# Are primary-care physician practices related to health behaviors likely to reduce social inequalities in health? 

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#### Abstract

Our objective was to examine patients' health behaviors and the related practices of their primary-care physicians to determine whether physicians' actions might help to reduce the social inequalities in health behaviors among their patients. Fifty-two general practitioners, who were also medical school instructors in the Parisian area, volunteered to participate. A sample of 70 patients (stratified by sex) aged 40-70 years was randomly chosen from each physician's patient panel and asked to complete a questionnaire about their social position and health behaviors: tobacco and alcohol use, diet, physical activity, and participation in breast and cervical cancer screening. Each physician reported their practices related to each such behavior of each patient. Mixed models were used to test for social differences. Questionnaires were collected in 2008-2009 from both patient and physician for $71 \%$ of the 3640 patients. Our results showed social inequalities disfavored those at the bottom of the social scale for all but one of the health behaviors studied among both men and women (exception: excessive alcohol consumption among women). Physicians' practices related to these health behaviors also appeared to be socially differentiated. Among men, this differentiation favored those with the lowest social position for all behaviors except physical activity. Among women, however, practices favored the most disadvantaged only for breast cancer screening. In all other cases, they were either socially neutral or unfavorable to the most disadvantaged. Physicians' practices related to their patients' health behaviors should focus more on those lowest in the social hierarchy, especially among women.


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## 1. Introduction

Western countries face persistent, even increasing, social inequalities in health (Mackenbach et al., 2008). Although the actions needed to improve this situation go far beyond the domain of health care, these inequalities are a major challenge for the healthcare system, which should help to reduce them - or at the very least, not contribute to increasing them (Mackenbach, 2003).

Primary-care physicians (PCPs) appear to be the healthcare professionals most able to help combat these inequalities (Starfield et al., 2005; DeVoe et al., 2016). First, they are in regular contact with the entire population, contrary to specialists, to whom the lower levels of the social hierarchy have limited access (van Doorslaer et al., 2006; Lorant et al., 2002). Moreover, one of their missions is to promote prevention (Europe W, 2002) and especially favorable health behaviors, which
are a key lever in this battle (van Oort et al., 2005). The higher frequency of unhealthy behaviors at the bottom of the social hierarchy is one of the mechanisms that construct this gradient between lower socioeconomic position and worse health. Combinations of diverse modifiable behavioral factors, such as smoking, alcohol consumption, unhealthy diet, and inactivity may explain $30-70 \%$ of the social differences in mortality (Stringhini et al., 2011; Shaw et al., 2014; Stringhini et al., 2010). To prevent these inequalities from increasing, or even to diminish them, PCPs should promote the adoption of healthy behaviors in an egalitarian fashion or even most strongly for their most deprived patients.

The literature about PCPs' involvement in the promotion of healthy behaviors as a function of their patients' social position is mixed. Some preventive care appears to be provided more often to the most advantaged, consistent with the inverse care law (Tudor, 1971), while other care may be slightly more frequent for the most disadvantaged (Wiggers and Sanson-Fisher, 1997).

The objective of our study was to examine the relation between patients' health behaviors and their related PCPs' practices, to determine whether the physicians' actions help to reduce - or increase - the social inequalities in the health behaviors observed among their patients. We compared the inequalities in patients' health behaviors and in the physicians' practices for different types of preventive care to determine if the PCPs' practices (either promoting their patients' adoption of healthy behaviors or reflecting the PCPs' involvement in an area of prevention) were appropriate to the health behaviors observed among their patients.

## 2. Methods

### 2.1. Study design

The data came from an observational cross-sectional survey named PrevQuanti (Thebault et al., 2015), designed to document social inequalities in preventive care provided to patients aged $40-74$ years by PCPs, who are general practitioners (GPs) in France. The number of subjects necessary was determined to enable us to demonstrate social inequalities in relation to mammography screening. This procedure was selected to calculate study power because it included the smallest number of patients; that is, the age range for which it is indicated is smaller than for the other preventive procedures because it affects only $70 \%(\approx 24 / 34)$ of the women aged 50-74 years. Using observations of an earlier study with a similar design (Rigal, 2014; Rigal et al., 2011), we assumed that $65 \%$ of patients would participate and that $85 \%$ of them would have undergone mammography screening. Demonstrating a difference between screening rates of $80 \%$ and $90 \%$ for two (of the four) classes of any of the social position indicators used would therefore have required around 200 women per group (bilateral test with an alpha risk of 0.05 and a power of $80 \%$ ). In conclusion, almost 3500 patients $(\approx 199 * 4 * 2 /(0.65 * 0.7))$ should have been asked to participate, or 70 patients from each of 50 physicians.

### 2.2. Physician recruitment and characteristics

The PrevQuanti study took place in 2008-09 among GPs who supervised students training in general practice during an internship at their offices. We used email and telephone to recruit participants among the 215 physicians then working with two medical school departments of general practice in the Paris metropolitan area. Each was paid $€ 300$ for work estimated to take around 10 h .

All physicians completed a personal questionnaire, including demographic and practice characteristics (group or solo practice, fixed fees or authorization to charge amounts not reimbursed by the national health insurance fund, average duration of consultation, computerized files).

### 2.3. Patient recruitment and data collection

For each participating physician, a random sample of 35 men and 35 women aged 40 to 74 years was drawn from their patient list (patients who had reported them to be their regular doctor). The random drawing applied the Excel randomize function to the patient panel lists furnished by the national health insurance fund. There were no exclusion criteria.

Patients' characteristics were collected from patients and from their physicians. Each patient received a questionnaire about his or her social situation and health behaviors. Simultaneously and for each patient, an investigator interviewed the physician and examined his or her files in order to determine the physician's practices related to the patient's health behaviors. These data were recorded in a form.

### 2.4. Patients' socioeconomic indicators

The socioeconomic position of each patient was assessed according to three indicators:

- Occupation: occupational class was based on the patient's last occupation (or, for patients who had never worked, their partner's last occupation), coded into four categories derived from the standard classification of occupations in France (French National Institute for Statistics and Economic Studies, INSEE) and ranked (Casanova et al., 2015) as follows: managers and superior intellectual professions; intermediate professions; office, sales, and service workers, and blue-collar workers.
- Education: educational level was categorized in three levels according to the highest diploma: did not pass school-leaving exam (baccalaureate), passed it, or university diploma.
- Financial situation: patients had to answer a question about their perceived financial situation coded into four categories: "I'm not managing", "It's tight, I must be careful", "It's OK", "I'm quite comfortable".


### 2.5. Variables of interest

Six domains of prevention were considered: tobacco and alcohol use, diet, physical activity, and cervical cancer and breast cancer screening (participation in cancer screening programs is considered a health behavior: being screened). For each domain, two binary variables were defined: the patient's health behavior and the physician's practices for addressing them.

The patient's health behaviors (described in the second column of Table 1) were smoking, drinking too much alcohol, an unhealthy diet, no physical activity, and not being up to-date for gynecological cancer screening. All the patient's health behaviors were self-reported in a postal questionnaire first tested in a pilot study.

For each domain of prevention, physician's practices (described in the third column of Table 1) related to their promotion of and their patients' adherence to healthy behaviors, were collected. Investigators reported the documentation of tobacco and alcohol use and cancer screening test dates in the medical files. They also recorded the doctors' advice on diet and physical activity by interviewing the physicians if the information were not documented in the files. All the physician practices assessed derived from the RAND's Quality Assessment Tools, a set of quality indicators of preventive and chronic disease care developed and evaluated in the United States (Asch et al., 2006; McGlynn et al., 2003).

### 2.6. Statistical analysis

Except for the gynecologic cancer screening, the populations analyzed included all patients participating in the study. Consistent with the French guidelines, analysis of cervical cancer screening considered only women younger than 65 years who had not had a hysterectomy including cervical

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[^0]:    Abbreviations: PCP, primary care physicians; GP, general practitioners; INSEE, institut national de la statistique et des études économiques (French National Institute for Statistics and Economic Studies); CNIL, Commission Nationale de l'Informatique et des Libertés (National Data Protection Authority); SFTG, Société de formation thérapeutique du généraliste (Society for Training of General Practitioners).
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