

Patients' responses to the communication of vascular risk in primary care: a qualitative study

Stephanie Honey^{1*}, Kate Hill², Jenni Murray², Cheryl Craigs³ and Allan House⁴

¹Research Fellow, Leeds Institute of Health Sciences, The University of Leeds, Leeds, UK

²Senior Research Fellow, Leeds Institute of Health Sciences, The University of Leeds, Leeds, UK

³Research Officer, Leeds Institute of Health Sciences, The University of Leeds, Leeds, UK

⁴Professor of Liaison Psychiatry, Leeds Institute of Health Sciences, The University of Leeds, Leeds, UK

Aim: To examine the perspectives of patients identified as being at 'high risk' of cardiovascular events, with particular reference to the potential responses to risk messages.

Background: Systematic population screening for cardiovascular disease (CVD) aims to identify those at high risk and provide medication and lifestyle support. In the United Kingdom, this takes the form of the National Health Service Health Check. **Methods:** We conducted a qualitative interview study. In 2011 we interviewed 37 patients, from seven UK primary care practices, who were at high risk of developing CVD. **Findings:** Risk messages were delivered via face-to-face consultations or by letter and were relayed in either a 'down-playing' or 'serious warning' style. Patients' accounts of receiving information about risk revealed two broad response styles: 'committed' (active resistance; commitment to change) and 'non-committed' (procrastination; downplaying and fatalism). Responses to risk messages are usually assumed to be due to individual characteristics but they may be explained by an interaction between the way risk is communicated and the patient's response style.

Key words: cardiovascular risk messages; lifestyle change; nurses; nurse counselling; primary care nursing; response styles; risk assessment

Received 4 June 2013; revised 17 September 2013; accepted 10 November 2013; first published online 22 January 2014

Introduction

Cardiovascular disease (CVD) is responsible for 40% of all deaths in the United Kingdom (Gerber *et al.*, 2011) and is the leading cause of mortality in western society (Ferket *et al.*, 2010). A number of countries, including the United Kingdom, now offer systematic general population screening in an attempt to reduce CVD prevalence. In the United Kingdom, the National Health Service (NHS) health check programme is delivered through a variety of modalities across primary care (Department of Health, 2008). Targeted at people between the ages of 40 and 74 years,

the check calculates individual risk through a combination of physical assessment and questions about medical history, family history and lifestyle. People with a 10-year risk of cardiovascular events equating to, or exceeding 20%, are categorized as 'high risk'. Having advised patients of their high risk status, subsequent optimal management of risk factors includes modification of lifestyle behaviours and medication (Department of Health, 2008). This study sought to determine the perspective of patients identified as being at high risk during their NHS health check.

Background

There is a paucity of published literature examining patients' experiences of the NHS health check

Correspondence to: Dr Stephanie Honey, Leeds Institute of Health Sciences, The University of Leeds, Charles Thackrah Building, 101 Clarendon Road, Leeds LS2 9LJ, UK. Email: s.a.honey@leeds.ac.uk

© Cambridge University Press 2014

and their responses to CVD risk messages. In the wider literature, a review by Webster and Heeley (2010) concluded that people tend to have a poor understanding of their cardiovascular risk factors. A small number of qualitative studies have examined cardiovascular risk perception in people with and without established risk factors. van Steenkiste *et al.* (2004), for example, found that risk perception was influenced by factors such as age, sex and experience of CVD in the family. Many of their participants had a dichotomous perception of risk; they were either at risk or they were not. In addition, many participants were overly optimistic about their risk. Price *et al.* (2009) looked at perceptions of heart attack risk in people with diabetes and found that many participants were more concerned about the risk of cancer than CVD. In addition, participants felt that death from CVD would be quick and painless. In a study by Farrimond *et al.* (2010), participants were interviewed shortly after being told they were at 'high risk'. Participants described a number of responses including attempts to minimize their feelings of vulnerability, by comparing themselves to others, and to normalize their risk by emphasizing the inevitability of aging. The authors of the above studies suggest these responses be considered when designing risk communication strategies and behaviour change interventions.

The patient's response to risk messages is likely to be influenced by the way in which they are communicated to them. Effective communication of cardiovascular risk is regarded as fundamental to a patient's acceptance of lifestyle change and medication (Edwards *et al.*, 2002). Risk communication has two components: 'form' and 'content'. 'Form' refers to how, and by whom, the information is given and could involve face-to-face consultations or written communications. The 'content' is the communication of risk and comprises both cognitive and emotional elements. The cognitive element of content involves the use of numerical information (odds and percentages), visual information (eg, graphs) or narrative explanations. The relative merits of these methods have been widely discussed in the literature (Webster and Heeley, 2010). The emotional element of content relates to the way in which the risk message appeals to the emotions of an individual (Witte and Allen, 2000; Lauritzen and Sachs, 2001).

Primary Health Care Research & Development 2015; **16**: 61–70

CVD is, to a large extent, preventable. If people do not have an accurate perception of their risk, however, they are unlikely to take measures to reduce it (Webster and Heeley, 2010). This study is a contribution to the understanding of patient responses to risk messages.

The study

Aim

To examine the perspectives of patients identified as being at 'high risk' during their NHS health check, with particular reference to their potential responses to cardiovascular risk messages.

Design

We conducted a qualitative descriptive interview study.

Participants

A sample of 37 patients, aged between 40 and 74 years, who were classified as having a high 10-year risk of cardiovascular event, were interviewed in 2011. They were identified from databases in seven general practices located in a northern city in the United Kingdom.

Data collection

The semi-structured interviews were carried out between January and May 2011. Eligible patients were invited to take part by letter and a telephone call from the researcher. Participants were interviewed face to face (S.H., K.H., J.M., C.C.). Most of the interviews took place in participants' own homes but three were conducted at a local university and one at a GP surgery. We asked participants to give a narrative account of their experiences of the NHS health check, focusing on how they responded to their 'high risk' score.

The researchers adopted a style of interviewing in which participants were encouraged to talk about what was most important to them and were then probed about specific risks. The following issues were covered in the interviews: the health check process – *thoughts, understanding, feelings, interaction with health care professionals*; self-reported response to risk messages – *thoughts, understanding, feelings, health professionals' attitudes*; self-reported lifestyle change: *influences on behaviour change, actions*.

Data analysis

We conducted interviews until no new information appeared to be emerging. All interviews were transcribed verbatim and data were coded and analysed using thematic analysis in Nvivo 9 v.2 (QSR, 2010). This involved searching across transcripts to find repeated patterns of meaning (Braun and Clarke, 2006) enabling us to examine the experiences, meaning and reality of our participants by identifying themes within the data themselves (Patton, 1990). A selection of interview transcripts were discussed by the whole team following initial coding. Sections of the text were organized into categories and themes and a second phase of coding, or 'coding on' (Richards, 2005), was carried out (S.H., K.H.). These themes were discussed (A.H., K.H. and S.H.), defined and named before the final analysis took place. Interpretation of the data was carried out by studying the themes, links between the themes and relating the findings back to the research questions and the literature.

While reading the transcripts, for example, it became clear that patients' responses to the communication of risk could be ascribed to different categories. Several participants talked about reasons for putting off lifestyle change, for instance, and these sections of text were ascribed to the 'procrastination' category. The process resulted in several categories and we identified two overarching themes, which we labelled 'committed' and 'non-committed'. The categories 'procrastination', 'fatalism' and so on would sit under these. In this way, our thinking travelled back and forth from the transcripts to the coding, categories and themes. These themes and categories are further described in the 'Findings' section.

Findings

We conducted 37 individual interviews of which 30 were with men and seven with women. Participants were aged between 46 and 74 years (mean = 66.4 years). Thirty-five participants were white and two were black. The interviews took an average of 45 min to conduct. We asked people about their experiences of the health check and their accounts included how risk messages were communicated as well their responses to them. The first section of our results, therefore, comprises some preliminary

observations about the nature of that communication. We did not observe the communication and our findings are based on how it was described by the participants.

Communication of risk

Form

Patients were informed about their cardiovascular risk status through face-to-face or telephone conversations or by letter. Conversations with practice nurses, health care assistants, GPs and receptionists were considered acceptable by patients. One practice used a letter to inform patients that they were at high risk of CVD and included a prescription for a statin (medication to lower cholesterol levels). Patients were invited to make an appointment with a health care professional if they wished to discuss the matter further. Some patients reacted calmly to the letter but others were alarmed to receive their results in this way:

Pt Dd: I got a letter from the doctor's saying 'as you are at a high risk of a stroke or heart attack'...well I nearly died, and I thought 'well what have my results come up as?' And so of course I made an appointment and I went on. (Male, 66 yrs)

Content

Cognitive component. Despite being told they were at high risk, most people did not remember receiving a detailed explanation about their cardiovascular risk score or what it meant. In a few instances, health care professionals expressed the risk in terms of percentages, but most gave narrative explanations. There were few examples in which the risk score was disclosed and discussed. One woman, for example, was shown how her risk score was calculated on a computer screen. A demonstration of how her risk declined, if she were categorized as a non-smoker, prompted her to consider behaviour change:

Pt A: It (the risk score) goes quite low if I don't smoke. About 20 knocked off. (Female, 63 yrs)

Emotional component. Participants described different emotional styles of health care professional

Primary Health Care Research & Development 2015; 16: 61–70

communication. A frequently reported style was downplaying. Here health care professionals appeared to downplay the individual's high risk score by using phrases such as, 'it is only slightly higher' if the risk score was, for example, between 20% and 25%. As a consequence, some patients concluded that the risk was not particularly significant.

A few participants reported that their doctor had used 'fear appeal' (a serious warning) when discussing risk. This style of communication emphasized the worst possible consequences of a high risk score:

Pt N: It's very difficult when somebody stands in front of you and tells you that in another 12 months you could end up with a heart attack if you carry on the way you are going, it just jolts you.' (Male, 66 yrs)

A few people were given clear explanations about how cholesterol affects the arteries, or how smoking affects the heart, and these messages were sometimes delivered in a 'fear appeal' style. In the example below, the patient, who received such a message, reported that she was motivated to change:

Pt B: She said you've got high cholesterol, and well she told me the basic consequences of being as old as I am and the cholesterol count in the blood, were quite, very, high and dangerous. (Male, 60 yrs)

Other health care professionals appeared to make light of the risk using humour, with several people being told that their results were 'good for this area', for example. Other people mentioned the health care professional using phrases such as 'there is no need to panic yet'. Most health professionals who discussed the concept of risk appeared to use this style of communication.

Patients' responses to communication of risk

Patients' accounts of their response to the communication of vascular risk fell into two broad groups: 'committed' and 'non-committed'. Within the 'committed' accounts were responses we labelled 'active resistance' and 'time to change'. Responses we labelled 'procrastination', 'downplaying' and 'fatalism' were found in the 'non-committed' accounts.

Primary Health Care Research & Development 2015; **16**: 61–70

Committed

Active resistance. Active resistance meant understanding risk message but being actively unwilling to change lifestyle in order to reduce it:

Interviewer (Int): Is there anything you think might help you stop smoking?

Participant (Pt) G: No. Only if I want to. My philosophy is I do what I like.

Int: What is the biggest barrier to stopping?

Pt G: Basically I can't be bothered.

Interviewer (Int): When you talk about giving up smoking at the surgery do you explain what the problems are?

Participant (Pt) G: No I just agree with what they say and then forget it when I get out.

(Male 46 yrs)

This response also demonstrated 'pseudo-compliance', that is, the patient said what he thought the nurse wanted to hear.

Some people completely dismissed advice to change their lifestyle in response to their cardiovascular risk:

Pt S: Who says smoking's not good...everything in moderation can be alright...don't get brain washed. (Male 62 yrs)

Others said they were tired of hearing about health risks and behaviour change, especially as they thought the advice was often contradictory:

Pt O: I mean there are all sorts of tosh on television telling you you should eat this, you should eat that, and then, you know, in a couple of years time, I mean they were banging on about eggs being bad for you and it all comes to light that you can eat as many eggs as you like ... I mean I'm 59 this year and I think all throughout my time there has been this, there has been that and you think to yourself oh God I just want it to go away you know what I mean, leave you to your own devices. (Male 58 yrs)

Several people chose not to try and lower their cardiovascular risk because they believed

death from a heart attack would be preferable to dying from a protracted illness or living into extreme old age:

Pt E: I am not afraid of death. If I go, I go but I want it to be quick. (Male 59 yrs)

This attitude was closely related to the idea that it was better to indulge in unhealthy behaviour, and maybe have a shorter life, than to deny oneself and live longer:

Pt T: I know I am naughty because I quite like cream, you know, and things like that but I think gosh I am not going to be long on this mortal coil, I am not going to make myself miserable to the point of being really ultra miserable to maybe extend my lifespan by one or two years. (Male, 73 yrs)

Some participants disbelieved the risk message because they were skeptical about how the percentages were calculated:

Pt V: I don't know whether bringing this data together into one score is a very realistic thing to do...there might be methodological problems...I don't think you can add things like that together. (Male 66 yrs)

Time to change

In contrast, the active decision to change behaviour in response to a high risk score was referred to in several accounts:

Pt B: That (risk score) has terrified me...and I will quit smoking. My intentions are to eat healthy, stop smoking altogether. (Male, 60 yrs)

Int: So did you change anything (in response to your high risk status)?

Pt E: Yes I started to drink those little drinks that keep your cholesterol down...I have made that decision to eat better...I tend to read the labels now....I look at how much fat there is. (Male 65 yrs)

Non-committed

Within 'non-committed' accounts, there was an understanding of cardiovascular risk, and messages were not rejected completely. Several descriptions

of this style, however, suggested a reluctance to engage in significant lifestyle change. We labelled these response styles: 'procrastination', 'down-playing' and 'fatalism'.

Procrastination

Procrastination meant not being prepared for immediate action, waiting for the right time. One woman, who knew she needed to give up smoking, had decided to wait until a stressful time in her life had passed:

Pt Q: I have been on Zyban (medication to reduce craving for smoking) a couple of times, but I were doing quite well on them but...I have got a lot of stress with...one of my family and it's the first thing I do is I go for a cigarette so that's all gone out of the window. If things improve, I would definitely do it again but at the moment I'm not. (Female, 72 yrs)

Several people reported trying to summon up enough motivation to take action and others were waiting for better weather or for a special occasion to be over.

Downplaying

This style of response was also associated with some understanding of the risk, but with a tendency to downplay it, or not clarify uncertainties, and no immediate plan to change lifestyle. One man with a serious chest condition, for example, felt the number of cigarettes he smoked wasn't a cause for concern:

Pt I: I'm happy where I am cigarette-wise, sort of thing, it's a happy medium....I have cut down from 100 to 30 a day. (Male, 64 yrs)

A number of people in this group reported drinking well in excess of the recommended units of alcohol but were unconvinced about how many units were considered harmful:

Pt E: If I go out on a Saturday night, I'll have 10 pints.

Int: Right, and do you see this as a risk to your health?

Pt E: No because I am only having 10 pints a fortnight – one must balance the other. (Male, 59 yrs).

Primary Health Care Research & Development 2015; 16: 61–70

Some people felt that the effects of one unhealthy habit could be mitigated by another more healthy behaviour:

Pt Dd: I don't think I smoke enough that it could affect me in any way....I think apart from the smoking everything is quite healthy and under control. We don't eat rubbish like beef burgers. (Male 64 yrs)

Others did not consider the threat to be serious enough for immediate action:

Pt J: If I thought something drastic was going to happen, then I would do whatever was necessary. (Male, 67 yrs)

In some cases people accepted the association between smoking and cancer, but downplayed the risk to their cardiovascular system:

Int: What do you understand by the risks of smoking?

Pt E: Cancer.

Int: Yeah, and what about your heart?

Pt E: Well my heart will keep going, my heart is as sound as a pound...There is nothing wrong with my ticker and my lungs are good... knackered like but they're good... well I am ex-army you see.

Int: How long have you been smoking then?

Pt E: I started when I was about seven. (Male, 59 yrs)

Fatalism

Fatalism was associated with acceptance of risk of a cardiovascular event but passivity about doing anything about it – as if the outcome was predetermined. In some accounts, the belief that health was simply a matter of luck was expressed:

Pt C: You can be as careful as you want; you can eat as healthily as you want; you can do all the exercise you want and you could still get ill. It is like J's mother who lived to be 101, smoked like a trooper, never had a cigarette out of her hand and she died of something silly. But you see it's just jovial isn't it? That is why

Primary Health Care Research & Development 2015; **16**: 61–70

I say it is just fate. You can do all the right things and still pick things up. (Male, 74 yrs)

Other accounts suggested that health was determined by genetic factors:

Pt Z: I don't come from a family that suffers from heart problems, so it's not in my genes, so you know, the risk seems to be relatively low and therefore there's no reason why I should do a lot about it (Male, 65 yrs)

In addition, several accounts described resignation to ill health as a consequence of aging:

Pt U: Well I'm fairly philosophical about this sort of thing, we've all got to die of something in the end so, at 74 you don't get too uptight. I don't think about the things you might get within a certain period, you might worry yourself into the grave, so just accept it as a statistic and hope for the best. (Male, 74 yrs)

Communication style and patient response

Although it was not the focus of our study, we noted that several participants described spontaneously the relation between the style in which risk was communicated and their response to the message. For example, in response to a fear appeal style:

Pt B: And it absolutely frightened me to death really...and I've dramatically shut that (smoking) down completely. (Male 60 yrs)

Discussion

An unexpected finding of our study was the frequency with which people commented on the styles of communication that they received, as well as their responses to it. We did not set out to examine this communication formally but it was clear that, for many participants, this aspect of the experience was quite important. Health care professionals can communicate risk in a variety of ways and the literature has discussed how difficult it can be for people to understand the concepts involved (Paling, 2003).

In the United Kingdom, the Department of Health regards the clear communication of risk as of 'paramount importance to the NHS health check programme, helping people stay well for longer' (Department of Health, 2008). The National Institute for Health and Clinical Excellence in the

United Kingdom recommend that patients should be informed of the absolute risks of CVD using appropriate visual aids (National Institute for Health and Clinical Excellence, 2010).

Before someone reacts to the news of a high risk score, there is some interpretation that requires a willingness to engage with what has been said and an interest in thinking about the implications. Participants in our study exhibited a variety of responses to their results. Similar findings in relation to making sense of a high cardiovascular risk score have been reported in the literature (Farrimond *et al.*, 2010). We observed a spectrum of responses from those that were unresponsive to risk or lifestyle change messages through to people who accepted the risk message and were motivated to make changes in order to lower their risk. (Self-reported motivation to change does not, of course, necessarily translate into behaviour change.) Parallels could be drawn between our findings and the Stages of Change (or Transtheoretical) Model described by Prochaska and Norcross (2001). Our 'active resistance' response style echoes pre-contemplation and our 'time to change' response style echoes the action stage. Our 'non-committed' style is similar to the contemplation stage but with further sub-stages 'downplaying', 'procrastination' and 'fatalism'.

We believe these response categories could be useful in practice. People who are ready to change are relatively easy to support through advice and information giving, and sign-posting to relevant programmes and activities (Britt *et al.*, 2004). People who exhibit a 'non-committed' style of response, however, need a more tailored approach to support if they are to be motivated to change. Where a 'non-committed' response style is found, discussions about risk and lifestyle change may be complicated further by 'pseudo-compliance'. This term refers to patients who give socially desirable answers but have no intention of changing their behaviour (Paulhus, 2002).

The Stages of Change Model has been contended in recent years (Adams and White, 2005; West, 2005) and the pros and cons of this approach continue to be the subject of debate (Brug *et al.*, 2005). The model is staunchly defended by some commentators (Norcross *et al.*, 2011), however, and it is highly likely that an individual's readiness for change will vary over time. The problem is that people tend to go back and forth

between different stages of intention to change and it can be hard to definitively assign people to a particular stage. Many practitioners would agree that an individual's readiness to change remains an important issue when lifestyle advice is being delivered. The theories behind these considerations are arguably less important than the fact that people vary in response to change, and that those trying to help them change recognize this.

Previous qualitative work carried out by our team has demonstrated that health care professionals may be aware of this issue but be unsure how to address it. Understanding more about individual responses to risk messages may be of value during lifestyle consultations and our study demonstrates the types of responses as exemplars. Acknowledgement of differing patient responses, coupled with health care professionals' challenges to their underlying assumptions, offers a more tailored approach to discussions on lifestyle change that may resonate with patients. This would be a useful alternative to recommended approaches such as motivational interviewing (Zimmerman *et al.*, 2000), whose effectiveness is unpredictable (Murphy *et al.*, 2009; Rosenbek Minet *et al.*, 2011; Berkowitz and Johansen, 2012) and whose application in every day clinical practice is challenging (McCambridge *et al.*, 2004; Voogdt-Pruis *et al.*, 2011).

In our study, only a few participants reported receiving messages that were either broadly motivational in style or individualized to their circumstances and risks. Many participants did not receive clear explanations and did not understand the implications of their high risk score. The majority of health care professionals preferred to give verbal, non-numerical explanations and only one consultation incorporated the use of visual aids. This is despite the availability of computerized global risk calculators, which offer decision aids for treatment as well as a visual means to demonstrate fluctuations in risk with altered lifestyle behaviours. As has been suggested elsewhere, it may be that some health care professionals did not fully understand the concept of future risk (Webster and Heeley, 2010) and therefore circumnavigated the topic.

Much of the literature focuses on the cognitive element of how to explain risk. In the course of our study, however, we became aware that the way in which the message was delivered (the form) and the delivery style of the health care professional

Primary Health Care Research & Development 2015; 16: 61–70

(the emotional component of the content) could be very important. With reference to form, patients who received their results via a letter or from a receptionist had little opportunity to discuss their risks or options for lifestyle change. This may have added to the lack of understanding about risk that we observed, in some of our participants, and which has been reported elsewhere (Goldman *et al.*, 2006). Poor understanding of risk may lower the impetus for individuals to take preventive measures.

The emotional component of the content may also be important. This was demonstrated by patients in our study who received ‘fear appeal’ messages and changed their behaviour as a result. They accepted the serious nature of their risk messages and were motivated to take action. Participants whose risk messages were downplayed, or delivered in a light-hearted way, sometimes reported taking the risk message less seriously and being less motivated to change. From a single study, we would hesitate to make any definite claims about links between the method of communication of CVD risk score and a recipient’s response. It does, however, appear to be an important issue and warrants further study.

We recommend that, in addition to normal practice during a health check, two further strategies be employed. First, ask one extra question, which may reveal more about how the individual has responded to the risk message, and bear in mind some of the characteristic responses discussed above. Be alert for socially desirable responses. Second, ensure that the discussion is held face to face to make it easier to develop a good understanding of the patient’s perspective. During consultations with patients who have a ‘non-committed’ response style, include a discussion about any barriers to lifestyle change (Murray *et al.*, 2012). We acknowledge that these recommendations may not be easy to put into practice, but we found people to be very open about these issues during their interviews. One or two questions such as ‘what do you make of your results and the advice you have been given’ could help patients explain things from their perspective, especially if asked in a permission-giving way. Another issue concerns the morale of the health care professional. It can be disheartening to give out lifestyle advice day after day if you are not sure that it has any significant effect (Jansink *et al.*, 2010).

Primary Health Care Research & Development 2015; **16**: 61–70

Health care professionals may need further support and resources if they are to provide their patients with optimum support and guidance for lifestyle change. We are currently undertaking further research to examine health care professionals’ attitudes to lifestyle change for CVD prevention in primary care, and how they are related to their interaction with patients during the NHS health check. We are also undertaking a randomized trial to evaluate a new method of lifestyle assessment and its effect on uptake of services aimed at supporting lifestyle change.

Limitations

One limitation of this study was that many of our participants did not have detailed recollections of their health check, either because they had received the check as part of another appointment (e.g. for diabetes or hypertension) or because it had been months since they had been screened. We were unable, in many cases, to ascertain exactly when the health check had been carried out as we had no access to patient records and, again, patient recall was often unclear. However, all patients were able to describe their responses to the messages they received about risk.

Our respondents described both the communication style of their risk consultations and their response to it in recognizable ways, and when they described a link between the two it was meaningful. However, we did not observe consultations in this study and cannot be sure about response bias or reverse causation – for example, the more frightened people describing the consultation as more fear-inducing. Communication style may be more nuanced than we could assess by retrospective report. For example, a ‘fear appeal message’ delivered with a calming demeanour could result in a completely different patient experience from one delivered in a more arousing behavioural style.

We sampled for typical cases, and our respondents were typical in respect of ethnicity, age and gender, but we were not able to interview patients from a complete cross-section of the population because reorganization within the NHS made access to patients very difficult. There may be response styles associated with particular groups (such as ethnic minorities; very young high risk patients) that we have not identified.

Conclusion

Ideally patients should receive an individualized cardiovascular risk message in an understandable format (Webster and Heeley, 2010). Our findings suggest that this did not always happen. The risk-reviewing process did not appear to consider patient response to risk messages – some people may acknowledge their risk and be willing and eager to change; some may be completely resistant; many others may be willing to change if given adequate explanations of risk and support for lifestyle change. Health care professionals may face difficulties providing this support if they do not identify these different styles.

Acknowledgements

The National Institute for Health Research Collaborations for Leadership in Applied Health Research and Care (NIHR CLAHRC) for LYB (Leeds, York and Bradford) – a collaboration between two Universities, the NHS and Social Services. The authors acknowledge funding from the National Institute for Health Research Collaborations for Leadership in Applied Health Research and Care. The views and opinions expressed in this paper are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health. The Leeds York Bradford Collaboration for Applied Health Research and Care (CLAHRC) vascular theme collaborators.

Financial Support

This work was supported by the National Institute of Health Research (KRD/012/001/006).

Conflicts of Interest

None

Ethical Standards

Ethical approval was granted by the NRES Committee North East – Newcastle and North Tyneside. Participants were assured that the interview transcripts would be anonymized and treated in confidence and that they were free to withdraw from the study at any stage. All participants gave written, informed consent.

References

- Adams, J. and White, D. 2005: Why don't stage-based activity promotion interventions work? *Health Education Research* 20, 237–43.
- Berkowitz, S.A. and Johansen, K.L. 2012: Does motivational interviewing improve outcomes? *Archives of Internal Medicine* 172, 463–64.
- Braun, V. and Clarke, V. 2006: Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, 77–101.
- Britt, E., Hudon, S.M. and Blampied, N.M. 2004: Motivational interviewing in health settings: a review. *Patient Education and Counseling* 53, 147–55.
- Brug, J., Conner, M., Harre, N., Kremers, S., McKeller, S. and Whitelaw, S. 2005: The Transtheoretical Model and stages of change: a critique. *Health Education Research* 20, 244–58.
- Department of Health. 2008. *Putting prevention first. Vascular checks: risk assessment and management*. London: Department of Health.
- Edwards, A., Elwyn, G. and Mulley, A. 2002: Explaining risks: turning numerical data into meaningful pictures. *British Medical Journal* 324, 827–30.
- Farrimond, H., Saukko, P., Qureshi, N. and Evans, P. 2010: Making sense of being at 'high risk' of coronary heart disease within primary prevention. *Psychology and Health* 25, 289–304.
- Ferket, B., Colkesen, B., Visser, J., Spronk, S., Kraaijenhagen, R., Steyerberg, E. and Hunink, M. 2010: Systematic review of guidelines on cardiovascular risk assessment. *Archives of Internal Medicine* 170, 27–40.
- Gerber, Y., Koton, S., Goldbourt, U., Myers, V., Benyamini, Y. and Tanne, D. 2011: Poor neighbourhood socioeconomic status and risk of ischaemic stroke after myocardial infarction. *Epidemiology* 22, 162–69.
- Goldman, R.E., Parker, D.R., Eaton, C.B., Borkan, J.M., Gramling, R., Cover, R.T. and Ahern, D.K. 2006: Patients' perceptions of cholesterol, cardiovascular disease risk, and risk communication strategies. *Annals of Family Medicine* 4, 205–12.
- Jansink, R., Braspenning, J., van der Weijden Elwyn, G. and Grol, R. 2010: Primary care nurses struggle with lifestyle Counseling in diabetes care: a qualitative analysis. *BMC Family Practice* 11. doi: 10.1186/1471-2296-11-41.
- Lauritzen, S. and Sachs, L. 2001: Normality, risk and the future, implicit communication of threat in health surveillance. *Sociology of Health and Illness* 23, 497–516.
- McCambridge, J., Platts, S., Whooley, D. and Strang, J. 2004: Encouraging GP alcohol intervention, pilot study of change-orientated reflective listening. *Alcohol and Alcoholism* 39, 146–49.
- Murphy, A.W., Cupples, M.E., Smith, S.M., Byrne, M. and Newell, J. 2009: Effect of tailored practice and patient care plans on secondary prevention of heart disease in general practice, cluster randomised controlled trial. *British Medical Journal* 339, b4220.

Primary Health Care Research & Development 2015; 16: 61–70

- Murray, J., Hill, K., Honey, S., Craigs, S. and House, A.** 2012: Qualitative synthesis, factors affecting lifestyle change to reduce cardiovascular risk. *British Journal of General Practice* 61, 296–97.
- National Institute for Health and Clinical Excellence.** 2010. *Clinical Guidelines 67, Lipid modification, cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease.* London: National Institute for Health and Clinical Excellence.
- Norcross, J., Krebs, P. and Prochaska, J.** 2011: Stages of change. *Journal of Clinical Psychology* 67, 143–54.
- Paling, J.** 2003: Strategies to help patients understand risks. *British Medical Journal* 327, 745–48.
- Patton, M.** 1990. *Qualitative evaluation and research methods.* CA: Sage Publications.
- Paulhus, D.L.** 2002: Socially desirable responding: the evolution of a construct. In Braun, H.I., Jackson, D.N. and Wiley, D.E., editors, *The role of constructs in psychological and educational measurement.* NJ: Erlbaum, 67–88.
- Price, H.C., Dudley, C., Barrow, B., Griffin, S. and Holman, R. R.** 2009: Perceptions of heart attack risk amongst individuals with diabetes. *Primary Care Diabetes* 3, 239–44.
- Prochaska, J. and Norcross, J.** 2001: Stages of change. *Psychotherapy* 38, 443–48.
- QSR.** 2010. *Nvivo qualitative data analysis software. Version 9.* QSR International Pty Ltd.
- Richards, L.** 2005. *Handling qualitative data.* London: Sage.
- Rosenbek Minet, L.K., Wagner, L., Lønvig, E.M., Hjelmberg, J. and Henriksen, J.E.** 2011: The effect of motivational interviewing on glycaemic control and perceived competence of diabetes self-management in patients with type 1 and type 2 diabetes mellitus after attending a group education programme, a randomised controlled trial. *Diabetologia* 54, 1620–29.
- Webster, R. and Heeley, E.** 2010: Perceptions of risk, understanding cardiovascular disease. *Risk Management and Healthcare Policy* 3, 49–60.
- van Steenkiste, B., van der Weijden, T., Timmermans, D., Vaes, J., Stoffers, J. and Grol, R.** 2004: Patients' ideas, fears and expectations of their coronary risk, barriers for primary prevention. *Patient Education and Counseling* 55, 301–307.
- Voogdt-Pruis, H.R., GHNMI, Beusmans, Gorgels, A.P.M. and Van Ree, J.W.** 2011: Experiences of doctors and nurses implementing nurse-delivered cardiovascular prevention in primary care: a qualitative study. *Journal of Advanced Nursing* 67, 1758–66.
- West, R.** 2005: Time for a change: putting the Transtheoretical (Stages of Change) Model to rest. *Addiction* 100, 1036–39.
- Witte, K. and Allen, M.** 2000: A meta-analysis of fear appeals, implications for effective public health campaigns. *Health Education and Behaviour* 27, 591–615.
- Zimmerman, G.L., Olsen, C.G. and Bosworth, M.F.** 2000: A 'Stages of Change' approach to helping patients change behaviour. *American Family Physician* 61, 1409–16.