Determinants of preferences for lifestyle changes versus medication and beliefs in ability to maintain lifestyle changes. A population-based survey

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ABSTRACT

Preferences for medication treatment versus lifestyle changes are of major importance in the management of chronic diseases. This study aims to investigate determinants of preference for lifestyle changes versus medication for prevention of cardiovascular disease as well as determinants of respondents' beliefs in their ability to maintain lifestyle changes.

A representative sample of 40–60-year old Danish inhabitants was in 2012 invited to a survey and were asked to imagine that they had been diagnosed as being at increased risk of heart disease. Subsequently they were presented with a choice between a preventive medical intervention versus lifestyle change. The study population for the present paper comprises 1069 participants.

A total of 962 participants preferred lifestyle changes to medication treatment. Significant determinants for preferring lifestyle changes were female gender and high level of physical activity. Significant determinants for not opting for lifestyle changes were being self-employed, poor self-rated health and smoking. Low educational attainment, lifestyle risk factors, self-reported health-related challenges and prior experience with heart disease were associated with a low belief in ability to maintain lifestyle changes.

For conclusion we found a pervasive preference for lifestyle changes over medical treatment when individuals were promised the same benefits. Lifestyle risk factors and socioeconomic characteristics were associated with preference for lifestyle changes as well as belief in ability to maintain lifestyle changes. For health professionals risk communication should not only focus on patient preferences but also on patients' beliefs in their own ability to initiate lifestyle changes and possible barriers against maintaining changes.

1. Introduction

There is much evidence of the relevance of healthy lifestyles for the etiology of cardiovascular (CVD) and coronary heart disease (CHD) (Biswas et al., 2015; Wilkins et al., 2012; Threapleton et al., 2013; Kotseva et al., 2010; Grosso et al., 2015) as well as for disease progression and prognosis (de Lorgeril and Salen, 2011; Chow et al., 2010). However, making healthy lifestyle changes is neither an obvious choice nor easy to implement for many. The most recent EUROASPIRE study (IV), including nearly 8000 CHD patients from 78 centers in 24 European countries, found that six months after a coronary event or a coronary bypass graft the behavioral risk factor load in the study population was still substantial. The large majority of patients failed to meet the European Societies' guidelines criteria regarding lifestyles and risk factors in CHD patients (Kotseva et al., 2016).

But it is not only lifestyle changes, which pose challenges, but using preventive medication also tends to be fraught with problems. Vast resources are spent on developing new preventive medical regimens. If patients are unwilling to accept or adhere to treatment regimens, the investment will have been in vain (Horne and Weinman, 1999). Many studies have shown that this is indeed the case for sizeable proportions of patient groups who are, for instance, prescribed statins for prevention of CHD (Barfoed et al., 2016).

Unhealthy lifestyles and non-adherence to medical regimens, however, vary within populations. Thus, willingness to accept preventive medical treatment may not only be associated with personal experience with heart disease but also differs according to socioeconomic status (SES). In a previous study, we found that the price of treatment affected

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the willingness to accept treatment only for the lower income group (Bo et al., 2014; Harmsen et al., 2012). Empirical evidence also suggests that the social gradient in health (Giesinger et al., 2014; Mackenbach et al., 2008; Elgar et al., 2015) to a considerable extent can be explained by differences in health risk behaviors (Lynch et al., 2006; Nordahl et al., 2014; Nandi et al., 2014; Hoffmann et al., 2015; Stringhini et al., 2010). Health risk behaviors have been suggested to not only lead to differential levels of exposure towards health risks, such as obesity, nicotine intake, hypertension or hypercholesteremia, but also to a differential vulnerability of high and low SES groups (Diderichsen et al., 2012).

Different mechanisms may link differential population characteristics, such as SES, to levels of risk behaviors. Thus lower general education level tends to be associated with poor health literacy and health knowledge. As outlined by the Health Belief Model, low knowledge may lead to limited awareness about personal health risks and potential benefits of preventive interventions, which in turn might impede motivation to initiate change (Janz and Becker, 1984). Consistent with this, Wardle and Steptoe reported lower levels of health consciousness in British civil servants with low compared to high occupational status (Wardle and Steptoe, 2003) while Peretti-Watel et al. found lower levels of health risk perception in smokers from a low socioeconomic background (Peretti-Watel et al., 2013; Peretti-Watel et al., 2014).

Furthermore, higher and lower SES groups may differ with regard to their levels of self-efficacy for behavior change, i.e. their perceived confidence in their own ability to change behavior including the ability to overcome barriers (Bandura, 1977). In numerous studies, self-efficacy expectations have been shown to predict health behaviors, e.g. stopping smoking, increasing physical activity or eating healthy (de Hoog et al., 2016; Lindberg et al., 2015; Blanchard et al., 2015; Mosher et al., 2013; Anderson et al., 2007). Particularly when it comes to transforming a more general wish for change into specific and definite behavioral intentions and implementing the new behavior, beliefs in one's behavioral abilities and self-control are essential (Rothman et al., 2004). The strength of such beliefs may not at least be influenced by socio-structural factors as pointed out in the Social-Cognitive Theory (Mosher et al., 2013). Availability of economic as well as educational and cultural resources is likely to affect likelihood of success of behavioral change attempts and therefore will shape self-confidence in behavioral abilities over time.

In the present study we aim to describe and discuss factors associated with preference for lifestyle changes versus medication for prevention of cardiovascular disease with a special focus on factors associated with the self-efficacy expectations about one's ability to initiate and maintain lifestyle changes. The specific hypotheses are that:

• A substantial part of the respondents will prefer to replace taking medication with lifestyle changes.
• Socioeconomic characteristics, lifestyle factors and previous experience with heart diseases will influence not only the preference for lifestyle changes, but also the respondents' beliefs in their ability to initiate and retain the lifestyle changes for a longer period.

2. Methods

2.1. Sample and setting

A representative sample of Danish speaking inhabitants of Denmark aged 40–60 years was invited to participate in a survey. No information from medical records was obtained, but due to the chosen age range the individuals belonged to a target group of potential candidates for cardiovascular prevention therapy. In the survey, the respondents were presented with a hypothetical scenario and asked to imagine that they were diagnosed to be at increased risk of heart disease. Subsequently they were presented with an offer of a preventive medical intervention targeted at reducing the risk of heart disease. No medication name was mentioned, but the features of the medication (side effects and effectiveness) resembled statins. Treatment benefit was explained in terms of absolute risk reduction (from 10% to 5%). Afterwards, subjects were provided with a choice for or against accepting the medication. Next they were to indicate their preference for lifestyle changes as replacement for medication when lifestyle changes were framed as having the same benefit as the medication regimen. Finally, they were asked to what extent they believed they would be able to initiate lifestyle changes and keep them for a year.

Data were collected through a web-based questionnaire using the highly experienced organization TNS Gallup taking advantage of their web-panel GallupForum. The survey ran from March 15–22, 2012. Among the 3928 panel members receiving the invitation, 2346 (60%) accessed the website, and of these 2099 (91%) answered the questionnaire. The study population for the present paper was a subgroup of the web-panel who had received additional specific questions about beliefs in their own ability to maintain lifestyle change (n = 1069).

2.2. Questionnaire

The questionnaire included a description of a risk scenario together with 12 questions concerning self-rated health status, current lifestyle (smoking, physical activity, BMI), willingness to accept treatment, and questions related to preferences for lifestyle changes to medication, in addition to a number of questions on respondents characteristics: gender, age, experience with heart disease (own and within the family), highest educational attainment, and household income. The present paper focuses on three questions related to preferences for making lifestyle changes instead of taking medication, and on the individuals' belief in his or her own ability to initiate lifestyle changes and retain them over time, rated on a 7-point Likert scale (Table 1). The respondents were told that by adding 30 min of extra physical activity daily, changing to a low-fat diet, and stopping smoking, the same benefit as the one obtained by medication treatment would be gained. Subsequently, respondents were asked whether they preferred the following lifestyle changes to medication: increasing daily activity by 30 min, changing to a more low-fat diet and avoiding smoking. Further, they were asked to what extent they believed that they would be able to make these lifestyle changes and keep them for a year. Prior to being presented to the web-panel, the questionnaire was evaluated regarding comprehensibility, relevance, acceptability and feasibility, and pilot tested by TNS Gallup.

According to the research ethics committee system in Denmark, the present study is a questionnaire study and therefore is assessed to fall outside the demarcation of projects, which have to be approved of by a regional research ethics committee.

2.3. Statistical analyses

Univariate and multivariable logistic regression analyses were used to analyze associations between a number of covariates and preference for making lifestyle changes rather than taking medication. Respondents who chose the "don't know"-option were excluded (a total of 65 (6.1%) of all participants). For respondents who preferred making lifestyle changes, univariate and multivariable linear regression analyses were used to analyze associations between the same covariates and the respondents' own beliefs in their ability to initiate and maintain the lifestyle changes. The following covariates were considered: gender, age, self-rated health status, experience with heart disease, education, income, occupation (blue collar (manual worker), white collar (non-manual worker), self-employed, not in workforce), level of physical activity (high (daily or several times a week), low (once a week or less/ never)), smoking and body mass index (BMI). All analyses were adjusted for age and gender.

Subgroup analyses were conducted for smokers, participants with low level of physical activity, and overweight participants as well as