

# Discussion of lifestyle-related issues in family practice during visits with general medical examination as the main reason for encounter: an exploratory study of content and determinants

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## Abstract

The aim of this study was to describe the frequency and content of discussions on lifestyle issues during an annual examination and to identify characteristics of patients, physicians, and visits associated with lifestyle discussions. Audio-recordings of the visits of 35 family physicians with 148 of their patients were analyzed. Bivariate descriptive and multivariate analyses were used. On average, the visits contained discussions of 3.6 different issues for a total time of 2.9 min. Of the 11 topics of interest, weight, diet and nutrition, physical activity, and tobacco use were the most frequently discussed. Consultation with a female physician and perception by the physician of a poorer patient mental health status were associated with the number of themes discussed and the duration of exchanges. Results suggest that although, discussions on lifestyle issues are frequently observed during these visits, they remain limited in scope. Physicians appear to concentrate their energy on targeted patients, and female doctors are more active in this domain. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

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## 1. Introduction

In the last century, the main causes of mortality in industrialized countries have shifted from acute illnesses to more chronic conditions requiring medical interventions aiming at prevention and modification of lifestyle [1]. This perspective imposes new requirements in the role played by physicians: prevention and patient education appear as inevitable aspects of their routine tasks. Many studies have shown the potential of physician interventions in the realm of prevention, particularly for smoking cessation [2–7]. The Canadian Task Force on the Periodic Health Examination considers there is sufficient evidence to recommend to physicians to offer periodic counseling on smoking cessation and physical exercise during visits for annual general medical examinations [8].

Physicians also perceive the importance of prevention and health promotion and, in general, consider that physicians have an important role to play [9–11]. Wechsler has shown

that physicians are becoming even more aware of their role on some topics (smoking cessation, alcohol use, exercise), but still perceive themselves as poorly prepared to intervene effectively on many topics [9,12,13].

Observational studies show that between 17 and 53% of medical encounters in general practice contain interactions on health promotion issues [14–18]. Total visit time devoted to these topics varies from less than 1 min to about 2 min [12,14]. On the other hand, when asked about the time devoted to prevention and health promotion, physicians usually overestimate the actual time spent by up to a factor of 7 [19,20].

Some factors associated with the provision of prevention and health promotion have been identified. Younger physicians and female physicians seem to do more [21]. Patients with higher socio-economic status receive more information and patients with lower socio-economic status ask fewer questions. Female patients ask more questions, and receive more information and counseling [19,20,22]. In a major study of 3457 illness visits, Flocke et al. [16] have observed that more interventions in prevention and health promotion are associated with the following factors: patient older age,

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being a new patient, having an elevated body mass index, a lower number of visits in the preceding year, being a smoker and alcohol drinker, a reason for consultation linked to a chronic illness, and an explicit request by the patient for prevention and help with behavior modification. Interventions on tobacco are more frequent during annual visits and during visits where a chronic illness is associated with tobacco use [23]. Mamon has observed that follow-up visits and physician-initiated visits rarely include discussion on prevention issues [22].

Data from observational studies that would help us gain a better understanding of the frequency and nature of discussions of lifestyle-related issues during visits with family physicians are scarce and usually based on small convenience samples. With the exception of a survey about their questioning of patients on their tobacco and alcohol use, very little information is available in Quebec and in Canada on physician practices [11] and very few studies have tried to identify potential explanatory factors for physicians' practices. In Quebec, medical care is provided under a government-funded universal medicare health insurance plan. The majority of physicians are paid on a fee-for-service schedule in which there is no specific reimbursement fee for preventive services. Therefore, it is common knowledge that most physicians choose to address these matters during the annual visit which is lengthier, and better paid allowing the time spent on discussing lifestyle issues to be financially compensated.

The present research aims to gain better knowledge of the content of discussions in the specific field of health promotion, excluding standard screening and preventive practices. Based on the analysis of physician–patient interactions during a visit for an annual or general examination, the present study pursues two main objectives: (1) to describe the health promotion interactions in terms of frequency and content, (2) to identify potential factors that may influence physicians' practices in this field.

## 2. Methods

### 2.1. Study design

The study was based on a secondary analysis of data that were gathered as part of a study whose objective was to assess the influence of doctor–patient communication on the detection of psychologically distressed patients in family practice. This research was carried out in 1996–1997 in 15 family medicine clinics (12 private clinics and 3 teaching units) located in the greater metropolitan area of Montreal, Canada. A non-random sample of 40 family physicians participated along with 1011 of their patients. A total of 302 patients refused to participate stating they did not have the time, or that they were not interested. Patients were recruited during regular office visits. Patients attending the clinic on a given day were invited to participate in the study

provided that they were at least 18-year-old, capable of giving informed consent, were French or English speaking, and consented to the audio-recording of their visit. Patients consulting for a wound, an injury, or known for psychiatric problems prior to the visit were excluded.

All participating physicians and 949 patients agreed that the data from the original study could be used for other doctor–patient communication studies. Of these patients, 207 declared, on a pre-visit questionnaire, that their main reason for the visit was either a general or periodic examination, a routine or an annual general check-up.

### 2.2. Measures of doctor–patient interaction

Works by Russell and Roter [24] and the Canadian Task Force on the Periodic Health Examination [8] led us to retain the following themes of discussion: (1) weight control; (2) food, nutrition, or diet; (3) physical exercise or sedentary living; (4) tobacco use; (5) alcohol use; (6) illicit drugs use; (7) sexual habits or sexually transmitted diseases; (8) stress; (9) sun exposure or protection; (10) dental hygiene; and (11) seat belt use.

Coding was done directly from the audiotapes of the interviews, not from verbatim transcriptions. For each visit, coders were instructed to check if the patient's reason for visit met the inclusion criteria (annual visit or general medical examination), to count the number of reasons for each visit, to measure length of the visit, and to note any indication of cardiovascular disease (CVD) risk factors (patient hypertension, diabetes, dyslipidemia, smoking, obesity, sedentary lifestyle, or family history of CVD) that patients might have had.

The sequence, which constitutes the fundamental coding unit, was defined as any segment of continuous discussion on one or more of the chosen issues. Two coders were trained to identify sequences and code them according to: (1) their thematic content; (2) the context of their occurrence; and (3) the length of the discussion. Context of the discussion was coded because we wanted to distinguish discussions of lifestyle issues related to a health problem from health promotion discussions. Thus, sequences in which discussion of any of the selected themes was linked to a symptom or a health problem (e.g. nutrition in connection with a complaint of dyspepsia, physical exercise in connection with an osteo-articular complaint) were excluded from the analysis. However, because of the importance of lifestyle issues in the prevention of cardiovascular disease, sequences in which discussion of any of the selected themes was linked to one or more CVD risk factors (e.g. nutrition in connection with hypertension, diabetes, or dyslipidemia) were included. Fig. 1 illustrates how the coded sequences were extracted from the total consultation.

During the training phase of the coders, all tapes were coded by two of the authors (CB, RG) who also double coded the first 20 study interviews. Any discrepancy between coders and trainers was discussed and coding criteria were clarified.

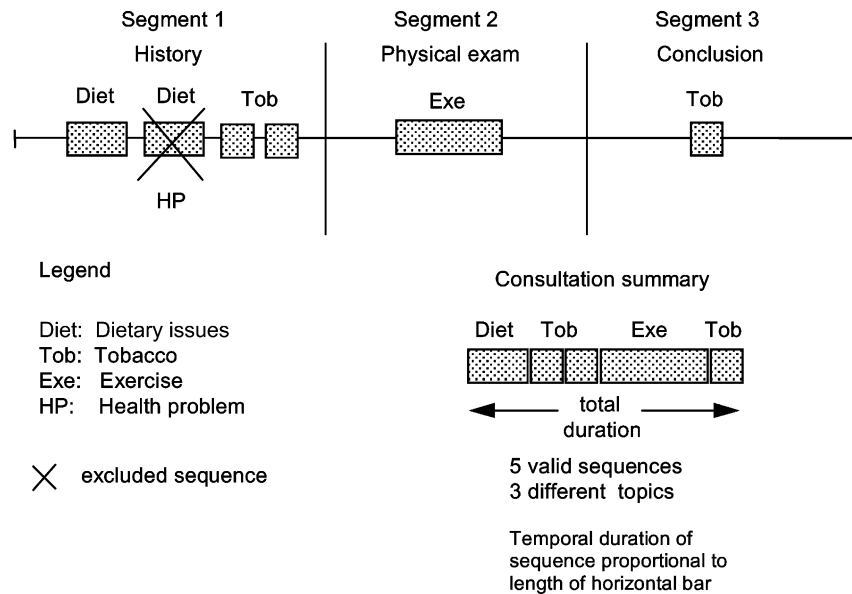


Fig. 1. Coding scheme: example of coded sequences within a consultation.

### 2.3. Study variables

#### 2.3.1. Dependent variables

From the data extracted by the coders, three aspects of physicians' health promotion practices were derived and became the focus of our analysis. These were: (1) the proportion of visits where the identified lifestyle issues had been discussed; (2) the number of different issues discussed per visit; and (3) the total length of discussion devoted to the issues under study.

#### 2.3.2. Predictors

Various patient, physician, and visit characteristics were examined in relation to these indicators. Patient characteristics included gender, age, income level (pre-visit patient questionnaire), physical and psychological status (as perceived and reported by physicians in a post-visit questionnaire), and the number of CVD risk factors (as measured by the coders). Physician characteristics included gender, age, and years of experience (physician questionnaire). Visit characteristics were the number of reasons for visit (established by coders), whether the visit was patient-initiated or physician-initiated, and whether the physician had any prior knowledge of the patient (both measured in the physician post-visit questionnaire).

#### 2.3.3. Statistical analysis

In the first phase of data analysis, reliability of the coding procedure was assessed by computing intra-class correlation coefficients (ICC) and Kappa coefficients for continuous and categorical variables, respectively [25]. In the second phase, analyses described physician, patient, and visit characteristics, and explored their association with the study's dependent variables. Simple univariate and bivariate statistics (Chi-square, Student's *t*-tests, ANOVA) were used

according to the level of measurement of the variables. To test the significance of the associations between study variables and physicians' characteristics, dependent variables were aggregated at the physician level ( $n = 35$ ). Lastly, to identify which characteristics seemed independently associated with the number of issues per visit and length of discussion, a multilevel analysis (MLA) was performed. This is a multivariate procedure which enabled us to control for correlations that exist between three levels of observations: patient, physician, and clinic level.

An alpha level of 5% was used for all statistical tests. No power analyses or sample size calculations were done prior to the selection of cases, since all valid cases were selected in the population of available recordings.

## 3. Results

From the sample of 207 patients who were originally identified as eligible based on the reasons for visit declared by patients in a pre-visit questionnaire, 59 were excluded, leaving a usable sample of 148 patients. Reasons for exclusion were: patients did not give consent to the audio-recording of the visit ( $n = 23$ ); incomplete or poor quality of the recording ( $n = 23$ ); after listening to the audio-recording, the encounter proved to be a follow-up visit of a previous visit ( $n = 13$ ).

### 3.1. Coding reliability

Since most visits (88%) were coded by a single individual, intra-observer reliability coefficients are reported in connection with the work of this individual. Intra-observer coefficient values computed for the study dependent variables proved to be quite satisfactory: for the number of

sequences per visit (ICC = 0.80), the number of different topics (ICC = 0.73). It was lower for the length of discussion in seconds (ICC = 0.32). Intra-observer reliability coefficients for the identification of themes ranged from 0.48 (stress) to 1.00 (tobacco), with a mean value of 0.77. Inter-rater reliability was also assessed. The ICC values were 0.57 for the number of sequences per visit, 0.88 for the number of different topics, and 0.53 for the length of discussion in seconds. Since most of the tapes were coded by only one coder, the impact of this result is limited. Finally, lower ICC values for the length of sequences illustrate the greater difficulty in defining precisely when exactly a sequence begins and when it ends.

### 3.2. Patient, visit, and physician characteristics

Characteristics of patients, visits, and physicians are presented in the left panel of Tables 1 and 3. Female patients constituted three-fourths of the sample ( $n = 112$ ). Patients' mean age was 49 (S.D. = 19) and the age distribution was fairly even in the various strata (35 years or less = 22%; 35–44 years = 23%; 45–54 years = 17%; 55–69 years = 23%; 70 years and more = 14%). Income distribution was skewed towards higher levels, almost one-fourth (24%) of patients reporting an annual family income of US\$ 80 000 or more. This is in contrast to 14% of patients declaring an income of less than CAN\$ 20 000 per year.

Nearly two-thirds of patients (62%) were described by their physician as being in very good to excellent physical health. In a similar fashion, 63% of patients were described by physicians as having very good to excellent psychological status. Based on the audio-recording of the visits, 59%

of patients were identified as having one or more CVD risk factors, half of whom presented two or more risks.

Most patients (61%) had only one reason for their visit; 24% had two, and 15%, three or more. In most instances (83%), visits were patient-initiated rather than having been requested by physicians. Physicians reported having a good or very good prior knowledge of nearly two out of three patients. Most visits (77%) were made in private clinics rather than in family medicine teaching units. Lastly, length of visits varied from 6 to 54 min, with a mean value of 27 min (S.D. = 11).

Study patients were seen by a total of 35 physicians, 54% of whom were male. The number of patients seen by each physician varied considerably, ranging from 1 to 11 patients, with a mean of 4 (S.D. = 3) visits per physician. Physicians' mean age and number of years in practice were 40 (S.D. = 6) and 14 (S.D. = 5) years, respectively. Almost two thirds ( $n = 24$ ) of physicians were practicing in private clinics and a little more than one-third ( $n = 11$ ), in family medicine teaching units.

### 3.3. Frequency and length of discussions

There were discussions about one or more of the themes under study in 134 visits while 14 visits contained none. Mean number of themes discussed per visit was 3.7 (S.D. = 2.2; range = 0–8), and total visit time devoted to themes varied from 0 to 14.1 min (mean = 2.9; S.D. = 2.7).

As shown in Fig. 2, weight, nutrition, physical exercise, and tobacco use were discussed in more than half of the visits. Discussions about alcohol use, stress, and sexuality were also present in a significant proportion of visits,

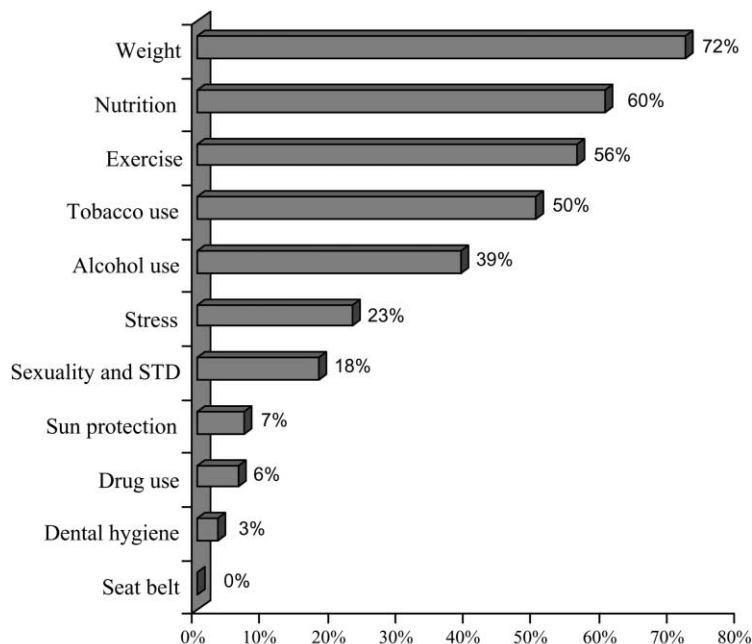


Fig. 2. Proportion of visits in which selected lifestyle issues were discussed.

Table 1

Percentage of visits with discussion on lifestyle related issues, mean number of issues per visit, and mean length of discussion per visit according to patient characteristics and content

| Patient characteristics              | n   | Percentage of visits with discussion on |                   |                   |                   |                 |                  |                            | Mean number of issues (minimum – maximum) | Mean length of discussions (minimum – maximum) (min) |
|--------------------------------------|-----|---|-------------------|-------------------|-------------------|-----------------|------------------|----------------------------|---|--|
|                                      |     | Weight control                          | Nutrition         | Physical exercise | Tobacco use       | Alcohol use     | Stress           | Sexuality STD <sup>a</sup> |   |  |
| Total patient sample                 | 148 | 72                                      | 60                | 56                | 50                | 39              | 23               | 18                         | 3.7 (0–8)                                 | 2.9 (0–14.1)   |
| Patient gender                       |     |   |                   |                   |                   |                 |                  |                            |   |  |
| Male                                 | 36  | 72                                      | 72                | 61                | 53                | 50              | 25               | 8                          | 4.0                                       | 3.1  |
| Female                               | 112 | 71                                      | 55                | 54                | 49                | 36              | 22               | 20                         | 3.5                                       | 2.5  |
| Age                                  |     |   |                   |                   |                   |                 |                  |                            |   |  |
| <35                                  | 32  | 66 <sup>***</sup>                       | 47 <sup>*</sup>   | 56 <sup>**</sup>  | 59 <sup>***</sup> | 47              | 19               | 47 <sup>***</sup>          | 4.1 <sup>***</sup>                        | 3.1  |
| 35–44                                | 34  | 79 <sup>***</sup>                       | 41 <sup>*</sup>   | 44 <sup>**</sup>  | 56 <sup>***</sup> | 35              | 38               | 23 <sup>***</sup>          | 3.5 <sup>***</sup>                        | 2.6  |
| 45–54                                | 25  | 84 <sup>***</sup>                       | 84 <sup>*</sup>   | 60 <sup>**</sup>  | 72 <sup>***</sup> | 52              | 32               | 12 <sup>***</sup>          | 4.5 <sup>***</sup>                        | 3.0  |
| 55–69                                | 34  | 77 <sup>***</sup>                       | 74 <sup>*</sup>   | 77 <sup>**</sup>  | 41 <sup>***</sup> | 35              | 9                | 0 <sup>***</sup>           | 3.6 <sup>***</sup>                        | 2.6  |
| ≥70                                  | 21  | 48 <sup>***</sup>                       | 57 <sup>*</sup>   | 33 <sup>**</sup>  | 19 <sup>***</sup> | 24              | 14               | 0 <sup>***</sup>           | 2.1 <sup>***</sup>                        | 2.0  |
| Physician's perception—health status |     |   |                   |                   |                   |                 |                  |                            |   |  |
| Physical                             |     |   |                   |                   |                   |                 |                  |                            |   |  |
| Very good–excellent                  | 90  | 77                                      | 53 <sup>*</sup>   | 60                | 56                | 37              | 24               | 27 <sup>***</sup>          | 3.8                                       | 2.9  |
| Poor–good                            | 56  | 64                                      | 70 <sup>*</sup>   | 50                | 41                | 43              | 21               | 4 <sup>***</sup>           | 3.2                                       | 2.4  |
| Psychological                        |     |   |                   |                   |                   |                 |                  |                            |   |  |
| Very good–excellent                  | 91  | 72                                      | 52 <sup>**</sup>  | 56                | 55                | 36              | 15 <sup>**</sup> | 22                         | 3.6                                       | 2.6  |
| Poor–good                            | 54  | 70                                      | 72 <sup>**</sup>  | 57                | 43                | 44              | 37 <sup>**</sup> | 11                         | 3.7                                       | 2.7  |
| CVD risk factors <sup>a</sup>        |     |   |                   |                   |                   |                 |                  |                            |   |  |
| No                                   | 61  | 69                                      | 43 <sup>***</sup> | 48                | 36 <sup>***</sup> | 28 <sup>*</sup> | 23               | 28 <sup>***</sup>          | 3.2 <sup>*</sup>                          | 2.5  |
| Yes                                  | 87  | 74                                      | 71 <sup>***</sup> | 62                | 60 <sup>***</sup> | 47 <sup>*</sup> | 23               | 10 <sup>***</sup>          | 3.9 <sup>*</sup>                          | 2.8  |

<sup>a</sup> STD: sexually-transmitted diseases; CVD: cardiovascular disease.

<sup>\*</sup> *P*-value < 0.05.

<sup>\*\*</sup> *P*-value < 0.01.

<sup>\*\*\*</sup> *P*-value < 0.001 (linear effect).

ranging from 18 to 39%. Sun protection, illicit drugs use, dental hygiene, and seat belt use were rarely, if ever, discussed (in less than 10% of the visits).

### 3.4. Frequency of discussion and patient characteristics

Table 1 displays the proportion of visits in which discussion on the specified issues occurred, number of issues discussed per visit, length of discussions, and how these varied with patient characteristics. Only themes present in more than 10% of the visits are presented.

Although not statistically significant, there was a trend for discussions to be more likely when patients were male, especially with regard to nutrition and alcohol use. However, the trend was in the opposite direction for sexuality. In terms of the number of issues discussed per visit and the length of discussions, there was also a trend in favor of male patients.

Across all issues, discussions were less likely to occur with patients over 70. Talk about nutrition and physical exercise was relatively more frequent for 45–70-year-old patients. Talk about tobacco use was more frequent among patients between the ages of 45 and 54. Discussions about sexuality were more frequent with younger patients, whereas discussions about stress, though in the same direction, did not reach significance.

Discussions about nutrition, stress, and sexuality were also associated with how physicians perceived their patients' health status. The worse patients' physical and psychological health status was perceived to be, the more likely it was that nutrition would be discussed. This relation was also present and in the same direction for stress (specifically in connection with psychological status), whereas it was in the opposite direction with regard to sexuality. However, physicians' perception of health status did not seem to be associated with either the number of issues discussed per visit or the length of the discussions.

As expected, discussions of several issues were more likely to occur when a patient's medical history was positive for one or more CVD risk factors, especially talk about nutrition, tobacco, and alcohol use. The association was in the opposite direction for sexuality, and no association was found for stress, physical exercise, and weight control.

### 3.5. Frequency of discussion and visit characteristics

Discussions of lifestyle-related issues were associated with several visit characteristics (Table 2). An exception was the number of reasons for visit which appeared to have little relation other than being associated with a greater frequency of talk about stress. In comparison, there was

Table 2

Percentage of visits with discussion on lifestyle-related issues, mean number of issues per visit, and mean length of discussion per visit according to visit characteristics and content

| Visit characteristics                | n   | Percentage of visits with discussion on |                   |                   |                   |                   |                   |                            | Mean number of issues | Mean length of discussions (min) |
|--------------------------------------|-----|---|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------------|-----------------------|----------------------------------|
|                                      |     | Weight control                          | Nutrition         | Physical exercise | Tobacco use       | Alcohol use       | Stress            | Sexuality STD <sup>a</sup> |                       |                                  |
| Nb <sup>a</sup> reasons for visit    |     |   |                   |                   |                   |                   |                   |                            |                       |                                  |
| 1                                    | 89  | 70                                      | 53                | 56                | 49                | 39                | 17 <sup>***</sup> | 15                         | 3.4                   | 2.8                              |
| 2                                    | 36  | 75                                      | 69                | 61                | 44                | 39                | 28 <sup>***</sup> | 25                         | 3.9                   | 2.6                              |
| ≥3                                   | 22  | 77                                      | 73                | 45                | 64                | 41                | 41 <sup>***</sup> | 18                         | 4.1                   | 2.4                              |
| Visit initiated by                   |     |   |                   |                   |                   |                   |                   |                            |                       |                                  |
| Patient                              | 120 | 77 <sup>**</sup>                        | 59                | 57                | 58 <sup>***</sup> | 47 <sup>***</sup> | 27 <sup>**</sup>  | 22 <sup>***</sup>          | 4.0 <sup>***</sup>    | 2.8                              |
| Physician                            | 25  | 52 <sup>**</sup>                        | 64                | 52                | 12 <sup>***</sup> | 4 <sup>***</sup>  | 4 <sup>**</sup>   | 0 <sup>***</sup>           | 2.1 <sup>***</sup>    | 2.1                              |
| Physician prior knowledge of patient |     |   |                   |                   |                   |                   |                   |                            |                       |                                  |
| Little/none                          | 45  | 78                                      | 67                | 64 <sup>***</sup> | 71 <sup>***</sup> | 62 <sup>***</sup> | 33                | 29                         | 4.6 <sup>***</sup>    | 3.2                              |
| Good                                 | 57  | 70                                      | 61                | 63 <sup>***</sup> | 51 <sup>***</sup> | 35 <sup>***</sup> | 21                | 14                         | 3.6 <sup>***</sup>    | 2.8                              |
| Very good                            | 43  | 70                                      | 51                | 37 <sup>***</sup> | 28 <sup>***</sup> | 21 <sup>***</sup> | 16                | 12                         | 2.6 <sup>***</sup>    | 2.0                              |
| Length of visit                      |     |   |                   |                   |                   |                   |                   |                            |                       |                                  |
| <10 min                              | 26  | 61 <sup>*</sup>                         | 38 <sup>***</sup> | 46 <sup>*</sup>   | 27 <sup>**</sup>  | 27 <sup>**</sup>  | 11                | 0 <sup>*</sup>             | 2.4 <sup>***</sup>    | 1.6                              |
| 10–14 min                            | 43  | 70 <sup>*</sup>                         | 51 <sup>***</sup> | 53 <sup>*</sup>   | 44 <sup>**</sup>  | 26 <sup>**</sup>  | 16                | 14 <sup>*</sup>            | 2.9 <sup>***</sup>    | 2.0                              |
| 15–19 min                            | 39  | 64 <sup>*</sup>                         | 59 <sup>***</sup> | 46 <sup>*</sup>   | 56 <sup>**</sup>  | 49 <sup>**</sup>  | 26                | 28 <sup>*</sup>            | 3.8 <sup>***</sup>    | 3.0                              |
| ≥20 min                              | 40  | 87 <sup>*</sup>                         | 82 <sup>***</sup> | 75 <sup>*</sup>   | 65 <sup>**</sup>  | 52 <sup>**</sup>  | 35                | 22 <sup>*</sup>            | 5.0 <sup>***</sup>    | 3.8                              |

<sup>a</sup> STD: sexually-transmitted diseases; Nb: number of.

\* P-value < 0.05.

\*\* P-value < 0.01.

\*\*\* P-value < 0.001.

an association between whether the visits were patient-initiated or physician-initiated and the discussion of several issues, namely weight, tobacco, alcohol, stress, and sexuality. Talk about these issues occurred much more frequently when visits were initiated by patients rather than by physicians.

Physicians' prior knowledge of patients also seemed to have an impact. Discussions about exercise, tobacco, and alcohol occurred much less frequently when physicians reported having a very good prior knowledge of patients. Although not statistically significant, a similar trend was found for nutrition, stress, and sexuality. The number of issues that were discussed during visits was almost double for patients for whom physicians had little or no prior knowledge as compared to those they knew very well. Consistent with this finding, discussions tended to be lengthier although, the increase in time was not statistically significant.

A positive linear relationship is observed between length of visit and frequency of talk for all the issues under study.

### 3.6. Frequency of discussion and physician characteristics

Table 3 displays how frequency, number of issues, and length of discussions varied according to physicians' characteristics. The first line shows the values computed for each variable for aggregated data at the physician level.

Discussions about stress and sexuality were more likely when physicians were female, and a similar although, not statistically significant trend was found for physical exercise and tobacco use. Likewise, talk about alcohol use, stress, and to a lesser extent tobacco use was more frequent with more experienced physicians. A trend in the opposite direction was found with regard to sexuality, this topic being discussed more frequently by less experienced physicians. These relationships may also represent a correlation with the physician's age, which was not documented.

No significant differences were found for physicians' practice settings. Lastly, the following trend was detected: the greater the number of study patients seen by the physician, the more likely it was that discussions would take place on the issues of interest. This trend is statistically significant with regard to stress. This observation may be explained in part by the fact that physicians who participated more enthusiastically to the study by allowing a greater number of their patients to be recruited were more inclined toward health promotion activities.

### 3.7. Characteristics associated with number of issues discussed and length of discussion

Since several characteristics found to be associated with the study dependent variables were also correlated among themselves, a multivariate analysis was needed to identify which characteristics made the best set of independent

Table 3

Percentage of visits with discussion on lifestyle-related issues, mean number of issues per visit, and mean length of discussion per visit according to physicians characteristics and content

| Physicians characteristics     | <i>n</i> | Percentage of visits with discussion on |           |                   |             |             |        | Mean number of issues (minimum – maximum) | Mean length of discussions (minimum – maximum) (min) |                            |
|--------------------------------|----------|---|-----------|-------------------|-------------|-------------|--------|---|--|----------------------------|
|                                |          | Weight control                          | Nutrition | Physical exercise | Tobacco use | Alcohol use | Stress |   |  | Sexuality STD <sup>a</sup> |
| Total physicians sample        | 35       | 67                                      | 54        | 53                | 44          | 36          | 17     | 25  | 3.3 (0–6.3)  | 2.7 (0–6.9)                |
| Gender                         |          |   |           |                   |             |             |        |   |  |                            |
| male                           | 19       | 67                                      | 56        | 45                | 36          | 33          | 10*    | 7**                                       | 2.8*   | 2.4                        |
| female                         | 16       | 68                                      | 53        | 62                | 53          | 39          | 25*    | 28**                                      | 3.8*   | 2.9                        |
| Years in practice              |          |   |           |                   |             |             |        |   |  |                            |
| 10 or less                     | 10       | 58                                      | 53        | 55                | 38          | 13***       | 3***   | 25  | 2.8  | 2.5                        |
| 11 or more                     | 25       | 71                                      | 55        | 52                | 46          | 45***       | 22***  | 13  | 3.5  | 2.7                        |
| Site of practice               |          |   |           |                   |             |             |        |   |  |                            |
| Teaching unit                  | 11       | 65                                      | 59        | 55                | 41          | 31          | 22     | 18  | 3.3  | 2.3                        |
| Private clinic                 | 24       | 68                                      | 52        | 51                | 45          | 38          | 14     | 16  | 3.3  | 2.8                        |
| Nb <sup>a</sup> study patients |          |   |           |                   |             |             |        |   |  |                            |
| 1–2                            | 14       | 61                                      | 46        | 46                | 39          | 32          | 7*     | 21  | 2.8  | 2.5                        |
| 3–5                            | 11       | 66                                      | 60        | 56                | 38          | 38          | 18*    | 16  | 3.3  | 2.6                        |
| 6–11                           | 10       | 78                                      | 59        | 58                | 56          | 39          | 29*    | 40  | 4.0  | 3.0                        |

<sup>a</sup> STD: sexually-transmitted diseases; Nb: number of.

\* *P*-value < 0.05.

\*\* *P*-value < 0.01.

\*\*\* *P*-value < 0.001.

Table 4

Multilevel analysis (MLA) of physician, patient, and visit characteristics in relation to number of issues and length of discussions per visit

| Characteristics                                    | Number of issues per visit <i>B</i> <sup>a</sup> | Length of discussions (min) <i>B</i> |
|--|--|--------------------------------------|
| Physician  |  |                                      |
| Female (versus male)                               | 1.69*  | 1.03*                                |
| Age  | –0.12  | –0.13                                |
| Years in practice                                  | 0.12   | 0.11                                 |
| Patient  |  |                                      |
| Female (versus male)                               | –0.62***   | –0.71***                             |
| Age  | 0.00   | 0.01                                 |
| Income   | 0.12   | 0.09                                 |
| md perception of physical status <sup>b</sup>      | 0.41   | 0.06                                 |
| md perception of psychological status <sup>b</sup> | –0.80*   | –0.56***                             |
| History of CVD risk (yes versus no)                | 0.28***  | 0.09                                 |
| Visit  |  |                                      |
| md-initiated visit                                 | –1.72*   | –0.68                                |
| md previous knowledge of patient <sup>c</sup>      | –0.69*   | –0.31                                |
| Nb of reasons for visit                            | 0.03   | –0.15                                |

<sup>a</sup> *B*: regression coefficients.

<sup>b</sup> Higher values correspond to poorer health status.

<sup>c</sup> Higher values correspond to higher level of prior knowledge.

\* *P*-value < 0.05.

\*\*\* *P*-value < 0.001.

predictors. Table 4 presents the results of the multilevel analysis (MLA) that was performed. Six variables were found to be related to a greater number of issues discussed: female physicians, male patients, presence of CVD risk factors, poorer patient psychological status as perceived by the physician, a patient-initiated visit, and being a patient of whom the physician had little or no prior knowledge. Only three of the above factors were associated with lengthier

discussions: female physicians, male patients, and poorer patient psychological status.

#### 4. Discussion

The higher proportion of women in this subset of patients seeking an annual check-up may reflect the greater use of

medical services by women in general. In Stange et al.'s observational study of family practice visits in the USA, 62% of patients were women [26–28]. The fact that women have acquired the habit of consulting the physician on a regular basis for their gynecological health, even in the absence of symptoms or disease, may also account for their overrepresentation in this sample. The sample under study also included a higher than expected proportion of higher income patients. We found no indication in the literature that these individuals seek medical guidance for preventive care more often than others. In fact, Little [29] and Flocke et al. [27] did not observe any relation between health promotion and patient level of education which is often correlated with income.

#### 4.1. Frequency and duration of discussions on lifestyle issues

This study shows that more than 90% of the study visits contained discussions of lifestyle issues. Moreover, many lifestyle issues are discussed during visits for an annual or general examination to a family physician. The issues discussed most frequently are diet and weight control, physical exercise, and tobacco use. At first glance, in comparison to the frequencies reported in previous studies [12,15,20,22,30], our results suggest that an annual or general examination may be a favorable moment for health promotion. Our results differ somewhat from those of Flocke et al. [16], a study very similar to ours, except for the fact that the visits were illness visits. In comparison to their results, we observed higher percentages of visits with discussions on diet (60% versus 26%), exercise (56% versus 21%), tobacco use (50% versus 18%), and alcohol and drugs (45% versus 9%). One reason for these differences in frequency of discussion might be the physician's agenda. During illness visits, in comparison to wellness visits, physicians must often monitor complex diseases and their treatment leaving little time available for health promotion discussions.

On the other hand, when looking at time devoted to discussion of themes instead of frequencies, health promotion seems to occupy a rather limited place in a context we expected to be optimal for this type of discussion. The time spent by physicians seems to be minimal (10% of total time) with patients whom they perceived as in good or excellent health. In fact, the proportion of time devoted to health promotion that we observed in this study restricted to wellness visits is not very different from what Flocke et al. observed in illness visits (10% versus 8%) [16].

It is interesting to note that the two most frequently discussed issues (weight control and diet) are not among those promoted by the Canadian Task Force on the Periodic Health Examination [8], nor are they issues which physicians feel competent in discussing [13]. Many factors may contribute to this surprising result. The higher proportion of

women and higher income patients in this sample may have contributed to the higher percentage of discussions on weight control and diet. The emphasis on these two topics may be patient driven. In fact, we observed that the most frequently discussed issues were introduced on more occasions by the patients themselves (data not shown). For example, the proportion of discussion initiated by patients themselves was 37% for diet, 34% for exercise, 30% for weight control in comparison to 18% for alcohol, 10% for tobacco, and 9% for sexuality. As observed in other studies, drug and alcohol consumption, sexuality, and STD prevention are discussed much less frequently than tobacco use and may reflect the difficulties associated with discussing these sensitive themes [13,26,31].

We must acknowledge that the coding scheme we used, counting any mention of a theme as a discussion, without any consideration of the length or intensity of the discussion, may have caused some issues to appear more frequent or more important. Also, type of interaction such as information request, information giving, or counseling are not reported on here. On the other hand, our study probably underestimates the frequency of discussion on issues since most patients were already known by the physicians. It is likely that discussions on some of the issues occurred in preceding visits, and caution must, thus, be exercised when trying to generalize these results to the general practice of family physicians.

#### 4.2. Correlates of discussion of lifestyle issues

It is no surprise in our study that female physicians are more active in the domain of health promotion than their male counterparts, as this has been observed many times [21,32,33]. Being a male patient is associated with a higher number of themes being discussed and a longer discussion time. There is no straightforward explanation for this effect, since it is independent of other variables in the model. Men being more at risk for CVD than women, and generally less inclined than women to regular check-ups and screening, may explain why physicians did a more extensive and systematic evaluation of health habits in the context of annual visits for men. This opportunistic approach of physicians is also underscored in our study by the fact that the number of risk factors is associated with a greater number of themes being discussed. A similar association was recently reported by Flocke et al. [16].

Fewer issues are discussed in physician-initiated visits. An in-depth analysis of this association (not presented here) reveals that this subgroup of patients differs from the other patients, as they are followed more regularly by their physician for a specific condition (for example, diabetes or hyperlipidemia). We believe that the encounter we observed for this particular group of patients who are well known by their physicians is quite different from standard annual visits, and that discussion of these themes might have occurred in previous visits.



Being less known by the physician was associated with the coverage of more issues. This result is certainly not a surprise, since, in the case of already known patients, we hypothesize that the physicians have in hand information on the patients that leads to the omission of discussion of some issues in any specific visit. Furthermore, covering as many issues as possible may be a standard approach for many physicians with new or less well-known patients. Flocke et al. [16] observed that not knowing the patient was associated with a 2.6 odds ratio for preventive interventions.

Our results do show an unexpected association between the perception by physicians of a poor psychological status and more health promotion interventions. Except for the case of a study relating anxiety, perception of symptoms, and demand for primary care in women, we were not able to find any allusion to this phenomenon in the medical literature [34]. This result does not seem to be attributable to the inclusion of stress as a study theme, since its exclusion did not modify the association. It is possible that physicians are more inclined to intervene in the lifestyle sphere when they are faced with a patient in whom they perceive worries. It is also possible that these patients present themselves or behave in a particular way. Moreover, it may be that physicians who are more inclined toward health promotion are also more sensitive to psychological stress in their patients.

This study does have certain limits. The mode of selection of the physicians and patients in the original study, an observational design without random sampling, may limit the representativeness of the sample under study. Moreover, the reduction from a pool of 207 initial tapes to 148 analyzed tapes limited our capacity to study subgroups and subcategories. More important is the fact that, because of the universal medicare health insurance plan and the absence of any reimbursement fee for preventive care, we made the assumption that the annual general examination might be the optimal occasion for health promotion. The present study did not evaluate directly the need for health promotion interventions for each encounter. We also decided to focus our observations on what we defined as health promotion activities (mainly lifestyle habits and behaviors), thus, putting aside all traditional prevention and screening activities. In spite of these limitations, our results are clearly in line with the results of many other studies conducted in different periods, conditions, settings, and countries.

#### 4.3. Practice implications

The present results indicate that, even with individuals they considered in good or excellent health, physicians devoted only 10% of the visit time to health promotion activities. Wellness visits offer a unique opportunity for health promotion insofar as physicians are able to adjust their approach to such patients. In effect, health promotion practices probably necessitate a different approach by the

physician: reinforcement of good habits, support, and counseling in the case of health behavior modification coupled with the standard illness-finding approach. This new paradigm will lead physicians to devote time during the visit for the discussion of lifestyle issues. The present results indicate the need to develop physician training programs that would include new interviewing strategies and different ways to use visit time to better serve the health promotion agenda. New approaches to continuing medical education will be needed and will have to be put to test.

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