

# Setting goal and implementation intentions in consultations between practice nurses and patients with overweight or obesity in general practice

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## Abstract

*Objective:* Patients with overweight or obesity increasingly attend general practice, which is an ideal setting for weight-loss counselling. The present study is the first to investigate the quality of weight-loss counselling provided by practice nurses in general practice to patients with overweight or obesity, in order to identify points for improvement.

*Design:* An observational checklist was developed to assess goal and implementation intentions and ‘missed opportunities for lifestyle counselling’. Comparisons were made with overall consultation goals set by practice nurses, as measured in a post-visit questionnaire.

*Setting:* Dutch general practice.

*Subjects:* One hundred video-taped consultations (2010/2011) between practice nurses and patients with overweight or obesity.

*Results:* Half of the consultations contained a goal intention, of which the majority aimed to change eating behaviour. Only part of these goal intentions could be considered implementation intentions. It appeared that actions (how elements) were not often included here. Lifestyle change was more often perceived as an overall consultation goal than weight change. Regarding patterns of overall consultation goals, the majority addressed only one lifestyle factor at a time. If practice nurses formulated weight change in their overall consultation goal, they also used goal or implementation intentions, especially for weight change. In a quarter of the consultations, practice nurses did not ask any further questions about weight, nutrition or physical activity to gain insight, which is an important ‘missed opportunity for lifestyle counselling’.

*Conclusions:* Matching implementation intentions to the broader overall consultation goals of practice nurses would be meaningful, leading to desired goal-directed behaviours and subsequent goal attainment.

## Keywords

Counselling  
Obesity  
Goals  
Nurses

General practice

Obesity is on the rise in Western societies. Patients with overweight or obesity increasingly attend general practice with overweight as a complaint or their related co-morbidities (such as type 2 diabetes), which makes it an ideal setting to promote healthy diet and adequate physical activity. However, a review including forty-one studies provides insight into the main outcomes of research on communication about nutrition and/or physical activity between general practitioners and patients with overweight or obesity<sup>(1)</sup>. It appeared that most studies focused on

quantity of general practitioners’ lifestyle counselling to patients with overweight or obesity instead of its quality, and there were only a few studies in which agreement of goals was discussed. Primary-care practice nurses were first introduced into Dutch general practice around 1999 to reduce the workload of general practitioners, to improve quality of care for chronically ill people and to stimulate cooperation between general practitioners<sup>(2)</sup>. Practice nurses work under the supervision of general practitioners, which means that a practice nurse cannot

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refer patients or prescribe medicines without permission of a general practitioner. A collaborative system such as this has been implemented in the UK, the Netherlands, Sweden, Finland, Australia and New Zealand<sup>(3)</sup>. Studies among practice nurses also seem to focus on prevalence of lifestyle counselling practices<sup>(4)</sup>. Both quantity as well as quality of lifestyle counselling is necessary to achieve main health gains. Goal setting can be considered as an established quality indicator for lifestyle counselling<sup>(5)</sup>. Locke<sup>(6)</sup> examined the behavioural effects of goal-setting theory, concluding that the majority of studies involving specific and challenging goals led to higher performance than studies involving easy or no goals. Goals should be specific, measurable, achievable, realistic and time targeted (SMART goals).

Two kinds of intentions are differentiated by Gollwitzer<sup>(7)</sup>, namely goal intentions and implementation intentions. Goal intentions specify a certain end point that may be either a desired performance or outcome, which stands a better chance of being realized when it is furnished with implementation intentions that link anticipated suitable opportunities to intended goal-directed actions. Implementation intentions specify the when, where and how of responses leading to goal attainment. Several studies have focused on implementation intentions and changing people's existing eating behaviour<sup>(8–14)</sup>, physical activity behaviour<sup>(15–18)</sup> and weight-loss behaviour<sup>(19)</sup>. Furthermore, some clinical studies have been conducted on implementation intentions regarding eating behaviour or physical activity behaviour among cardiac patients<sup>(20,21)</sup> and hypertensive patients<sup>(22)</sup>. It appeared that implementation intentions on how to act may especially be necessary when goals can be achieved through different courses of action or by adopting a relatively complex pattern of acts, as is the case in composing a healthy diet<sup>(8,12)</sup>. Formation of implementation intentions is an effective strategy for bridging intention–behaviour gaps. General practitioners or practice nurses can help patients to set goal and implementation intentions and subsequent attainment of these goals. On the other hand, a Dutch study showed that general practitioners' selection of communicative actions during consultation is situational and goal-driven<sup>(23)</sup>. When selecting overall consultation goals, general practitioners evaluate patients' needs and preferences as well as the medical situation and its consequences. Therefore, goal or implementation intentions should be compared with these broader overall consultation goals set by general practitioners or practice nurses.

There is no doubt that healthy diet and adequate physical activity are important to prevent obesity<sup>(24–26)</sup>. A recent study showed that practice nurses seem to fail to adequately emphasize this advice<sup>(27)</sup>. However, studies among general practitioners showed that their actual nutrition guidance practices are not only determined by predisposing factors and driving forces, but also by perceived barriers<sup>(28–37)</sup>. In the same way, real-life practice

nurse–patient consultations might also deviate from the ideal practice. Innovative practices might not be taken up by practice nurses. According to van Weel<sup>(38)</sup>, each consultation in general practice offers an opportunity for health promotion. Especially with regard to losing weight, opportunities for counselling in general practice are missed<sup>(39)</sup>. Hankey *et al.*<sup>(40)</sup> suggested a multidisciplinary team approach to weight management, with training of practice nurses and dietitians to address this issue.

To our knowledge, no study has focused on weight-loss counselling by practice nurses. In our prior research project, we examined the content of practice nurses' advice to patients with overweight or obesity<sup>(27)</sup>. The aim of the present study was to identify points for improvement in the quality of weight-loss counselling by practice nurses to patients with overweight or obesity. First, we observed formulation of goal and implementation intentions in consultations with patients with overweight or obesity. Next, comparisons with overall consultation goals were made. Moreover, 'missed opportunities for lifestyle counselling' were analysed.

## Methods

### Study design

In the Netherlands, video-tapes of real-life practice nurse–patient consultations in general practice were made as part of the study of Noordman *et al.*<sup>(41)</sup>. Nineteen practice nurses took part in that study, and approximately ten routine consultations per practice nurse were recorded in 2010 and again in 2011. Forty general practitioners from twenty practices agreed to participate and were contacted for participation of their practice nurses in the study; ten practice nurses from seven practices agreed to participate (47% response rate; six practices did not employ a practice nurse). Another health-care centre contacted them for participation of their ten practice nurses. This resulted in twenty practice nurses in total, one of whom stopped working during Noordman *et al.*'s study and is therefore left out. A potential component of these consultations was the discussion of lifestyle with a mixed group of patients with type 2 diabetes, chronic obstructive pulmonary disease and hypertension. Neither practice nurses nor patients were aware of the fact that observations focused on communication of lifestyle behaviour, although practice nurses were aware that their motivational interviewing skills were being evaluated. All practice nurses were trained in motivational interviewing as part of their education. Practice nurses and patients were told that the purpose of the recording was to gain insight into practice nurse–patient communication in order to provide practice nurses with individual feedback. Before the recording of the consultation, all participating practice nurses and patients filled in an informed consent form. The study of Noordman *et al.*<sup>(41)</sup> was carried out according to Dutch

privacy legislation. The privacy regulations were approved by the Dutch Data Protection Authority. According to Dutch legislation, approval by a medical ethics committee was not required for the current observational study.

For the present study, we selected 100 consultations between practice nurses and 100 patients with overweight or obesity from the above-mentioned study in order to adequately assess the quality of practice nurses' weight-loss counselling. First, consultations were selected in which practice nurses registered overweight/obesity as the patient's complaint ( $n = 29$ ). Subsequently, selection of consultations was done based on practice nurses' registration of nutrition or physical activity/sports as the patient's complaint, or overweight/obesity, weight (loss), nutrition or physical activity/sports in the post-visit questionnaire ( $n = 69$ ). Consultations were included only if the patient's body weight was discussed by practice nurses and if patients appeared indeed overweight or obese, as was the case in forty-seven consultations. We could not compute BMI for each patient, since patient's height was often not discussed in the consultation, and therefore we could not classify into an overweight group or obesity group. The remaining twenty-four consultations were selected by viewing the remarks made by former observers of these practice nurse–patient consultations<sup>(41)</sup> about compliance with lifestyle advice or medication, and referrals to other health professionals. As a result, 100 consultations were included.

### **Observation instrument**

To measure the quality of practice nurses' weight-loss counselling, an observational checklist was developed, including items about goal and implementation intentions and 'missed opportunities for lifestyle counselling'.

In order to assess goal and implementations intentions it was recorded if practice nurses made plans for their patients to overcome lifestyle habits, and if so, these intentions were written out in full. Goal intentions were defined as plans which specify a certain end point that may be either a desired performance or outcome. Implementation intentions specify the when, where and how of responses leading to goal attainment<sup>(7)</sup>. Whether or not the intention contained when, where and how elements, was coded afterwards. In other words, when refers to the specified time, where to the spatial frame and how to the actions. Moreover, SMART (Specific, Measurable, Acceptable, Realistic and Time targeted) goals were coded afterwards. Specific means that a particular plan is mentioned. Measurable stands for statement of the plan in quantifiable terms. Acceptable means that the patient does not object to the plan. Reasonable stands for a plan with relevance in the context between practice nurse and patient. Finally, Time targeted means the plan is defined in terms of time. For each recorded intention, it was examined whether the separate SMART goals were present or not.

Overall consultation goals were not obtained by observation, but measured by means of a post-visit questionnaire. After each consultation, practice nurses fully wrote down what they spontaneously considered as their overall consultation goal in the consultation with this patient on this particular day. They also recorded whether or not they had actually achieved this overall consultation goal.

'Missed opportunities for lifestyle counselling' were measured by registering in the observational checklist. Van Weel<sup>(38)</sup> indicated that each primary-care consultation has such potential, for example in terms of modification of help-seeking behaviour, management of continuing problems or opportunistic health promotion. In the observational checklist, any missed opportunity to provide lifestyle counselling was recorded which showed up during the consultation with the patient. Observers fully wrote down any situation or circumstance that was considered an opportunity to capitalize on. Among others, the observational checklist also assessed innovative practices, such as the connection to simple everyday opportunities, linkage to existing local initiatives, approaching health in a positive way (salutogenesis)<sup>(42)</sup> and application of E-health. Observation of whether or not these innovative practices were actually implemented in consultations with patients indirectly provided insight in any further 'missed opportunities for lifestyle counselling'.

A pilot study with ten consultations was done based on practice nurses' registration of the patients' complaint. This subset of patients with overweight or obesity accurately reflected the population with respect to gender and age. Adjustments were made in the observational checklist, such as recording more details about overweight status. Moreover, examples for goal and implementation intentions were included, and subdivision into nutrition, physical activity and weight was excluded. We also underlined that these 'missed opportunities for lifestyle counselling' occur during the consultation, and we included examples. In addition, after the pilot study another ten consultations were viewed by a second observer to check for inter-rater reliability. Goal and implementation intentions showed a  $\kappa$  of 0.52, which might be interpreted as moderate agreement<sup>(43)</sup>. Inter-rater reliability of 'missed opportunities for lifestyle counselling' was also moderate ( $\kappa = 0.58$ ).

### **Statistical analysis**

Simple counting and content analysis were used in the present study. All goal and implementation intentions were transcribed verbatim. Different categories of intentions were identified and the when, where and how elements were counted, as well as the SMART goals. Moreover, different categories were assigned to overall consultation goals and patterns of overall consultation goals were explored. Achievement of overall consultation goals was quantified by counting. Finally, categories for

'missed opportunities for lifestyle counselling' were designed in the analysis phase. Results are illustrated by typical quotes. The statistical software package IBM SPSS Statistics version 19.0 was used for statistical analysis.

## Results

### *Study sample characteristics*

Practice nurses' mean age was 42 years and they were all female. They had up to 10 years of practice experience. Nine practice nurses worked in a health-care centre, nine in a group practice and one practice nurse worked in a solo practice.

Mean age of patients with overweight or obesity was 60 years (range 22–87 years). Forty-four were male and fifty-six were female. Fifty-eight patients suffered from type 2 diabetes and eleven had impaired glucose intolerance, so sixty-nine were diabetic. Furthermore, twenty-seven patients had hypertension, eleven had high cholesterol, eight had CVD and six had asthma/chronic obstructive pulmonary disease. Thirty-two patients had two co-morbidities and seven patients had three co-morbidities. Body weight was discussed in all consultations and measured in ninety-one consultations. Mean body weight was 95 (SD 15) kg at the time of the consultation: male patients were on average 104 kg and female patients on average 88 kg. We did not know the patients' weight history. Mean duration of consultations was 25 min (range 8–55 min).

### *Goal or implementation intentions*

In total, fifty-six goal intentions were recognized. In seven consultations, two goal intentions were observed. This implies that in fifty-one consultations, no goal intention was observed. The goal intentions were all initiated by the practice nurse in cooperation with the patient, with the exception of two ('If I'm free on Wednesday, then I want to work out'; 'I am going to think about losing weight, especially to change my eating habits'). Thirty-two goal intentions aimed to change eating behaviour, against nineteen for physical activity behaviour and eighteen for weight-loss behaviour. In thirteen goal intentions, a combination of these different behaviours was found, of which the combination of weight and nutrition was most common. Thirteen goal intentions were formulated in terms of 'if, then', and another nineteen goal intentions could be reformulated in terms of 'if, then', and therefore were considered as implementation intentions. Table 1 shows the patterns of when, where and how elements in implementation intentions. Of all thirty-two implementation intentions, twenty-four specified the when, sixteen the where and eleven the how. It appeared that how elements were often not included (twenty-one times).

The following example illustrates an implementation intention in which when (change of weather conditions),

**Table 1** Frequency of patterns of when, where and how elements in implementation intentions during visits of 100 patients with overweight or obesity to nineteen practice nurses, the Netherlands, 2010/2011

| Element             | Frequency |
|---------------------|-----------|
| When, where and how | 3         |
| Both when and where | 6         |
| Both when and how   | 4         |
| Both where and how  | 3         |
| Only when           | 11        |
| Only where          | 4         |
| Only how            | 1         |

where (park) and how (walk together with wife) were involved:

'As the weather gets better you can more frequently go for a walk through the park together with your wife, then you can lose some pounds.' (Visit 29)

With respect to SMART goals, eleven implementation intentions turned out to be Specific. Almost all implementation intentions were considered Measurable, Acceptable and Reasonable. Three-quarters of the implementation intentions were considered Time targeted ( $n$  24). Only two implementation intentions were fully regarded as SMART goals.

### *Overall consultation goals*

Table 2 shows the overall consultation goals formulated by practice nurses. In the majority of consultations, physical examination was stated in the overall consultation goal. Information or motivation was also often included:

'Discuss laboratory results and educate about risk factors.' (Visit 6)

'Increase motivation to work on health itself.' (Visit 89)

In one-fifth of consultations weight change was mentioned as overall consultation goal. Changing nutrition was the overall consultation goal in thirteen consultations and changing physical activity in twelve consultations. Lifestyle change in general was included as the overall consultation goal in one-third of consultations.

The patterns in overall consultation goals related to changes in lifestyle, weight, nutrition and physical activity are shown in Table 3. A third of consultations dealt with only one subject. Then lifestyle change alone was mainly mentioned as overall consultation goal. Weight change alone was recorded ten times. The combination of lifestyle and weight changes in the overall consultation goal was most common. Only in one consultation were changes in weight, nutrition, physical activity and lifestyle all included. Practice nurses perceived that the overall consultation goal had actually been achieved in eighty-one consultations.

Comparisons were made between these broader overall consultation goals and goal or implementation intentions.

**Table 2** Frequency of categories in overall consultation goals, in decreasing order (post-visit questionnaire), during visits of 100 patients with overweight or obesity to nineteen practice nurses, the Netherlands, 2010/2011

| Category                    | Frequency |
|-----------------------------|-----------|
| Physical examination        | 36        |
| Lifestyle change            | 33        |
| Weight change               | 23        |
| Information                 | 19        |
| Motivation                  | 14        |
| Change in nutrition         | 13        |
| Change in physical activity | 12        |
| Discussion of goals         | 2         |
| Further acquaintance        | 1         |
| Optimization of treatment   | 1         |
| Support                     | 1         |
| No answer                   | 1         |

**Table 3** Frequency of patterns in overall consultation goals during visits of 100 patients with overweight or obesity to nineteen practice nurses, the Netherlands, 2010/2011

| Pattern   | Frequency |
|---|-----------|
| Weight, nutrition, physical activity and lifestyle change | 1         |
| Weight, physical activity and lifestyle change            | 1         |
| Both weight and nutrition change                          | 1         |
| Both weight and physical activity change                  | 3         |
| Both weight and lifestyle change                          | 7         |
| Both nutrition and physical activity change               | 4         |
| Both nutrition and lifestyle change                       | 1         |
| Only weight change  | 10        |
| Only nutrition change                                     | 4         |
| Only physical activity change                             | 2         |
| Only lifestyle change                                     | 22        |

It appeared that if practice nurses formulated weight change in their overall consultation goal, they also used goal or implementation intentions, especially for weight change. Moreover, the only implementation intention that included the when, as well as the where and how element, was stated as weight change by the practice nurse in her overall consultation goal.

### ***'Missed opportunities for lifestyle counselling'***

In total, sixty-nine 'missed opportunities for lifestyle counselling' were recorded. In forty-three consultations, one missed opportunity was registered. Nine consultations contained two missed opportunities and two consultations included four missed opportunities. Forty-six consultations were considered to have no 'missed opportunity for lifestyle counselling'.

Table 4 shows the different categories of 'missed opportunities for lifestyle counselling'. In consultations with twenty-seven patients with overweight or obesity, practice nurses did not elaborate or ask any further questions about weight, nutrition or physical activity to gain insight:

'Regarding food, you told that you ate more sweets and exercised less. Do you already have a reference for the ophthalmologist?' (Visit 41)

**Table 4** Frequency of categories in 'missed opportunities for lifestyle counselling', in decreasing order, during visits of 100 patients with overweight or obesity to nineteen practice nurses, the Netherlands, 2010/2011

| Category  | Frequency |
|---|-----------|
| No 'missed opportunity'   | 46        |
| One 'missed opportunity'  | 43        |
| Two 'missed opportunities'  | 9         |
| Four 'missed opportunities'   | 2         |
| No elaboration on weight, nutrition, or physical activity             | 27        |
| Ignoring patients' story  | 15        |
| No questions about weight, nutrition or physical activity in the past | 7         |
| No immediate availability of education materials                      | 6         |
| No realistic goals are set  | 6         |
| No weight measurement   | 4         |
| No referral to other health professional                              | 4         |

Another missed opportunity was that practice nurses ignored patients' story in fifteen consultations:

Patient: 'I am too heavy.' Practice nurse: 'Shall I give you information about diabetes?' (Visit 69)

In seven cases, practice nurses did not ask at all about weight, nutrition or physical activity in the past. Six times practice nurses wanted to provide education materials to the patients, but they could not find them. Moreover, in six consultations there was a missed opportunity with respect to setting a realistic goal. According to the Guideline on Obesity of the Dutch College of General Practitioners<sup>(44)</sup>, a 5–10% weight loss should be strived for, which shows that the evaluation in the following example is not right:

'Since you are 116 kg, you should lose four or five kg.' (Visit 24)

One more missed opportunity was that four practice nurses did not measure body weight or waist circumference.

Finally, in four consultations practice nurses could have more firmly insisted on referral to other health professionals:

'So your wife visited the dietitian. I want to measure your blood pressure.' (visit 83)

In order to discover any further 'missed opportunities for lifestyle counselling', we also inspected the innovative practices scored on the observational checklist. Application of E-health was observed in only five consultations, which may indirectly be seen as a 'missed opportunity for lifestyle counselling'. Moreover, in only one of five consultations was a link with existing local initiatives made by the practice nurse. Almost half of the consultations in our study contained a connection to simple everyday opportunities.

## **Discussion**

The aim of the present study was to identify points for improvement in the quality of weight-loss counselling by

practice nurses to patients with overweight or obesity. The study specifically assessed goal or implementation intentions, overall consultation goals and 'missed opportunities for lifestyle counselling'.

Our study showed that half of the consultations contained a goal intention, of which the majority aimed to change eating behaviour. A goal should ideally be transformed into an implementation intention. In contrast, a study among general practitioners showed that no weight-loss goals were made with patients with overweight or obesity<sup>(45)</sup>. Changes in nutrition behaviour depend on changes in specific behaviours that are practised consistently and over time<sup>(46)</sup>. Another reason for high use of goal intentions by practice nurses regarding nutrition might be the rather high age of the study population, some of whom were physically restricted. Recently, a review showed that although goal setting is the most commonly used behavioural change technique to increase the self-efficacy and physical activity behaviour of obese patients, it is associated only with changes in physical activity behaviour, but not with self-efficacy<sup>(47)</sup>. An American study showed that although many adults are interested in losing weight and set goals for doing so, they do not appear to be using safe and proven weight-management strategies to the extent that they could<sup>(48)</sup>. The formation of implementation intentions may improve the likelihood that positive behavioural intentions are turned into healthy actions<sup>(7)</sup>. Only part of the goal intentions in our study could be considered as real implementation intentions. It appeared that how elements were not often included. For complex behaviour change, how seems more important than when and where<sup>(8,12)</sup>. This implies that personal motivational cues for the behaviour should be used rather than situational cues. In our study nearly half of the consultations contained a connection to simple everyday opportunities, and even fewer linkages with existing local initiatives were made by practice nurses. We noticed in our observational study that practice nurses rely on word-of-mouth advertising from other patients: positive experiences from other patients were cited to encourage the patient. Another study found that local exercise files were not available in general practices, resulting in practice nurses having little knowledge of the local exercise programmes for patients with diabetes<sup>(49)</sup>. Health professionals participating in a primary-care lifestyle programme perceived a complete list of available local exercise facilities as crucial<sup>(50)</sup>. Practice nurses are recommended to establish a single point of contact with a small number of gyms or exercise clubs<sup>(51)</sup>.

Although overall consultation goals were set in all consultations, these were not automatically translated into goal or implementation intentions in the consultation itself. Practice nurses who formulated weight change in their overall consultation goal, also used goal or implementation intentions, especially for weight change. Lifestyle change was more often perceived as the overall

consultation goal than changes in weight, nutrition or physical activity. Apparently, practice nurses are inclined to take a comprehensive lifestyle approach, but it remains unclear what they actually perceive as lifestyle. Moreover, information was more common than motivation in overall consultation goals. Our study showed that half of the consultations contained a goal intention, and even less an implementation intention. Perhaps practice nurses have the impression that the patient is not motivated to change and hence not ready for an implementation intention. They could apply different communication styles to deal with this situation of low motivation, but it seems like they are still experiencing barriers. Perceived barriers were often found in studies among general practitioners<sup>(28-37)</sup>. Barriers need to be addressed before the achievement of shared goals can become common practice<sup>(52)</sup>. We also looked at patterns in overall consultation goals set by practice nurses and it appeared that the majority addressed only one lifestyle factor at a time in their consultation. Another study among primary-care providers found that they saw it as important to advise the patient with obesity to take small steps and start with one thing at a time<sup>(53)</sup>. Often, patients were eager to go ahead and make changes in all areas at once. So practice nurses should carefully consider whether a match should be made to address one lifestyle factor at a time or several lifestyle factors simultaneously. Combinations of lifestyle factors were less common, which was also found in our review about general practitioners<sup>(1)</sup>. Although most practice nurses in the present study mentioned that the overall consultation goal was achieved, it appeared that preventing patients to fall back into old habitual behaviours (relapse prevention according to the Stages of Change Model)<sup>(54)</sup> was not included. Practice nurses seem to adapt their motivational interviewing to a patient's stage of change to some extent<sup>(55)</sup>. The percentage of goal achievement may be even higher, because practice nurses may have partly achieved the overall consultation goal.

With respect to 'missed opportunities for lifestyle counselling', practice nurses did not elaborate on weight, nutrition or physical activity to gain insight. Possibly this has already become clear to them in a former consultation, of which no recordings are available. Another missed opportunity was that practice nurses ignored the patients' story. Perhaps they are too busy, but they would just have to give confirmation or approval. Recognition of weight concerns seems important. Green<sup>(56)</sup> showed that the same Precede-Proceed principles (such as predisposing, enabling and reinforcing factors) that apply to patients also apply to health professionals determining their counselling behaviour. However, in half of the consultations no 'missed opportunities for lifestyle counselling' were perceived. Furthermore, we found that practice nurses did not seem to implement innovative practices, such as application of E-health and linkage to existing local initiatives, which may indirectly be seen as 'missed opportunities for lifestyle counselling'.

### **Strengths and limitations**

A strength of the present study is that it is the first to investigate the quality of weight-loss counselling by practice nurses. As far as we know, it is the first study focused on goal and implementation intentions for weight in a primary care-setting. Moreover, we discovered patterns in overall consultation goals and made comparisons with goal or implementation intentions. In addition, we identified more points for improvement based on 'missed opportunities for lifestyle counselling'. Another strong point is that real-life practice nurse-patient consultations were used. A limitation of the study is that only one consultation per patient was included. Possibly, patients' weight, nutrition or physical activity behaviour has already been discussed in a previous consultation. Another possible limitation is that the majority of our study population was diabetic, although the study reflects practice nurses' professional field to care for patients with chronic illnesses. Next, our study population consisted of patients with chronic illnesses, who accidentally are overweight or obese, so it might be quite legitimate for practice nurses that they do not include weight change in their overall consultation goal. Furthermore, results are not necessarily generalizable to other countries, because of the specific primary-care context in the Netherlands, including its collaborative system. Moreover, inter-rater reliability was shown to be moderate. In the case of 'missed opportunities for lifestyle counselling', predefined categories might have led to higher reliability than an open-ended question. Another limitation is that overall consultation goals were self-reported, which means that the results may be affected by bias.

### **Implications for theory, policy and/or practice**

More research about the formation of implementation intentions regarding weight-loss behaviour among other primary-care providers and among health professionals in other clinical settings is needed to contribute to implementation intention theory. Practising practice nurses should be encouraged to formulate more solid implementation intentions, including the when, where and how element. It is important that the how element is included by building-in personal motivational cues for the behaviour, in addition to situational cues. This should also be integrated in practice nurses' education programme.

Furthermore, practice nurses should more often include weight change in their overall consultation goals, and keep this in mind, when formulating matching implementation intentions leading to the desired goal-directed behaviours among patients with overweight or obesity and subsequent attainment of these goals.

To be as innovative as possible, practice nurses should make more links to existing local initiatives. Therefore, it is important that practice nurses possess and use a social map which contains information on local initiatives. When providing practical advice about weight, nutrition or

physical activity, they could supplement this advice with useful information available on the Internet and take care that they have enough leaflets available for patients to take home.

'Missed opportunities for lifestyle counselling' should be tackled. Practice nurses should always ask deeper questions about weight, nutrition or physical activity to fully understand the patient, in addition to other important personal and environmental factors. We are not aware that patients have encountered disadvantages. However, practice nurses should not shy away from the confrontation with weight and other sensitive issues, but support patients in coping with weight in a respectful and positive way, and capitalize on small steps taken, because 'success breeds success'.

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### **References**

1. Van Dillen SME, van Binsbergen JJ, Koelen MA *et al.* (2013) Nutrition and physical activity guidance in general practice: a critical review. *Patient Educ Couns* **90**, 155–169.
2. Heiligers PJM, Noordman J, Korevaar JC *et al.* (2012) *Praktijkondersteuners in de huisartspraktijk (POH's), klaar voor de toekomst? (Practice Nurses in General Practice, Ready for the Future?)*. Utrecht: NIVEL.
3. Bourgueil Y, Marek A & Mousquès J (2005) *The Participation of Nurses in Primary Care in Six European Countries, Ontario and Quebec. Health Economics Letter* no. 95. Paris: Institute for Research and Information in Health Economics (IRDES).
4. Grimstvedt ME, der Anian C, Keller C *et al.* (2012) Nurse practitioner and physician assistant physical activity counseling knowledge, confidence and practices. *Prev Med* **54**, 306–308.
5. Glanz K (2002) *Health Behavior and Health Education. Theory, Research, and Practice*. San Francisco, CA: Jossey-Bass.
6. Locke EA (1996) Motivation through conscious goal setting. *Appl Prev Psychol* **5**, 117–124.
7. Gollwitzer PM (1999) Implementation intentions: strong effects of simple plans. *Am Psychologist* **54**, 493–503.
8. Verplanken B & Faes S (1999) Good intentions, bad habits, and effects of forming implementation intentions on healthy eating. *Eur J Soc Psychol* **29**, 591–604.
9. Armitage CJ (2004) Evidence that implementation intentions reduce dietary fat intake: a randomized trial. *Health Psychol* **23**, 319–323.

10. Kellar I & Abraham C (2005) Randomized controlled trial of a brief research based intervention promoting fruit and vegetable consumption. *Br J Health Psychol* **10**, 543–558.
11. De Nooijer J, de Vet E, Brug J *et al.* (2006) Do implementation intentions help to turn good intentions into higher fruit intakes? *J Nutr Educ Behav* **38**, 25–29.
12. Adriaanse MA, de Ridder TD & de Wit JBF (2009) Finding the critical cue: implementation intentions to change one's diet work best when tailored to personally relevant reasons for unhealthy eating. *Pers Soc Psychol Bull* **35**, 60–71.
13. Van Osch L, Beenackers M, Reubsat A *et al.* (2009) Action planning as predictor of health protective and health risk behavior: an investigation of fruit and snack consumption. *Int J Behav Nutr Phys Act* **6**, 69.
14. Bessems KMHI, van Assema P, Martens MK *et al.* (2011) Appreciation and implementation of the Krachtvoer healthy diet promotion programme for 12- to 14 year-old students of prevocational schools. *BMC Public Health* **11**, 909.
15. Milne S, Orbell S & Sheeran P (2002) Combining motivational and volitional interventions to promote exercise participation: protection motivation theory and implementation intentions. *Br J Health Psychol* **7**, 163–184.
16. Prestwich A, Lawton R & Conner M (2003) The use of implementation intentions and the decision balance sheet in promoting exercise behaviour. *Psychol Health* **18**, 707–721.
17. Ziegelmann JP, Lippke S & Schwarzer R (2006) Adoption and maintenance of physical activity: planning interventions in young, middle-aged, and older adults. *Psychol Health* **21**, 145–163.
18. De Vet E, Oenema A, Sheeran P *et al.* (2009) Should implementation intentions interventions be implemented in obesity prevention: the impact of if-then plans on daily physical activity in Dutch adults. *Int J Behav Nutr Phys Act* **6**, 11.
19. Luszczynska A, Sobczyk A & Abraham C (2007) Planning to lose weight: randomized controlled trial of an implementation intention to enhance weight reduction among overweight and obese women. *Health Psychol* **26**, 507–512.
20. Jackson C, Lawton R, Knapp P *et al.* (2005) Beyond intention: do specific action plans increase health behaviors in patients in primary care? A study of fruit and vegetable consumption. *Soc Sci Med* **60**, 2383–2391.
21. Sniehotta FF, Scholz U & Schwarzer R (2006) Action plans and coping plans for physical exercise: a longitudinal intervention study in cardiac rehabilitation. *Br J Health Psychol* **11**, 23–37.
22. Agondi RF, MCBJ Gallani, Cornelio ME *et al.* (2012) Analysis of action plans and coping plans for reducing salt consumption among women with hypertension. *Rev Lat Am Enfermagem* **20**, 486–494.
23. Veldhuijzen W, Mogendorff K, Ram P *et al.* (2013) How doctors move from generic goals to specific communicative behaviour in real practice consultations. *Patient Educ Couns* **90**, 170–176.
24. World Health Organization (2000) *Obesity: Preventing and Managing the Global Epidemic. Report of a WHO Consultation. WHO Technical Report Series no. 894*. Geneva: WHO.
25. National Institute for Health and Clinical Excellence (2006) *Obesity: The Prevention, Identification, Assessment and Management of Overweight and Obesity in Adults and Children*. London: NICE.
26. US Department of Agriculture & US Department of Health and Human Services (2010) *Dietary Guidelines for Americans, 2010*. Washington, DC: US Government Printing Office.
27. Van Dillen SME, Noordman J, van Dulmen S *et al.* (2014) Examining the content of weight, nutrition and physical activity advices provided by Dutch practice nurses in primary care: analysis of videotaped consultations. *Eur J Clin Nutr* **68**, 50–56.
28. Kushner RF (1995) Barriers to providing nutrition counseling by physicians: a survey of primary care physicians. *Prev Med* **24**, 546–552.
29. Hiddink GJ, JGAJ Hautvast, van Woerkum CMJ *et al.* (1995) Nutrition guidance by primary-care physicians: perceived barriers and low involvement. *Eur J Clin Nutr* **49**, 842–851.
30. Hiddink GJ, Hautvast JGAJ, van Woerkum CMJ *et al.* (1997) Nutrition guidance by primary-care physicians: LISREL analysis improves understanding. *Prev Med* **26**, 29–36.
31. Hiddink GJ, Hautvast JGAJ, van Woerkum CMJ *et al.* (1997) Driving forces for and barriers to nutrition guidance practices of Dutch primary-care physicians. *J Nutr Educ* **29**, 36–41.
32. Hiddink GJ, Hautvast JGAJ, van Woerkum CMJ *et al.* (1999) Cross-sectional and longitudinal analyses of nutrition guidance by primary care physicians. *Eur J Clin Nutr* **53**, Suppl. 2, S35–S43.
33. Glanz K (1997) Review of nutritional attitudes and counseling practices of primary care physicians. *Am J Clin Nutr* **65**, 6 Suppl., 2016S–2019S.
34. Visser F, Hiddink GJ, Koelen MA *et al.* (2008) Longitudinal changes in GPs' task perceptions, self-efficacy, barriers and practices of nutrition education and treatment of overweight. *Fam Pract* **25**, Suppl. 1, i105–i111.
35. Franssen G, Hiddink GJ, Koelen MA *et al.* (2008) The development of a minimal intervention strategy to address overweight and obesity in adult primary care patients in the Netherlands. *Fam Pract* **25**, Suppl. 1, i112–i115.
36. Van Dijk E, Kampen JK, Hiddink GJ *et al.* (2012) A longitudinal study of changes in noticing and treating patients' overweight by Dutch GPs between 1997 and 2007. *Fam Pract* **29**, Suppl. 1, i61–i67.
37. Van Dillen SME, Hiddink GJ & van Woerkum CMJ (2013) Determinants of Dutch general practitioners' nutrition and physical activity guidance practices. *Public Health Nutr* **16**, 1321–1331.
38. Van Weel C (1999) Nutritional guidance in general practice – a conceptual framework. *Eur J Clin Nutr* **53**, Suppl. 2, S108–S111.
39. Milder IEJ, Blokstra A, de Groot J *et al.* (2008) Lifestyle counseling in hypertension-related visits – analysis of videotaped general practice visits. *BMC Fam Pract* **9**, 58.
40. Hankey CR, Eley S, Leslie WS *et al.* (2004) Eating habits, beliefs, attitudes and knowledge among health professionals regarding the links between obesity, nutrition and health. *Public Health Nutr* **7**, 337–343.
41. Noordman J, Koopmans B, Korevaar J *et al.* (2013) Exploring lifestyle counselling in routine primary care consultations; the professionals' role. *Fam Pract* **30**, 332–340.
42. Antonovsky A (1996) The salutogenic model as a theory to guide health. *Health Promot Int* **11**, 11–18.
43. Landis JR & Koch GG (1977) The measurement of observer agreement for categorical data. *Biometrics* **33**, 159–174.
44. Van Binsbergen JJ, Langens FNM, Dapper ALM *et al.* (2010) NHG-Standaard Obesitas (NHG-Standard Obesity). *Huisarts Wet* **53**, 609–625.
45. Heintze C, Metz U, Hahn D *et al.* (2010) Counseling overweight in primary care: an analysis of patient–physician encounters. *Patient Educ Couns* **80**, 71–75.
46. Contento IR, Randell JS & Basch CE (2002) Review and analysis of evaluation measures used in nutrition education intervention research. *J Nutr Educ Behav* **34**, 2–25.
47. Olander EK, Fletcher H, Williams S *et al.* (2013) What are the most effective techniques in changing obese individuals' physical activity self-efficacy and behaviour: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act* **10**, 19.
48. Nothwehr F & Peterson NA (2005) Healthy eating and exercise: strategies for weight management in the rural Midwest. *Health Educ Behav* **32**, 253.

49. Jansink R, van der Weijden T, Elwyn G *et al.* (2010) Primary care nurses struggle with lifestyle counseling in diabetes care: a qualitative analysis. *BMC Fam Pract* **11**, 41.
50. Helmink JHM, Kremers SPJ, van Boekel LC *et al.* (2012) The BewegingKuur programme: a qualitative study of promoting and impeding factors for successful implementation of a primary health care lifestyle intervention for overweight and obese people. *Fam Pract* **29**, Suppl. 1, i68–i74.
51. Leemrijse CJ, Veenhof C & de Bakker DH (2013) *Kennisvraag – zorg en sport bewegen in de buurt (Knowledge Question – Care and Sports Physical Activity in the Neighbourhood)*. Utrecht: NIVEL.
52. Williams B, Steven K & Sullivan FM (2011) Tacit and transitory: an exploration of patients and primary health care professionals' goals in relation to asthma. *Soc Sci Med* **72**, 1359–1366.
53. Hansson LM, Rasmussen F & Ahlstrom GI (2011) General practitioners' and district nurses' conceptions of the encounter with obese patients in primary health care. *BMC Fam Pract* **12**, 7.
54. Prochaska JO & Velicer WF (1997) The transtheoretical model of health behaviour change. *Am J Health Promot* **29**, 145–152.
55. Noordman J, de Vet E, van der Weijden T *et al.* (2013) Motivational interviewing between the different stages of change: an analysis of practice nurse–patient consultations aimed at promoting a healthier lifestyle. *Soc Sci Med* **87**, 60–67.
56. Green LW (1999) What can we generalize from research on patient education and clinical health promotion to physician counselling on diet? *Eur J Clin Nutr* **53**, Suppl. 2, S9–S18.