

Unrealistic pessimism about risk of coronary heart disease and stroke in patients with type 2 diabetes

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Abstract

Objective: We examined the accuracy of type 2 diabetes (T2D) patients' risk estimates of developing coronary heart disease (CHD)/having a stroke as a consequence of diabetes and their mood about these risks.

Methods: Patients reported their perceived risks of developing CHD/having a stroke and rated their mood about these risks using a self-report measure. Using an objective risk calculator, they were then told their actual risk of CHD and stroke and their mood was re-assessed.

Results: Patients' estimates of their risk of CHD/stroke were grossly inflated. A negative relationship between disease risk and mood was also seen where higher risk of actual and perceived CHD/stroke was related to worse mood. A positive relationship between mood and extent of perceptual error was further observed; the more inaccurate patients' perceptions of CHD/stroke risk were, the better their mood. Mood improved after patients were given accurate risk information.

Conclusion: T2D patients are unrealistically pessimistic about their risk of developing CHD/stroke. These risks and the extent of perceptual risk error are associated with mood, which improves upon providing patients with accurate risk information about CHD/stroke.

Practice implications: These results have implications for the routine communication of risk to T2D patients.

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1. Introduction

Type 2 diabetes (T2D) is a chronic illness characterised by persistent elevation of blood-glucose concentration for which there is no known cure. Diabetes is increasing in prevalence; an estimated 3 million people will have the disease in the UK by 2010 [1]. Patients self-manage the condition by engaging in lifestyle modification (e.g. following a healthy diet, testing blood glucose and taking exercise and medication). The purpose of these behaviours is to control blood-glucose levels and avoid diabetes-related complications, rather than cure the illness.

Cardiovascular disease is the leading cause of death among people with diabetes [2]. In a UK prospective mortality study the incidence of cardiovascular mortality in middle-aged diabetes patients was five times greater than among those without diabetes [3]. Consequently, diabetes has been defined as “a state of premature cardiovascular death” (4, p. 28).

Communicating risk of cardiovascular disease to T2D patients is important for several reasons. Firstly, the recent National Service Framework for diabetes [5] sees patient empowerment, i.e. patients' ability to make well informed decisions about their illness, as a key standard [6]. Empowerment assumes that patients have access to accurate information about their illness, including the risks and consequences of the condition. It further assumes that such information will form the basis for diabetes self-care behaviours aiming to achieve tight blood-glucose control. Tight blood-glucose control has

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been shown to reduce cardiovascular death in people with T2D [7]. Secondly, psychological health behaviour models suggest that higher risk perceptions may be associated with greater intentions to adopt precautionary health behaviours [8–10].

There are two bodies of psychological literature aimed at understanding how people think about risk. On the one hand, the optimistic bias literature argues that people reliably believe that they are less likely than others to experience a variety of negative events, ranging from heart disease to divorce [11,12]. Behind this phenomenon is the belief that if something has not happened yet, it is unlikely to happen in the future [13,14]. A second body of research into beliefs about risks surrounding major illnesses has produced divergent results. Diseases that are feared with poorly understood causes and out of people’s personal control are perceived as riskier and concern people more than illnesses which are perceived as less dramatic [15]. For example, work in the area of breast cancer and genetic screening, has consistently shown that healthy women are unrealistically pessimistic about their risks of developing breast cancer whether or not they have a familial risk of cancer [16–19]. Similarly, women rate their chances of dying from breast cancer higher than heart disease [20], although the mortality rate for heart disease in women is nine times greater than that of breast cancer [21]. On the other hand, beliefs about health risks associated with less feared, better understood and more controllable causes, such as cardiovascular disease, are underestimated [20].

In the studies outlined above, participants were healthy volunteers reporting hypothetical risks, rather than chronically ill patients with a real chance of developing further specific illnesses. In a single study of patients with either hypertension or diabetes, Frijling et al., asked patients to self-report their 10 year risk of developing myocardial infarction and stroke [22]. Forty-five percent of those who were able to estimate their cardiovascular risk overestimated this by more than 20%.

Risk assessment is known to be “primarily determined not by facts but by emotions” (23, p. 745), yet Frijling et al. did not record patients’ emotional reactions to these risks. One’s emotional response to the risk of illness plays an important role in one’s motivation to engage in illness-preventive behaviours. For example, a degree of fear may increase motivation in this respect [24]. On the other hand, excessive fear and anxiety may cause people to ignore [25] or forget [26,27] risk information.

Previous work on risk and mood has measured negative emotions about health risks, such as fear and anxiety [19,28,29] on the assumption that Dwelling on one’s risk of illness is unlikely to elicit positive emotions. On the other hand, there is some evidence that unrealistic optimism may cause false reassurance [30].

Although diabetes is associated with increased risks of developing CHD and stroke, there is currently no work examining patients’ awareness of or emotional reaction to these risks. Furthermore, apart from the work of Frijling et al., there are no data examining whether diabetes patients’ risk estimates are optimistic or pessimistic, in line with the genetic screening literature. This study examines the discrepancy between patients’ perceptions of risk and their actual risks of CHD and stroke and evaluates their emotional reactions to these risks.

2. Methods

2.1. Design

In a within participants design, patients’ perceptions of risk of CHD and stroke were compared to their actual risks of CHD and stroke. In correlational work, the relationship between mood and both actual and perceived risks of CHD and stroke were also investigated.

2.2. Participants

People with a T2D diagnosis, aged <80 years, with no cardiovascular, cerebrovascular or psychiatric co-morbidity and able to understand English were eligible to participate. Of the 143 who expressed an initial interest, 95 agreed to participate. The older (M age = 64.01 S.D. = 8.67), predominantly White (N = 86) sample had diabetes an average 5.55 (S.D. = 5.36) years. Demography and medical history are shown in Table 1.

2.3. Apparatus and materials

2.3.1. Physiological measurement and risk assessment

Version 2 of the United Kingdom Prospective Diabetes Study (UKPDS) Risk Engine [31] downloaded on a PC and a standard printer were used to estimate and print patients’ actual risk of CHD/stroke. The UKPDS Risk Engine is a risk calculator for people with type 2 diabetes, which was developed using data from 5300 who took part in the UKPDS, the largest prospective study of type 2 diabetes in the UK. The Risk Engine is a simple reliable tool for individual risk prediction of CHD/stroke in uncomplicated diabetes [32]. The risk is generated

Table 1
Patients’ demographic and medical background

N	95
Male/female (N)	42/53
Age (M, S.D.)	64.09 (8.67)
Diabetes duration (M, S.D.)	5.55 (5.36)
Years of formal education (M, S.D.)	11.65 (2.61)
Ethnicity (N)	
White	86
Asian	5
Afro-Caribbean	4
HbA1c (M, S.D.)	7.33 (1.41)
Total cholesterol (M, S.D.)	4.41 (1.92)
HDL cholesterol (M, S.D.)	1.03 (0.32)
Systolic/diastolic blood pressure (M, S.D.)	138/76 (21/10)
Diabetes control (N)	
Diet	24
Tablets	52
Insulin	4
Tablets + insulin	15
Smoking status (N)	
Non-smoker	51
Ex-smoker	34
Current smoker	10

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