Adult offspring of people with type 2 diabetes are at increased risk of developing the condition so must have accurate knowledge about it and its risk factors.

**Diabetes knowledge in patients’ adult offspring**

**In this article...**
- The risk children of people with type 2 diabetes have of developing the condition
- What relatives of people with type 2 diabetes know about their risk
- Key implications for nurses working with patients at risk of developing the condition

**5 key points**
1. Adult children of people with type 2 diabetes have increased risk of developing the condition
2. Risk is increased by sharing of both genetic and lifestyle traits
3. Nurses need to understand and respond to this at-risk group to reduce the risks of type 2 diabetes
4. Education must take into account lifestyles and health behaviours
5. Behaviour change in this group is most likely to be motivated by events that seriously damage their health

Type 2 diabetes (T2D) clusters within families (Valdez, 2009), with adult children, in particular, having an increased risk of developing the disease. On average, if either parent has T2D, the risk of their offspring developing it is 15%; if both parents have the disease, the risk is 75% (Diabetes UK, 2010). Adult children are more at risk of developing T2D than the general population as they share both the genetic and lifestyle traits of their parents (Nishigaki et al, 2007).

A study conducted by Harwell et al (2001) showed that perceived risk was high in people with a family history of T2D but they were less likely than those without a family history to believe that diabetes could be prevented. More recent research showed that those considered to be at risk were aware of the seriousness of T2D but...
felt their own risk of developing it was low (Adriannse et al, 2003). Pijl et al (2009) found that family history was not always associated with an increased risk or concern about developing the disease.

Our study explored risk, prevention and educational preferences in adults in the north east of England who did not have diabetes but whose parents had T2D. The aim of our study was to ascertain participants’ awareness of risk of developing T2D, and their existing knowledge of the condition and what could be done to improve it.

Method
We conducted semi-structured, one-to-one interviews with six participants to explore their knowledge and ideas about T2D and completed our analysis using a structured, thematic framework (Ritchie and Lewis, 2003) to describe and interpret what was said.

The content of the interviews is outlined in Box 1. Interviews lasted 45–75 minutes. Data was collected between January and March 2011.

Results
Participants ranged from 21 to 38 years of age and had one parent diagnosed with T2D. Four participants were male and two were female; two were obese, two were overweight and two had a healthy weight. None had any health issues for which they were being treated. Most were from working-class or lower middle-class backgrounds, with a mixture of educational levels. All participants were white and lived in the Newcastle upon Tyne area.

In this article, we discuss the following themes:
» Risk;
» Knowledge;
» Motivation to change behaviour to reduce risk.

Risk
There appeared to be no consensus across the group about the risk of developing T2D. No relationship was found between being overweight and participants’ own perceived risk.

When asked to estimate their risk of developing T2D, participants appeared to make their decision by a process of “loading the dice”. Those who believed they were at increased risk examined many aspects of both their lifestyle and other risk factors that could contribute to T2D. Those who believed they were at the same risk as the general population offset negative lifestyle factors with positive behaviours. Loading the dice allowed participants to estimate risk according to their own lifestyle choices. Some believed that T2D was not something they needed to worry about until they were much older.

Participants who felt they were at increased risk believed they would develop the condition at an age similar to that of their parents when they developed it.

Knowledge
All participants associated T2D with sugar levels and with keeping those levels “balanced”. Only one participant mentioned insulin. Knowledge of T2D and its long-term consequences were poor and associated with personal experiences of parental illness. Participants were aware of long-term complications only if a parent had been specifically affected by that complication. Most participants associated T2D with increased weight and poor diet. There was an overall feeling that T2D was a part of getting older and it was not rated on the same scale of severity as heart conditions or strokes.

Participants did not feel the same about the role of inheritance in the development of T2D. Some believed family history made T2D inevitable, while others did not mention inheriting it at all; most, however, believed it may have some role to play but were unsure of to the extent to which family history is significant.

There was a good level of knowledge about what constituted a healthy diet. Each participant was able to describe a diet that would meet guidelines and described a close association between diet, weight and risk of T2D. Exercise was seen as a contributor to a healthy lifestyle but the importance of this in relation to T2D was uncertain.

Participants described gaining their knowledge about T2D from friends, family and schools. The importance of education in schools was highlighted; most participants described school as an effective forum for delivering information. Two described reading health-promotion materials their children brought home from school and felt this was a good way to promote a healthy lifestyle. One woman (employed, aged 38) said “knowledge gained during school years remains for a lifetime”.

Participants did not rate media, such as radio, TV, the internet and advertising, as important providers of health information. Several felt that, unless adverts were shocking, they would just get lost in all of the other messages about health. When asked about memorable health-promotion adverts, all participants mentioned smoking campaigns and their highly graphic content, which they believed were most likely to make them alter their behaviour. No participants recalled seeing any media messages targeted at T2D.

Motivation to change behaviour to reduce risk
Most participants said a “critical event” would need to happen or be likely to happen to kickstart a change of lifestyle. A critical event was described as an actual physical event – for example, a heart attack, stroke or diagnosis of T2D – that might occur to the participant or a close friend, or being told by a health professional that they would progress to develop such an illness.

Motivation to change behaviour appeared to be linked to social circumstances and daily routines. Half the participants were unemployed and this was mentioned as a reason why they lacked the motivation to make lifestyle changes.

Discussion
Six participants were interviewed. This does not present us with findings that can be generalised to the wider population of people in this at risk group. Instead, the themes that emerged provide a starting point for further research and provide avenues for future targeted strategies to increase awareness and knowledge.

Knowledge
Participants’ understanding of how family history plays a part in the development of T2D was varied: those who believed family history had a role to play could not pinpoint why they thought this and could not estimate their actual increased risk accurately. A variety of reasons why T2D might develop were mentioned; these referred mostly to genetic and lifestyle factors.

Information targeted directly at those at risk may be the key to improving...
knowledge and motivating people to change behaviour. Providing people with information about their own genetic risk has a greater impact on motivating behaviour than standard risk information regarding lifestyle changes (Grant et al, 2009).

**Behavioural change**

People at a high risk of developing T2D will pursue lifestyle changes only if they understand their own risk of developing diabetes (Walker et al, 2008). Most participants in this study had not thought about their own risk of T2D until interviewed and some felt that being part of the study had increased their interest. More accurate risk perception is associated with changes in behaviour (Rosal et al, 2011). If knowledge of the risk factors and complications of T2D increases, then positive behavioural changes are more likely.

One of the interesting findings of this study was that participants who could imagine a worst-case scenario (the critical event) were aware of how their current lifestyle behaviours may adversely affect their risk, yet were still not motivated to take action to change. Their fears had not yet become a reality. Would participants be motivated to change after a critical event, as they claimed? This is a difficult question to answer. The idea of planning to change behaviour after a critical event may be very different to the reality of life once a person has to adapt to the challenges that a new diagnosis may bring.

Participants appeared to have sufficient knowledge about diet and exercise but motivation to change was obviously lacking. They did not see T2D as a serious condition.

Family history of diabetes was viewed as less threatening than a family history of cancer or heart disease. Diabetes was seen as a long-term condition associated with older age and, at worst, a minor inconvenience.

**Improving knowledge and behaviour changes**

Knowledge of T2D and its long-term effects were poor and may be a consideration for targeted education. Participants rated friends, family and schools as key providers of health information rather than messages disseminated via the media and written health-promotion materials. There is a need to develop education strategies aimed at those at risk of developing T2D and the wider population to reduce the incidence of the disease.

The majority of participants suggested using media messages that used fear, shock and graphic visual images to raise awareness but this method should be approached with caution. Campaigns that use fear have been reported as being unsuccessful and fear is most likely to succeed in changing behaviours if the level of fear is low and the desired behaviour is strongly and positively reinforced (Soames Job, 1998). Conversely, Witte and Allen (2000) argued that health campaigns with strong fear messages motivate and produce the greatest behaviour changes. Fear is a great motivator as long as individuals believe they are able to protect themselves to prevent the presented threat.

The epidemic of diabetes highlights that a social change in harmful lifestyle behaviours needs to take place. An example of one such change is smoking. Those who smoke are now marginalised, taxed and socially excluded; this change has been brought about through high-impact advertising, education, smoking-cessation programmes, taxation and a ban on smoking in public places. This approach could serve as a model for raising awareness of risk, improving knowledge and making positive behaviour changes. Highlighting the effect of positive lifestyle behaviours that are adopted as part of normal everyday life is a priority for policy makers and essential in everyday nursing practice.

Participants’ knowledge of current health-promotion strategies (such as the Department of Health in England’s Change4Life campaign) was minimal and the strategies had had little obvious impact.

Media messages need to balance demonstrating the serious consequences of T2D with showing those at risk how to make positive lifestyle changes for life if they are to be effective.

**Conclusion**

We found that adult offspring of people with T2D had a poor knowledge of individual risk and why diabetes is a serious condition. Understanding health behaviours in this group and creating appropriate health-promotion interventions will allow nurses to play their part in limiting the burden of T2D.

This article is a summary of: Gordon C et al (2013) Exploring risk, prevention and educational approaches for the non-diabetic offspring of patients with type 2 diabetes – a qualitative study. Journal of Advanced Nursing; 69: 12, 2726-2737. The study was accepted for portfolio adoption via the National Institute for Health Research coordinating system and was registered with the North East and Cumbria Diabetes Research Network portfolio; DRN 561, UKCRN 9905. tinyurl.com/DRN561.

**References**


tinyurl.com/DUK-2010


