

# The theories behind health risk communication

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## Article points

1. As healthcare professionals, we are instrumental in communicating health risks to people with diabetes and the benefits of reducing the risks of complications in people with diabetes is well documented (UKPDS, 1991; DCCT, 1993)
2. Those involved in the care of people with diabetes should understand that knowing about the risks of diabetes and risky health behaviours associated with having diabetes is not enough to reduce a person's risk of complications, both chronic and acute.
3. The healthcare professional should help the person understand the risk. People need to believe that they are at risk of complications, believe that the risk is serious, believe that if they make changes that the risk will be reduced or prevented and that the barriers to changing their behaviour can be overcome.

## Key words

- Communication
- Education
- Health belief model
- Health risks

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**The benefits of reducing the risks of complications in people with diabetes is well documented (UK Prospective Diabetes Study [UKPDS] Group, 1991; Diabetes Control and Complications Trial [DCCT] Research Group, 1993). As healthcare professionals, we are instrumental in communicating health risks to people with diabetes so that they can identify any changes that will reduce their future risk and improve their health outcomes. However, this can be challenging and often it is hard to identify the best ways to communicate risk to ensure that people with diabetes fully understand the risk and are motivated to change behaviour. This article discusses these challenges and discusses whether simply providing people with diabetes with information about the risks of complications is enough to change behaviour.**

**M**any risks to a person's health are related to lifestyle and behaviour and most of these risk factors can be modified with the right intervention. However, as many of us know, identifying risk, understanding risk and taking steps to reduce risk is often a long, difficult process.

As healthcare professionals, we are instrumental in communicating health risks to people with diabetes so that they can identify any changes to reduce their future risk and improve their health outcomes. However, this can be challenging and often it is hard to identify the best ways to communicate risk, for example, whether to use a risk calculator.

This article will discuss whether having knowledge of health risks is enough to change behaviour in people with diabetes and how people with diabetes understand and use risk information. The article also discusses how best to communicate risk with people with diabetes, including the use of risk calculators.

## Defining risk

Health risk has been defined by Menon et al (2008) as:

*“The perception of the subjective likelihood of the occurrence of a negative event related to health for a person over a specified period of time”*

In any task that involves an action, people will assess the risks associated with that action. If the risk falls within their “acceptable” range then they will undertake the task; if it falls outside their acceptable range then they will refrain from the task (Fischhoff et al, 1984). With this in mind, a person's exposure to risk throughout their life can affect whether they feel that the health risks they are exposed to are enough for them to take alternative action.

The benefits of reducing the risks of complications in people with diabetes is well documented (UK Prospective Diabetes Study [UKPDS] Group, 1991; Diabetes Control and Complications Trial [DCCT] Research Group, 1993). Reducing complication risk has been

attributed to intensive management of diabetes, to education of the person with diabetes and to empowerment and self-management.

Research has demonstrated that through treatment and support the complications of diabetes can be delayed or prevented, reducing mortality, disability and enabling people with diabetes to live longer and healthier lives (UKPDS Group, 1991; DCCT Research Group, 1993; Drexler, 2003). Reduction in complications has been proven through adherence to treatment regimens, lifestyle changes and education in relation to diabetes and self-management (UKPDS Group, 1991; DCCT Research Group, 1993; Drexler, 2003).

### Communicating health risks

We are exposed to risk communications every day of our lives. These messages are all around us and often appear to be omnipresent; cars beep when we do not fasten our seat belts, cigarette packets show graphic pictures to warn us of cancer and nut products carry warnings about nut allergies. The sheer number of warnings we encounter every day can undermine the effectiveness of these warnings, so it is not surprising that often people do not respond to messages of risk from healthcare professionals as we would hope. Furthermore, people are not passive, unbiased processors of information about their health status (Taylor and Brown, 1988). People welcome favourable and positive information about their health but will often engage in strategies that reduce or discount unfavourable or more negative health information – strategies that, in turn, reduce any influence this information might have on decision making and behaviour (Ditto and Lopez, 1992; Liberman and Chaiken, 1992; Gerrard et al, 1996).

In light of these cognitive and motivational barriers, what is the best way to communicate health risk information so that people both understand it and recognise its implications for their own risk status?

There are two issues that should be considered as foundations to any assessment of risk communication. Firstly, what do people think about health risks? How do they form judgements about the risk and how it applies to them? Interventions designed to help people assess their risk will be successful only if consideration is given

to how people process different types of health risk information.

Secondly, what is the most appropriate way to assess the impact of a health risk intervention? An intervention should influence knowledge about health risk, beliefs about personal risk and perceptions of how one's own risk compares with the average person's risk, or intentions to act to reduce one's risk (Weinstein et al, 1996; Weinstein, 1998).

### Causes and consequences

People think about health problems in relation to the causes and consequences and, in fact, it is suggested that this is how health information is organised in our memory (Leventhal et al, 1984). Also, there are theories suggesting that people come to understand their risk on the basis of their ability to imagine themselves experiencing the problem, for example "it could happen to me" (Kahneman and Tversky, 1982; Armor and Taylor, 1998). This knowledge of the causes and consequences of a health problem has clear value when trying to inform people of health risks.

### Probability and risk calculators

Whilst providing people with numerical probabilities gives a precise description of their risk, the actual value of this is unclear. Providing people with a probability value about a health problem, for example, "You have a one in 100 chance of developing retinopathy", is likely to have little effect on their ability to imagine either what might happen to them or how it might occur. In fact, research has shown that people tend to underutilise probability information, often because they simply do not understand it. (Ajzen, 1977; Tversky and Kahneman, 1982).

Risk calculators are now used more commonly by both people with diabetes and healthcare professionals to identify the risks of current behaviour and future health outcomes. While risk calculators such as the Framingham risk calculator (Anderson et al, 1991) and QDiabetes (available at: [www.qdscore.org](http://www.qdscore.org)) are increasingly available to promote health awareness and education, it is unclear if and how the results affect a person's acceptance of risk.

A study by Harle et al (2008) randomly assigned

### Page points

1. The sheer number of warnings we encounter everyday can undermine the effectiveness of these warnings, so it is not surprising that often people do not respond to messages of risk from healthcare professionals as we would hope.
2. Interventions designed to help people assess their risk will be successful only if consideration is given to how people process different types of health risk information. Furthermore, interventions should influence knowledge about health risk, beliefs about personal risk and perceptions of how one's own risk compares with the average person's risk.
3. Whilst providing people with numerical probability information provides a precise description of their risk, it may have little effect on their ability to imagine either what might happen to them or how it might occur. In fact, research has shown that people tend to underutilise probability information, often because they simply do not understand it (Ajzen, 1977; Tversky and Kahneman, 1982).

### Page points

1. Providing health information tailored to meet individuals' needs has been shown to be more effective than generic information in promoting risk-reducing behaviour changes. In a study by Kreuter et al (1999), participants who received tailored materials rather than just personalised risk scores had more positive thoughts indicating behavioural intention.
2. A probability-based approach to communicating risk focusses on the presentation of numerical information regarding the probability of a given risk occurring.
3. Another approach to risk communication has focussed on providing people with an informational context in which to understand and interpret their risk. The defining feature of a contextualised approach is that it provides people with information about the causes and/or the consequences of a potential health problem.

100 people without diabetes to one of three versions of an experimental type 2 diabetes risk calculator. One group was informed of a generalised increased risk; the second group was informed of a more individualised risk by inputting their personal data into the risk calculator and the third group did the same but was also given interactive information on how they could reduce their risks. Results suggested that personalisation and interactive features did not lead to an increase in user attention or information processing. In simple terms, there was no significant difference between the groups, which indicates that providing a probability of risk of a health event happening is not enough to encourage people to reduce their health risks, despite personalisation and interaction.

Alternatively, providing health information tailored to meet individuals' unique needs has been shown to be more effective than generic information in promoting risk-reducing behaviour changes. In a study by Kreuter et al (1999), participants who received tailored materials rather than just personalised risk scores had more positive thoughts about the materials. Participants also reported positive personal connections to the materials, positive self-assessment thoughts, and positive thoughts indicating behavioural intention (Kreuter et al, 1999).

Therefore, giving people with diabetes information and management plans that have been discussed and tailored to meet their needs will be more successful than providing generic information that they may not believe applies to them. Health messages that are inconsistent with beliefs or perceived as not credible may be less persuasive and lead to information avoidance (Klein and Stefanek, 2007).

### Approaches to communicating risk

As described earlier, there are two general approaches to communicating health risk information: a numerical probability-based approach (risk scores and risk calculators) and a contextualised approach, where the meaning, reasons and understanding of risk are all considered. There is a time and a place for both of these approaches.

A probability-based approach focusses on the presentation of numerical information regarding

the probability of a given risk occurring. This can include a straightforward communication of a numerical probability, for example: "You have a 15% chance of a cardiovascular event in the next 10 years", which is designed to heighten the importance or impact of statistical information. Some of the more innovative presentation strategies have involved framing the information in terms of how frequently someone will die in a community as a result of a given risk (Weinstein et al, 1996) or presenting risk information in such a way that it can be compared with the magnitude of other risks (Sandman et al, 1994).

A second approach to risk communication has focussed on providing people with an informational context in which to understand and interpret their risk. The defining feature of a contextualised approach is that it provides people with information about the causes and/or the consequences of a potential health problem. Emphasising the causes of a health problem by providing people with specific information regarding the link between a health problem and their own behaviour or medical history can help the person relate to the risk (Kreuter and Stretcher, 1995). This can be supported by testimonials from people who have experienced the health problem to convey information about how the problem developed and/or how it has affected their lives (Gump and Klik, 1995; Evers et al, 1997; Rothman et al, 1999). This may explain why people may choose to listen to other people with the same health condition rather than their healthcare professional. Sutton and Hallett (1988, 1989) also suggest that providing people with information or images that demonstrate the negative consequences of the health risk can support their understanding of risk and motivate behaviour change.

### Consultation models

Consultation models are an important tool to help provide structure when communicating with all people with long-term conditions. In the past three decades there has been an increase in the development of consultation models, including Neighbour's model (Neighbour, 1987), the Calgary-Cambridge model (Silverman et al, 1998) and Pendleton's model (Pendleton et al, 2003). Many of these models overlap and are similar in their recommendations. There is no suggestion that

any one model is better than another; they are all valid and useful in their different ways. There is duplication between them, after all they are models based on the same fundamental activity. Models are not intended to direct a healthcare professional to move rigidly through the model from beginning to end, in fact nurses can start by using a part of any model and then as their skills develop, they can mix and match components of two or more models into the same consultation.

### Health belief model

The health belief model was one of the first, and remains one of the best known social cognition models. It is a health behaviour change and psychological model developed by Irwin Rosenstock in 1966 for studying and promoting the uptake of health services. The model has been further developed since then to accommodate evolving evidence generated within the health community about the role that knowledge and perceptions play in personal responsibility (Glanz et al, 2002). Originally, the model was designed to predict behavioural response to the treatment received by acutely or chronically ill patients, but in more recent years the model has been used to predict more general health behaviours (Ogden, 2007). The health belief model suggests that your belief in a personal threat, together with your belief in the effectiveness of the proposed behaviour, will predict the likelihood of that behaviour (Rosenstock et al 1988).

The model helps to explain why individuals may accept or reject preventative health services or adopt healthy behaviours. The health belief model is particularly useful in consultations with people with long-term conditions, such as diabetes.

With this in mind, it is useful to consider the following points with regards to the person with diabetes:

- Whether the person with diabetes is susceptible to a particular illness or complication.
- Whether the consequences of the illness or complication could be serious, either physically, mentally or socially.
- Whether the treatment or intervention would offer any benefit.
- Whether there are barriers where the costs outweigh the benefits, in physical, social or

financial terms, for example, if a person with diabetes does not attend a retinopathy test due to worries about the test being painful.

- Internal factors, such as symptoms or worry about symptoms, and external factors, such as media campaigns and advice from friends, can act as the trigger that encourages the person to seek your help.

### Education

Knowledge is essential in supporting people with diabetes in improving their health outcomes and reducing their risk of complications. Wider access to structured education is now available for people with diabetes. Many studies have been carried out looking at the effect of attending structured education on health outcomes.

In a study looking at the 3-year follow up of a diabetes education and self-management programme they found that the education did not offer sustained benefits in biomedical outcome measures and lifestyle outcomes at three years, despite the fact that intervention participants showed that they had a greater understanding of their condition and its seriousness. They also had a better perception of the duration of their diabetes and of their ability to affect the course of their disease. This implies that understanding diabetes and its effects may not in itself lead to a reduction in the risk of developing complications (Khunti et al, 2012).

### Assessing knowledge of diabetes and its implications

How can we assess a person's understanding of the associated risks in type 2 diabetes? Research using a variety of different assessment techniques suggests people cluster their ideas about an illness around themes or components. These components together make up the person's perception of their illness. The components provide a framework for people to make sense of their symptoms, assess health risk, and direct action and coping (Weinman et al, 1996). This can be assessed using the Diabetes Illness Perception Questionnaire (available at: [www.uib.no/ipq/](http://www.uib.no/ipq/)). Each of these components holds a perception about one aspect of the illness and together they provide the individual's view of diabetes.

*“The health belief model suggests that your belief in a personal threat, together with your belief in the effectiveness of the proposed behaviour, will predict the likelihood of that behaviour.”*

**“Simply identifying the person’s risk through the use of risk calculators is the first step but often more work is required to encourage the person to actually accepting the risk and taking steps to minimise this risk.”**

1. Identity: Label of the illness and the symptoms the person views as being part of the disease.
2. Cause: Personal ideas about aetiology, which may include simple single causes or more complex multiple causal models.
3. Time-line: How long the person believes the illness will last. These can be categorised into acute, chronic or episodic.
4. Consequences: Expected effects and outcome of the illness.
5. Cure/control: How one recovers from, or controls, the illness.

### Summary

Those involved in the care of people with diabetes should understand that knowing about the risks of diabetes and risky health behaviours associated with having diabetes is not enough to reduce a person’s risk of complications, both chronic and acute.

Simply identifying the person’s risk through the use of risk calculators is the first step but often more work is required to encourage the person to actually accept the risk and take steps to minimise this risk. Once the person with diabetes has received the information and knowledge about risk and also understands the risk, they then need to believe that they are at risk of developing these complications, believe that the risk is serious, believe that if they make changes or adhere to treatment that the risk will be reduced or prevented and that the barriers to changing their behaviour can be overcome and managed. ■

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