and associated cardiovascular risk. In addition, the majority of GPs followed guideline recommendations promoting physical activity and dietary counselling. We observed a gap between the increasing evidence for waist circumference assessment as an important measure in obesity management and actual clinical practice. Our data indicated that specific obesity-related CME might help to reduce this gap.
Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
MZ, TR, MMK and UZ contributed to the design of the study. CAH and OS carried out the statistical analysis. CAH and MMK prepared and edited the manuscript. All authors critically reviewed it and contributed to the final manuscript. All authors have seen and approved the final version of the manuscript.

Acknowledgements
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practices of Australian dietitians. *Int J Obes Relat Metab Disord* 2000,
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management: Australian general practitioners’ attitudes and practices.


Table 1: Characteristics of study participants

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<thead>
<tr>
<th></th>
<th>General practitioners (N=187)</th>
<th>Mean (standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
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<tr>
<td>Male</td>
<td>144 (78.3)</td>
<td></td>
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<tr>
<td>Female</td>
<td>40 (21.7)</td>
<td></td>
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<tr>
<td>Age (in groups)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;35 years</td>
<td>1 (0.5)</td>
<td></td>
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<tr>
<td>35-44 years</td>
<td>28 (15.1)</td>
<td></td>
</tr>
<tr>
<td>45-54 years</td>
<td>69 (37.3)</td>
<td></td>
</tr>
<tr>
<td>≥55 years</td>
<td>87 (47.0)</td>
<td></td>
</tr>
<tr>
<td>Professional experience (in years)</td>
<td></td>
<td>17.0 (7.9)</td>
</tr>
<tr>
<td>Work load</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>119 (64.3)</td>
<td></td>
</tr>
<tr>
<td>Part-time 50-90%</td>
<td>56 (30.3)</td>
<td></td>
</tr>
<tr>
<td>Part-time 10-50%</td>
<td>10 (5.4)</td>
<td></td>
</tr>
<tr>
<td>Work setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working alone</td>
<td>49 (35.8)</td>
<td></td>
</tr>
<tr>
<td>Working in group</td>
<td>81 (59.1)</td>
<td></td>
</tr>
<tr>
<td>HMO</td>
<td>4 (2.9)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3 (2.2)</td>
<td></td>
</tr>
<tr>
<td>No. of patients (a week)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;100</td>
<td>101 (54.9)</td>
<td></td>
</tr>
<tr>
<td>100-150</td>
<td>73 (39.7)</td>
<td></td>
</tr>
<tr>
<td>&gt;150</td>
<td>10 (5.4)</td>
<td></td>
</tr>
<tr>
<td>Percentage of obese patients</td>
<td></td>
<td>16.2 (10.5)</td>
</tr>
<tr>
<td>Percentage of obese patients getting a</td>
<td></td>
<td>29.7 (26.5)</td>
</tr>
<tr>
<td>specific treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feel more confident in handling cardiovascular risk factors / obesity due to the membership in networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19 (10.4)</td>
<td></td>
</tr>
<tr>
<td>Yes, a little</td>
<td>78 (42.6)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>86 (47.0)</td>
<td></td>
</tr>
<tr>
<td>Nr. days attending obesity related CME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(past 5 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 day</td>
<td>42 (22.7)</td>
<td></td>
</tr>
<tr>
<td>1-3 days</td>
<td>94 (50.8)</td>
<td></td>
</tr>
<tr>
<td>4-10 days</td>
<td>37 (20.0)</td>
<td></td>
</tr>
<tr>
<td>&gt;10 days</td>
<td>12 (6.5)</td>
<td></td>
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Percentage may not sum to 100% because of rounding
<table>
<thead>
<tr>
<th>Activity</th>
<th>&lt;10% N (%)</th>
<th>10-50% N (%)</th>
<th>&gt;50% N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giving general advice to reduce energy intake</td>
<td>9 (5.1)</td>
<td>55 (30.9)</td>
<td>114 (64.0)</td>
</tr>
<tr>
<td>Giving specific information to reduce lipid intake</td>
<td>28 (15.6)</td>
<td>55 (30.6)</td>
<td>97 (53.9)</td>
</tr>
<tr>
<td>Giving specific information about carbohydrate and proteins</td>
<td>45 (25.3)</td>
<td>70 (39.3)</td>
<td>63 (35.4)</td>
</tr>
<tr>
<td>Individual consultation to reduce the consumption of alcoholic and high caloric drinks</td>
<td>22 (12.4)</td>
<td>56 (31.5)</td>
<td>100 (56.2)</td>
</tr>
<tr>
<td>General advice to increase physical activity in everyday life (e.g. walking instead of driving by car)</td>
<td>3 (1.7)</td>
<td>36 (20.1)</td>
<td>140 (78.2)</td>
</tr>
<tr>
<td>Advice to do exercises 2 to 3 times a week (e.g. jogging, swimming)</td>
<td>9 (5.0)</td>
<td>52 (29.1)</td>
<td>118 (65.9)</td>
</tr>
<tr>
<td>Practical instructions for buying food</td>
<td>106 (58.9)</td>
<td>53 (29.4)</td>
<td>21 (11.7)</td>
</tr>
<tr>
<td>Practical instructions for cooking</td>
<td>123 (68.0)</td>
<td>44 (24.3)</td>
<td>14 (7.7)</td>
</tr>
<tr>
<td>Urging the patient to use a food diary for 1 week</td>
<td>99 (54.7)</td>
<td>46 (25.4)</td>
<td>36 (19.9)</td>
</tr>
<tr>
<td>Clarifying interest and willingness to improve the health status by (support) groups</td>
<td>114 (64.4)</td>
<td>48 (27.1)</td>
<td>15 (8.5)</td>
</tr>
</tbody>
</table>

Percentage may not sum to 100% because of rounding.
Table 3: GPs’ approaches to management and treatment of obesity

| Frequency of Performance | Excluding secondary forms of obesity | Annual updating of specific anamnesis and documentation of weight, diets, eating habits and physical activity | Consultations together with the spouse or partner | Asking for weight and physical activity of the children | Assessing and treating eating disorders (e.g. bulimia, binge-eating) | Referring the patient to a psychologist or a psychiatrist in case of mental health problems | Waist measurement and documentation | Total cholesterol measurement | HDL and triglyceride measurement | Assessing the basal metabolic rate and total energy to provide a basis for consultation | Making a total-risk-assessment and discussing the related factors with patients in detail | Applying a valid prognostic tool for this assessment | Systematic evaluation of the patients’ motivation and consult the patients about measures | Assessing cognitive skills and education level of the patient | Declaring a common goal and time frame with the patient | Keeping involved in the treatment process if the patient was referred to a specialist | Checking and discussing the achievement of the patient in short intervals (3 to 6 weeks) | Following the treatment improvement over several years |
|-------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| <10% | 53 (29.1) | 50 (27.6) | 120 (65.6) | 116 (65.2) | 35 (19.2) | 56 (31.3) | 91 (50.0) | 5 (2.8) | 9 (5.0) | 128 (71.9) | 42 (23.3) | 106 (59.2) | 18 (10.0) | 28 (15.7) | 13 (7.4) | 39 (22.3) | 12 (6.7) | 39 (21.7) |
| 10-50% | 55 (30.2) | 81 (44.8) | 57 (31.2) | 46 (25.8) | 83 (45.6) | 78 (43.6) | 54 (29.7) | 31 (17.1) | 31 (17.1) | 37 (20.8) | 59 (32.8) | 32 (17.9) | 83 (46.1) | 77 (43.3) | 78 (44.3) | 91 (52.0) | 75 (41.9) | 93 (51.7) |
| >50% | 74 (40.7) | 50 (27.6) | 6 (3.3) | 16 (9.0) | 64 (35.2) | 45 (25.1) | 37 (20.3) | 145 (80.1) | 141 (77.9) | 13 (7.3) | 79 (43.9) | 41 (22.9) | 79 (43.9) | 73 (41.0) | 85 (48.3) | 45 (25.7) | 92 (51.4) | 48 (26.7) |

Percentage may not sum to 100% because of rounding
Table 4: Multiple ordered logistic regression assessing the association between waist measurement\textsuperscript{a} and associated factors

<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>95%-CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>1.08</td>
<td>0.45-2.60</td>
</tr>
<tr>
<td>Age (in groups)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;55 years</td>
<td>1.35</td>
<td>0.68-2.71</td>
</tr>
<tr>
<td>≥55 years</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Work load</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Part-time</td>
<td>1.41</td>
<td>0.66-3.04</td>
</tr>
<tr>
<td>Work setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working alone</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Working in group</td>
<td>0.97</td>
<td>0.45-2.09</td>
</tr>
<tr>
<td>Nr. days attending obesity related CME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1day</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>1-3 days</td>
<td>2.33</td>
<td>0.88-6.15</td>
</tr>
<tr>
<td>&gt;3 days</td>
<td>4.67\textsuperscript{**}</td>
<td>1.54-14.14</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Performing waist measurement: performing 10-50% or > 50% vs. <10%

*\textsuperscript{p}<0.05; **\textsuperscript{p}<0.01