Exploring lifestyle counselling in routine primary care consultations: the professionals’ role

Janneke Noordmana,*, Berber Koopmansa, Joke C Korevaara, Trudy van der Weijdenb and Sandra van Dulmena,c,d

aNIVEL, Netherlands Institute for Health Services Research, PO Box 1568, 3500 BN Utrecht, the Netherlands, bMaastricht University, School for Public Health and Primary Care (CAPHRI), Department of General Practice, PO Box 616, 6200 MD Maastricht, the Netherlands, cRadboud University Nijmegen Medical Centre, Department of Primary and Community Care, Geert Grooteplein Noord 21, 6500 HB Nijmegen, the Netherlands and dDepartment of Health Science, Buskerud University College, Drammen, Norway.

*Correspondence to Janneke Noordman, Netherlands Institute for Health Services Research, PO Box 1568, 3500 BN Utrecht, the Netherlands; E-mail: j.noordman@nivel.nl

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Background. It is generally acknowledged that GPs and practice nurses (PNs) may significantly contribute to a patient’s healthy lifestyle behaviour. Two counselling techniques are known to strengthen this process: tailoring information and advice about lifestyle behaviour to a patient and motivational interviewing (MI). It is not clear to what extent GPs and PNs actually apply these techniques during routine consultations.

Objectives. To examine how GPs and PNs discuss patients’ lifestyle behaviour, in terms of the level of tailoring of information and advice and their application of MI.

Methods. We randomly videotaped GP-patient and PN-patient consultations within Dutch general practices and selected 124 and 141 consultations, respectively, that included any discussion about the patient’s lifestyle. These were analysed, using the ‘Behaviour Change Counselling Index’, level of tailoring and content of lifestyle counselling.

Results. Information about lifestyle is mainly given in generic terms by GPs and PNs. In contrast, advice about smoking behaviour more often seems to be tailored to the patient. GPs hardly ever applied MI in their consultations about patient’s lifestyle behaviour. PNs trained in MI did apply this technique, but to some extent only.

Conclusion. Both GPs and PNs somehow perform lifestyle counselling according to generally acknowledged criteria. However, for both, there is room for improvement in the application of MI skills and in tailoring of information and advice about lifestyle behaviour. Effort needs to be put into integrating such techniques into busy daily practice while simultaneously complying with the many other clinical demands.

Keywords. Communication, general practitioners, lifestyle, nurses, primary health care.

Introduction

The global burden of chronic diseases and related pivotal role of healthy lifestyle behaviour require both preventive and managing strategies.1,2 In primary health care, the GP and the practice nurse (PN) can significantly influence patient’s lifestyle behaviour by identifying a patient’s unhealthy behaviour and by counselling accordingly.3,4 The context of primary care seems suitable since changing lifestyle behaviour demands regular contacts,5 and a considerable part of the general population visits the GP or PN at least once a year.6,7 Generally, GPs diagnose and initiate treatments and lifestyle counselling, whereas PNs monitor treatment outcome, provide education and support for behaviour change and offer follow-up contacts.8 Consequently, they both have (partly different) responsibilities in managing lifestyle issues.9

Information and advice about lifestyle behaviour should preferably be ‘tailored’ to a patient,10,11 by adapting information and advice to individual characteristics related to outcomes of interest.12 Tailored interactions are acknowledged to be more relevant than generic communication for health behaviour change.10,11 Besides, patient’s information recall is enhanced when tailored to their specific situation.12 To what extent GPs and PNs actually tailor their information and advice about lifestyle behaviour is as yet unknown.
Several studies show that motivational interviewing (MI) is a promising, tailored strategy to assist GPs and nurses in achieving behaviour change in their patients.\textsuperscript{13,14} MI focuses on resolving ambivalence between a patient’s desired and actual behaviour and centres on motivational processes that could facilitate change.\textsuperscript{15} However, PNs often refrain from putting MI skills into practice.\textsuperscript{16,17} Whether the same applies to GPs remains to be seen.

The aim of this study is to examine how GPs and PNs perform lifestyle counselling during routine consultations, in terms of the level of tailoring of information and advice and their application of MI. A qualification of the extent to which patient’s lifestyle behaviour is discussed during routine consultations of GPs and PNs is not part of this study. Also, we do not want to suggest that the lifestyle counselling performed by GPs and PNs is comparable.

Methods

Recruitment of professionals

Video-recordings were made of GP-patient and PN-patient consultations as part of (i) the GP-patient communication study in 2007–2008\textsuperscript{18} and (ii) the PN-patient communication study in 2010–2011.\textsuperscript{19}

GPs participating in study (i) are all members of the Netherlands Information Network of General Practice (LINH= Landelijk Informatienetwerk Huisartsenzorg), a representative network of 84 general practices and more than 330,000 patients.\textsuperscript{20} A sample of 93 GPs was drawn from LINH, of which 40 GPs (44\%) from 20 practices agreed to participate in the video observation study.\textsuperscript{16} These 40 GPs represented the Dutch GP regarding gender and practice form but were on average 4 years older than the average Dutch GP.

The participating GPs from study (i), and GPs from another practice, were contacted for participation of their PNs in study (ii); 10 PNs from 7 practices agreed to participate (47\% response rate; six practices did not employ a PN). Another health care centre contacted us for participation of their 10 PNs. This resulted in 20 PNs in total, of which one stopped working during our study and is therefore left out. Consequently, 19 PNs participated. In the Netherlands, between 3700 and 4700 PNs were working within 3482 general practices in 2011.\textsuperscript{21}

Recruitment of patients and procedure

The GPs agreed to have approximately 20 consecutive, everyday consultations videotaped. The recording with an unmanned digital camera took place on one or two random days, resulting in a total of 808 recorded consultations. 77.6\% of the patients agreed to participate. Non-responders were somewhat older (on average 48 years versus 43 years) and less often female.

The PNs agreed to have approximately 10 consecutive, everyday consultations videotaped during one or two random days, resulting in 181 recorded consultations. Of the patients, 92.8\% agreed to participate. Non-responders did not differ from participants regarding gender.

All participating GPs, PNs and patients filled in an informed consent form before the recording of the consultation. Participants could withdraw their consent at any time; no one did. Pre-consultation, patients completed a questionnaire about their sociodemographic characteristics and their complaint or disease. Patients from PNs also answered questions about smoking and physical activity.

All PNs were trained in MI as part of their education; 13 also received additional postgraduate MI training.\textsuperscript{19} To our knowledge, only one GP was MI trained.

Video-recorded GP-patient consultations were selected in which patient’s (un)healthy lifestyle behaviour (smoking, physical activity, alcohol use or dietary behaviour) was discussed. In case of smoking and physical activity, consultations were only selected if the patient mentioned that he/she smoked, and/or had a physical activity level under the Dutch guideline of 30 minutes a day, 5 days a week.\textsuperscript{22} For alcohol use and dietary behaviour, we included all consultations in which these behaviours were discussed. This resulted in the selection of 124 video-recorded consultations (15\%) between 124 patients and 39 GPs. One of the 40 GPs did not discuss lifestyle in any of his consultations.

Video-recorded PN-patient consultations were selected in which patient’s (un)healthy lifestyle behaviour (smoking, physical activity, alcohol use or dietary behaviour) was discussed. Consultations were only included if patients had indicated in the questionnaire that they smoked or reported a physical activity level under the Dutch guideline.\textsuperscript{23} In total, 141 video-recorded consultations (78\%) between 141 patients and 19 PNs were selected. Included patients were all 18 years or older.

Analyses

The videotaped consultations were coded using Observer software\textsuperscript{23} by two observers independently, using (i) the psychometrically sound Behaviour Change Counselling Index (BECCI)\textsuperscript{24–26} (Appendix 1) to code motivational interview (MI) skills and (ii) a self-developed lifestyle behaviour protocol to rate the volume and level (generic or tailored) of the discussion of patients’ lifestyle behaviour (Appendix 2).

The BECCI contains 11, five-point Likert-scaled items related to providers’ MI techniques, ranging from ‘not at all’ to ‘a great extent’, subdivided into four domains. Because of low-to-moderate Cronbach’s alpha scores for the BECCI domains, the 11 separate items of the BECCI were also analysed.
To observe the interaction about patient's lifestyle behaviour, we developed four items, related to the health care providers' behaviour: (i) providing verbal information about lifestyle behaviour, (ii) providing verbal advice about lifestyle behaviour, (iii) referring the patient (e.g. to a dietician), and (iv) providing a leaflet or printed material (e.g. about healthy nutrition). These items were only coded when present and could be coded several times during a consultation, for one or more lifestyle behaviours. In case GPs or PNs provided information or advice, we categorized these as ‘generic’ or ‘tailored’. Generic information or advice is defined as information or advice strictly according to Dutch guidelines (for example, on diabetes type 2 or the ‘stop smoking’ guideline) and not aimed at a specific person. Tailored is defined as information or advice adapted to a person's individual characteristics related to the outcome of interest (Appendix 2). In case tailoring was found in a consultation, no matter of the extent of the tailoring in the consultation, a consultation was scored as ‘tailored’. See Appendix 2 for examples of generic and tailored information and advice.

In conformity with MEDICODE, an observation protocol for assessing communication about medicines, the initiative (professional or patient) to discuss lifestyle behaviour and its length (in minutes/seconds) were also coded.

Furthermore, we registered the disease/symptoms presented in GP-patient consultations, according to the International Classification of Primary Care (ICPC). The symptoms/disease of patients who visited the PN were derived from the PN questionnaire; PNs described patient’s perceived complaints and diseases as registered in their medical record for that day.

To assess interrater reliability, a random 10% of the consultations was rated by both observers, resulting in sufficiently high average Kappa scores of 0.82 (range 0.40–1.00) for the BECCI and 0.89 (range 0.66–1.00) for the ICPC.

**Statistical analysis**

Descriptive analyses were performed using Stata 11.

### Results

**Patient characteristics**

Table 1 describes the patient characteristics. GPs and PNs see different patient groups. GPs see patients with a wide range of diseases and complaints, while patients who visit the PN are mostly diagnosed with a chronic disease or present one or more risk factors (e.g. obesity) (Table 1).

**Lifestyle counselling by GPs**

During the routine GP consultations, physical activity (61%), smoking (46%) and/or dietary habits (43%) were most often discussed. Alcohol use was discussed in a minority of the consultations (19%). The mean duration of lifestyle talk ranged from 0.28 minutes for alcohol use to 1.29 minutes for dietary habits (see Table 2). GPs mostly took the initiative to discuss smoking behaviour.

GPs’ information about lifestyle behaviour was mainly generic (Table 2). For example, ‘GP: Smoking, no matter how much, influences your lung condition. Patient: Yes, that is right’ (see also Appendix 2). Information and advice about alcohol use (n = 9) were always provided in generic terms, whereas most advices

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**Table 1 Characteristics of patients visiting the GP (N = 124) or the practice nurse (N = 141)**

<table>
<thead>
<tr>
<th></th>
<th>Patients of GPs (N = 124)</th>
<th>Patients of practice nurses (N = 141)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in years</td>
<td>49.8 (15.6; 19–84)</td>
<td>61.3 (13.3; 19–85)</td>
</tr>
<tr>
<td>Men (%)</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>Educational level (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>15</td>
<td>28</td>
</tr>
<tr>
<td>Middle</td>
<td>49</td>
<td>53</td>
</tr>
<tr>
<td>High</td>
<td>24</td>
<td>15</td>
</tr>
<tr>
<td>‘Missing’</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Dutch ethnicity (%)</td>
<td>78</td>
<td>81</td>
</tr>
<tr>
<td>Western (%)</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Non-Western (%)</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>‘Missing’ (%)</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Smoking; daily/now and then (%)</td>
<td>n.a.</td>
<td>33</td>
</tr>
<tr>
<td>Meets recommended physical exercise (%)</td>
<td>n.a.</td>
<td>49</td>
</tr>
<tr>
<td>Disease/ risk factor/ ICPC-chapter (n = )</td>
<td>Disease/risk factor</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>7</td>
<td>Diabetes type 2; 69</td>
</tr>
<tr>
<td>Blood</td>
<td>2</td>
<td>Asthma/COPD: 21</td>
</tr>
<tr>
<td>Digestive</td>
<td>11</td>
<td>Heart &amp; vascular disease: 2</td>
</tr>
<tr>
<td>Eye</td>
<td>2</td>
<td>Hypertension: 34</td>
</tr>
<tr>
<td>Ear</td>
<td>2</td>
<td>High cholesterol: 2</td>
</tr>
<tr>
<td>Circulatory:</td>
<td>13</td>
<td>Other (e.g. smoking): 12</td>
</tr>
<tr>
<td>Musculoskeletal:</td>
<td>27</td>
<td>Unclear/unknown: 1</td>
</tr>
<tr>
<td>Neurological:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Psychological:</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Respiratory:</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Metabolic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endocrine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nutrition:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urological:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pregnancy, family planning:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Female genital:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Male genital:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Unclear/unknown:</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Note: n. a., not available.

a n = 1 missing.
b n = 3 missing. Only the first (most important) complaint/disease (ICPC-code) of a patient is provided.
about smoking behaviour \((n = 4)\) were tailored. Advice about physical activity \((n = 17)\) was almost as often generic as tailored.

The GPs referred five patients to a dietician, one patient to a physiotherapist and one patient for physical activity support. Folders about lifestyle behaviour were given four times (Table 2).

Table 3 shows GPs’ application of MI skills. On average, GPs applied MI minimally. When examining the separate BECCI items, GPs regularly ‘demonstrate sensitivity to talking about other issues’ (item 2) and they ‘use summaries to bring together what the patient says about the topic’ (item 7) to some extent (Table 3).

### Lifestyle counselling by practice nurses

During PNs’ routine consultations, physical activity (in 84% of the consultations) and dietary habits (80%) were most often discussed, followed by smoking (51%) and alcohol use (36%). The mean duration of lifestyle talk was highest for smoking and dietary habits (both 2.5 minutes on average); a visit about smoking could take up to 29 minutes (Table 4).

PNs mainly took the initiative to discuss smoking, alcohol and physical activity behaviour and, to a smaller extent, dietary behaviour.

When PNs provided information about lifestyle behaviour, this was mainly done in a generic way. Advice about lifestyle behaviour was usually tailored (see Table 4). An example of PN’s tailored advice, ‘PN: And do you walk or bike? Patient: Yes, I walk the dog, but that is only a ten minutes’ walk, or say fifteen minutes, that’s it. PN: Yes, yes, well that’s hard then. Are there other possibilities? During your break? Or can you extend the walk with your dog, that would also be helpful’ (see Appendix 2 for more examples).

PNs referred, under supervision of their GP, seven patients to a dietician and one patient for physical activity support. PNs also made an appointment with one patient for telephone support and with five patients a follow-up appointment about lifestyle behaviour. Folders were provided 15 times, of which 10 folders about healthy eating.

Table 3 shows PNs’ application of MI skills. In general, PNs applied MI skills to some extent. The PNs regularly ‘provide information which is sensitive to the patient concerns and understanding’ (item 9), ‘encourage patients to talk about current behaviour or status quo’ (item 3) and ‘demonstrate sensitivity to talking about other issues’ (item 2).

### Discussion and conclusion

Given the different patient samples and standard consultation time, the consultations of GPs and PNs cannot simply be compared. Therefore, we describe the outcomes on GPs and PNs skills separately. However, practice implications or suggestions for improvement are applicable for both.

Our results demonstrate that GPs and PNs do perform lifestyle counselling. However, there is room for improvement. GPs and PNs mainly provide generic information about lifestyle behaviour instead of adjusting the information to the specific situation of a patient. Overall, few patients were given advice about lifestyle behaviour. When PNs did provide lifestyle advice, they did this most often in a tailored way. GPs delivered both generic and tailored advice. It was expected that information about lifestyle would mainly be provided in generic terms, in contrast to advice about lifestyle behaviour that, preferably, should be tailored. This was found to be the case for PNs, although they gave only few advices. Previous research shows that tailored interactions are more relevant than generic communication.
for health behaviour change, in helping patients to become and continue to be motivated, obtain new skills and perform and maintain desired lifestyle changes.\textsuperscript{10,11} Furthermore, ‘alcohol use’ was not as often discussed as smoking behaviour, physical activity and dietary habits. This is in line with results from a study among Swedish GPs, which also found that alcohol use was least often discussed.\textsuperscript{28}

GPs’ and PNs’ application of MI skills could also be improved although there is no ‘golden standard’ for applying MI. GPs showed on average a minimal application of MI in their consultations, whereas trained PNs

<table>
<thead>
<tr>
<th>BECCI</th>
<th>Mean scores (SD) of GPs (N = 39), during 124 consultations</th>
<th>Mean scores (SD) of practice nurses (N = 19), during 141 consultations</th>
<th>Cronbach’s alpha scores for BECCI domains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain 1 agenda setting and permission seeking</td>
<td>Practitioner invites the patient to talk about behaviour change 1.81 (0.51)</td>
<td>2.27 (0.55)</td>
<td>0.54 by PNs; 0.26 by GPs</td>
</tr>
<tr>
<td></td>
<td>Practitioner demonstrates sensitivity to talking about other issues 2.88 (0.66)</td>
<td>2.82 (0.50)</td>
<td>—</td>
</tr>
<tr>
<td>Domain 2 the why and how of change in behaviour</td>
<td>Practitioner encourages the patient to talk about current behaviour or status quo 1.27 (0.71)</td>
<td>1.73 (0.63)</td>
<td>0.66 by PNs; 0.62 by GPs</td>
</tr>
<tr>
<td></td>
<td>Practitioner uses empathic statements when the patient talks about the topic 1.02 (1.09)</td>
<td>0.84 (1.04)</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Practitioner uses summaries to bring together what the patient says about the topic 2.11 (1.08)</td>
<td>1.17 (0.99)</td>
<td>—</td>
</tr>
<tr>
<td>Domain 3 the whole consultation</td>
<td>Practitioner acknowledges challenges about behaviour change that the patient faces 0.82 (1.13)</td>
<td>2.00 (1.05)</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Practitioner asks questions to elicit how the patient thinks and feels about the topic 0.86 (1.19)</td>
<td>1.72 (1.10)</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Practitioner uses empathic statements when the patient talks about the topic 1.02 (1.09)</td>
<td>0.84 (1.04)</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Practitioner uses summaries to bring together what the patient says about the topic 2.11 (1.08)</td>
<td>1.17 (0.99)</td>
<td>—</td>
</tr>
<tr>
<td>Domain 4 talk about targets</td>
<td>Practitioner and the patient exchange ideas about how the patient could change current behaviour 0.51 (0.92)</td>
<td>2.02 (0.83)</td>
<td>0.69 by PNs; 0.59 by GPs</td>
</tr>
<tr>
<td></td>
<td>BECCI mean sum score 1.10 (0.48)</td>
<td>2.07 (0.56)</td>
<td>—</td>
</tr>
</tbody>
</table>

Note. Scale of the domains: 0 = Not at all, 1 = Minimally, 2 = To some extent, 3 = A good deal, 4 = A great extent.

| Table 3 | Mean and SD BECCI-domain scores of GPs and practice nurses |

Table 4 Communication between practice nurses (N = 19) and patients (N = 141) about patient’s lifestyle behaviour during real-life consultations (N = 141)

<table>
<thead>
<tr>
<th>Smoking</th>
<th>Alcohol</th>
<th>Physical activity</th>
<th>Dietary habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of consultations (% total, N = 141)</td>
<td>72 (51%)</td>
<td>51 (36%)</td>
<td>118 (84%)</td>
</tr>
<tr>
<td>Duration of lifestyle talk, mean (range)</td>
<td>2.50 min (0.01–29.76)</td>
<td>1.04 min (0.01–17.37)</td>
<td>1.36 min (0.03–6.55)</td>
</tr>
<tr>
<td>Initiative (%)</td>
<td>Practice nurse 83</td>
<td>67</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Patient 14</td>
<td>31</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Both 3</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Information</td>
<td>Generic 19 consultations</td>
<td>13 consultations</td>
<td>35 consultations</td>
</tr>
<tr>
<td></td>
<td>Tailored 6</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Advice</td>
<td>Generic 8 consultations</td>
<td>4 consultations</td>
<td>26 consultations</td>
</tr>
<tr>
<td></td>
<td>Tailored 5</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Supply folder</td>
<td>4 times</td>
<td>None</td>
<td>1 time</td>
</tr>
</tbody>
</table>
Lifestyle counselling in routine primary care

applied MI skills to some extent during their consultations about patient’s lifestyle behaviour.

During PNs’ consultations, PNs more often initiated the discussion of lifestyle behaviour. This could be explained by differences in patient samples and standard consultation time of GPs and PNs. The fact that PNs devote more time to discussing lifestyle behaviour is consistent with their task description and was also found previously. However, the average time that GPs and PNs devote on discussing lifestyle behaviour is very short, especially given the complexity of this topic. When GPs and PNs discuss patient’s lifestyle for less than a minute they could, for example, only check a patient’s current lifestyle or compliment a patient with his/her behaviour. As far as we know, there is no research indicating how many minutes of lifestyle counselling are necessary to achieve (and maintain) behaviour change. However, a recent study on diabetes patients receiving face-to-face lifestyle management forms only a part of the workload of GPs. And was also found previously. However, the average time that GPs and PNs devote on discussing lifestyle behaviour is very short, especially given the complexity of this topic. When GPs and PNs discuss patient’s lifestyle for less than a minute they could, for example, only check a patient’s current lifestyle or compliment a patient with his/her behaviour. As far as we know, there is no research indicating how many minutes of lifestyle counselling are necessary to achieve (and maintain) behaviour change. However, a recent study on diabetes patients receiving face-to-face lifestyle counselling suggests that more frequent lifestyle counselling (i.e. at least once a month) results in better outcomes.

A strength of our study is that GPs, PNs and patients were not aware of the fact that our observations focused on communication about lifestyle behaviour. However, PNs did know that their MI skills were evaluated, in contrast to GPs. Furthermore, we analysed routine GP and PN consultations instead of focusing on specific patient populations, and as such, our results do represent the actual daily situation in general practice. Besides, as far as we know, this is the first study in which PNs’ lifestyle counselling is analysed (in terms of information and advice), and lifestyle counselling by GPs and PNs is integrated into one article.

Some limitations should also be mentioned. First, the studies took place in different time periods. Consultations of GPs were recorded in 2007–08 and consultations of PNs in 2010–11. This could have influenced our outcomes. However, to our knowledge, no policy changes with respect to discussing a patient’s lifestyle behaviour were effectuated between 2007 and 2011. Second, PNs were all MI trained and 13 PNs received extra post-education training in MI, while all but one GP were untrained in MI. Therefore, the results on MI skills of PNs and GPs are not comparable and should be interpreted with caution. Third, our study describes how GPs and PNs perform lifestyle counselling. The extent to which they perform lifestyle counselling in daily practice was not part of our research. Furthermore, given potentially different patient samples and standard consultation time (10 versus 20 minutes per patient), GPs and PNs performances cannot simply be compared. However, those differences do mirror standard everyday care. PNs receive (or create) a patient population with mostly chronic ill patients or patients with risk factors who potentially benefit from lifestyle interventions, whereas lifestyle counselling forms only a part of the workload of GPs.

Therefore, although not part of our research, it was expected that GPs perform less lifestyle counselling than PNs. Previous research among GPs shows that GPs perform lifestyle counselling on average in 2.6% (discussing alcohol use) to 13.2% (discussing physical activity) of their consultations, somewhat less than the 15% we found in this study. Furthermore, PNs are nested under GPs. Because of the small-scale nature of this study, we were not able to take the nesting structure into account. Additionally, one item of the BECCI (‘Practitioner asks questions to elicit how the patient thinks and feels about the topic’) for GPs’ consultations was not coded reliable (Kappa of 0.40). The outcome on this item should therefore be treated with caution. Fortunately, all other items of the BECCI and lifestyle protocol showed substantial to high interrater agreement. Furthermore, the selection procedures were somewhat different for GPs and PNs. The patients in the GP group were not asked to fill in a questionnaire about their current lifestyle behaviour. Therefore, we had to rely on what was discussed during the GP consultations. Consequently, we could have underestimated the amount of patients from the GP group that needed lifestyle counselling. Besides, we could not determine whether or not the sample of PNs was representative for the Dutch population of PNs. Lastly, we could not compare the age of the non-responders in the PN-patient study with the age of the participants in this study because only few non-responders provided their age.

Despite these limitations, this study offers a valuable overview of how lifestyle counselling is performed in routine consultations of GPs and PNs. Future research should focus on how to integrate both tailored information and advice about lifestyle behaviour and MI in routine primary care consultations of GPs and PNs while simultaneously complying with the many other clinical demands.

Acknowledgements

We would like to thank the patients, GPs and PNs for their participation. We also thank Inge van der Lee and Nienke Franse for their help in data acquisition and coding of the video-recorded consultations.

Declaration

Funding: Dutch Ministry of Health, Welfare and Sport (319352).

Ethical approval: The studies were 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 these observational studies.

Conflict of interest: none.
References


Appendix 1

The behaviour change counselling index

Domain 1: agenda setting and permission seeking

1. The practitioner invites the patient to talk about behaviour change.
2. The practitioner demonstrates sensitivity to talking about other issues.

Domain 2: the why and how of change in behaviour

3. The practitioner encourages the patient to talk about current behaviour or status quo.
4. The practitioner encourages the patient to talk about behaviour change.
5. The practitioner asks questions to elicit how the patient thinks and feels about the topic.
6. The practitioner uses empathic statements when the patient talks about the topic.
7. The practitioner uses summaries to bring together what the patient says about the topic.

Domain 3: the whole consultation

8. The practitioner acknowledges challenges about behaviour change that the patient faces.
9. When the practitioner provides information, it is sensitive to the patient concerns and understanding.
10. The practitioner actively conveys respect for the patient choice about behaviour change.

Domain 4: talk about targets

11. The practitioner and the patient exchange ideas about how the patient could change current behaviour.

0 = not at all, 1 = minimally, 2 = to some extent, 3 = a good deal, 4 = a great extent

Mean substitution

1. Take the mean of all the applicable items (i.e. add up the total score of the applicable items, and divide by that number of items).
2. A technique known as ‘mean substitution’ is used for any items scored as ‘not applicable.’ The mean of the applicable items in a particular consultation is the score to be used for the not applicable items. So, for example, if the mean of all other items is 2.87, this is the score that should be given to any items scored as not applicable.

Appendix 2

Lifestyle behaviour protocol

The four items below were only coded when present during a consultation and could be coded several times during one consultation, for one or more lifestyle behaviours (i.e. smoking, alcohol, physical activity and/or dietary habits).

1. GP/PN provides verbal information about patient’s lifestyle behaviour
   a. generic information
   b. tailored information
2. GP/PN provides verbal advice about patient’s lifestyle behaviour
   a. generic advice
   b. tailored advice
3. GP/PN refers the patient to another professional or plans a follow-up contact
   a. follow-up consultation about lifestyle behaviour (with GP or PN)
   b. telephone appointment about lifestyle behaviour (with GP or PN)
   c. dietician
   d. physical activity support (‘Beweegkuur’)
   e. stop-smoking support
   f. physiotherapist
   g. psychologist
4. GP/PN supplies a folder, leaflet or printed material (about)
   a. smoking
   b. alcohol
   c. physical activity
   d. healthy eating/diet

Examples (quotes)

Generic information
Provider: Your cholesterol level was determined, it was 5.4 in total. That should be below five. So it is slightly elevated. Uhhh, how do we get that down? Also with sufficiently physical activity and minimize animal saturated fats. Which products do you have to avoid? Actually, all tasty food.
Patient: Yes … that is correct.
Provider: Cookies, chips, pastry, chocolate, greasy meat, pork. And cheese is a major problem.

Tailored information
Provider: You do not smoke anymore?
Patient: No, for two months now.
Provider: Wow, excellent! And with your job of course.
Patient: Yes, yes.
Provider: Do you notice it in your voice?
Patient: Yes, very much so. Very much. The falsetto is back.
Provider: Yes, yessss.
Patient: Yes, I notice that.
Provider: Well except that it is healthy to stop smoking for your health in general, it is with your singing quite noticeable, of course.

Generic advice
Patient: What is recommended physical activity? Two, three times a week I thought?
Provider: Actually, five times a week, half an hour, moderately intensive. So not a little stroll, but brisk walking or hiking.

Tailored advice
Patient: And for half an hour?
Provider: Yes, that is what we recommend.

Patient: Don’t you have another advice?
Provider: To stop smoking?
Patient: Yes, well, at least to smoke not too much
Provider: I’m thinking, is it a possibility for you to say ... well, you can have a cigarette in the morning. One with your coffee, after dinner and in the afternoon with your thee?
Patient: Yes, whatever you say. But that are five cigarettes again!
Provider: Yes, but now you smoke a pack a day.