Cardiovascular disease risk communication in NHS Health Checks using QRISK®2 and JBS3 risk calculators: the RICO qualitative and quantitative study

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Disclaimer: This report contains transcripts of interviews conducted in the course of the research, or similar, and contains language which may offend some readers.

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Scientific summary

The RICO qualitative and quantitative study

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Scientific summary

Background

NHS Health Check is a national programme with a focus on cardiovascular disease prevention in those aged 40–74 years in England. Consultations are usually delivered in primary care by a health-care assistant or practice nurse. They involve assessing the patient's cardiovascular disease risk, communicating this to them and making recommendations for risk management. At present, there is a lack of evidence on how health checks are conducted, the nature and adequacy of cardiovascular disease risk communication to foster risk-reducing intentions or behaviour, and the potential benefit of using different cardiovascular disease risk calculators.

Aim

The overarching aim of the RIsk COmmunication in Health Check (RICO) study was to explore practitioner and patient perceptions and understanding of cardiovascular disease risk, the associated advice or treatment offered, and the response of the patients who attend a health check conducted using either the QRISK®2 10-year risk calculator or the JBS3 lifetime risk calculator.

Methods

RICO was a qualitative study with quantitative process evaluation in 12 general practices in the West Midlands of England. Six practice pairs, which were approximately matched on level of deprivation, were randomly assigned to one of two groups: the QRISK2 (usual practice) group, in which practitioners delivered the health check using QRISK2, which presents cardiovascular disease risk as a percentage risk of a cardiac event in the next 10 years; or the JBS3 (intervention) group, in which practitioners delivered the health check using the JBS3 cardiovascular disease risk calculator, using heart age, event-free survival age and risk score manipulation (to demonstrate the risk-reducing effects of intervention). The study comprised several components:

- Video-recorded health check consultations. Each practice was asked to video-record 20 health checks conducted using the allocated cardiovascular disease risk calculator (the number of health checks actually recorded by practices ranged from 3 to 29 checks). Patient recruitment was stratified by age, sex and ethnicity. Video-recordings were quantitatively coded (second by second) to explore content and the relative contributions of practitioner and patient. Transcripts from a subsample of health checks ($n = 128$, 64 in each group) were subject to deductive thematic analysis, using a framework adapted from protection motivation theory.
- Video-stimulated recall interviews. Video-stimulated recall interviews were undertaken with a subsample of 40 patients (within 2 weeks of their health check) and all 15 practitioners (after completing all video-recorded health checks). Video-stimulated recall interviews used excerpts from recorded health checks to facilitate recall and reflection. Interviews were audio-recorded, transcribed and analysed using inductive thematic analysis.
- Medical record reviews. Data were extracted from all patients' medical records ($n = 173$), 12 weeks post health check, to identify resulting activities, prescriptions or diagnoses.
- Case studies. Within-case analysis was completed for 10 patients who expressed positive intentions and/or implemented behaviours to reduce cardiovascular disease risk following the health check.

Results

Sample

A total of 173 video-recorded health checks were included in the analysis (QRISK2, $n = 73$; JBS3, $n = 100$). The sample comprised approximately equal proportions of male (49.7%) and female (50.3%) participants, and was 83% white British. The average age was 58.2 ± 9.7 years and 60% of the sample classified as low risk (10-year risk < 10%). Practitioners were health-care assistants ($n = 9$) or practice nurses ($n = 6$), who had varying experience of delivering health checks (mean 4.7 ± 2.4 years) and had received either no formal health check training or training focused on processes (rather than risk communication or behaviour change).

Quantitative analysis of health checks and medical record review

The duration of the health check ranged from 6.8 to 38.0 minutes. Most health checks (60%) lasted < 20 minutes. On average, cardiovascular disease risk was discussed for < 2 minutes (9.1% ± 4.3% of consultation time). There were indications that, compared with health checks using QRISK2, those health checks that used JBS3 involved more cardiovascular disease risk discussion (JBS3, mean 10.24%, 95% confidence interval 8.01% to 12.48% of consultation time; QRISK2, mean 7.44%, 95% confidence interval 5.29% to 9.58% of consultation time) and were less practitioner dominated (as determined by the ratio of practitioner talking time to patient talking time: JBS3, mean 2.35, 95% confidence interval 1.89 to 2.81, vs. QRISK2, mean 3.21, 95% confidence interval 2.44 to 3.97). The largest proportion of health check time was spent discussing causal risk factors (overall mean 37.54%, 95% confidence interval 32.92% to 42.17%; JBS3 mean 35.33%, 95% confidence interval 27.76% to 42.90%, vs. QRISK2 mean 40.58%, 95% confidence interval 36.20% to 44.96%). At 12 weeks post health check, relevant activity was recorded in 30.1% (JBS3, 31.0%; QRISK2, 28.8%) of patients' medical records, most commonly related to blood pressure measurement/discussion, and 8.7% (JBS3, 6.0%; QRISK2, 12.3%) of patients had been prescribed medication. Among the 173 patients, there were 10 new diagnoses (i.e. three pre-diabetes, three diabetes, two hypertension and two hyperlipidaemia).

Deductive thematic analysis of health check (using adapted protection motivation theory)

When applying the protection motivation theory to analyse cardiovascular disease risk communication in recorded health checks, we found that cognitive appraisal (threat appraisal and coping appraisal) and coping modes (adaptive and maladaptive) were most relevant. Again, there was little evidence of cardiovascular disease risk communication, particularly in consultations using QRISK2. Practitioners in both groups often missed opportunities to check patient understanding and encourage risk-reducing behaviour, confirming practitioner verbal dominance. JBS3 appeared better for initiating risk factor discussion. Heart age and visual representation of risk were more easily understood and had a greater impact on patients than 10-year risk (QRISK2). However, a lack of effective cardiovascular disease risk discussion in both risk calculator groups increased the likelihood of a maladaptive coping response (i.e. no risk-reducing behaviour change).

Video-stimulated recall interviews with patients

Inductive thematic analysis of data from video-stimulated recall interviews with patients (QRISK2, $n = 19$; JBS3, $n = 21$) identified four main themes:

1. Relieved about cardiovascular disease risk: misplaced assurance was observed in some patients who did not understand their CVD risk and, therefore, did not recognise its severity or their vulnerability to it.
2. Mixed levels of understanding: patients often did not understand cardiovascular disease risk information, particularly 10-year risk, and had a preference for heart age.
3. Positive impact of health check: attending a health check appeared to have a positive impact on many patients by increasing their awareness of the benefits of relatively small lifestyle changes. Heart age appeared to be the most impactful risk score, allowing appraisal of risk.
4. Importance of presentation style and content: patients in both groups struggled to absorb and retain the volume of information.

Visual presentation and risk score manipulation with JBS3 appeared to foster patient understanding of risk and motivated patients to follow recommendations more than 10-year risk did.

Video-stimulated recall interviews with practitioners

The inductive thematic analysis resulted in three main themes:

1. Communicating cardiovascular disease risk: 10-year risk was considered useful for clinical decision-making, but not for facilitating cardiovascular disease risk discussion, and practitioners lacked confidence in explaining the score. Heart age was favoured as it was easier to explain and well received by patients. Event-free survival age was misinterpreted.
2. Understanding of cardiovascular disease risk: practitioners acknowledged gaps in their understanding of 10-year risk beyond the use of low-, medium- and high-risk thresholds. Practitioners relied on patient reactions to information to gauge their understanding, rather than asking patients.
3. Risk management: lifestyle advice was most prominent, sometimes with written information. Referrals to support services were less frequent (e.g. exercise referral).

Case studies

Within-case analysis identified confirmatory and additional themes. When patients were already motivated to, or had already started to, implement lifestyle changes, health checks had positive outcomes regardless of how cardiovascular disease risk was communicated. Patients had already appraised a perceived risk (often a specific risk factor or behaviour) and identified specific and relevant action (e.g. omitting certain foods or reducing alcohol). Case studies confirmed that relying on the minimal patient responses to gauge understanding (rather than asking patients) could lead to incorrect assumptions of patient understanding. Some limitations of the consultation could be addressed through telephone reinforcement.

Conclusions

Communication of cardiovascular disease risk during health checks was brief, particularly in consultations using QRISK2. Patients' understanding of, and responses to, cardiovascular disease risk information were limited. Practitioners missed opportunities to check patient understanding that could allow an appraisal of risk, which, in turn, could encourage risk-reducing intentions or behaviour. The use of JBS3 appeared to provide more opportunity for the practitioner to initiate discussion of risk factors and their management; in particular, the concept of heart age and the visual representation of risk included in JBS3 were more easily understood by patients, and more impactful, than that for QRISK2. The apparent lack of effective cardiovascular disease risk discussion in both groups resulted in misunderstandings, practitioner-dominated discussion and an increased likelihood of a maladaptive coping response. Our data have highlighted a need for practitioner training and a move towards a more tailored and patient-centred health check consultation, in which discussion of the concept heart age and risk score manipulation could improve communication of cardiovascular disease risk.

Trial registration

This trial is registered as ISRCTN10443908.

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This report

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