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Identifying people with type 2 diabetes and those at risk: Lessons from the Measure Your Waist (MY-WAIST) mixed-methods study in UK primary care

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ABSTRACT

Aims: This paper focuses mainly on explanations and lessons from a research-based programme for identifying undiagnosed type 2 diabetes and high risk. In addition to outlining key quantitative findings, we specifically aim to explore reasons for low uptake from the perspective of primary care staff involved.

Methods: The MY-WAIST study was conducted in UK primary care and included the use of oral glucose tolerance tests (OGTTs) and waist measurement. Qualitative data from interviews with healthcare providers and records of meetings were analysed thematically.

Results: The key quantitative finding was low uptake of the assessments offered (8.6% overall, 2.6% in inner-city locations with high South Asian residency). In addition to confirming patient-reported barriers including those associated with OGTTs, qualitative findings highlighted a number of primary care provider barriers, including limited staff capacity. Interviewees suggested that those who attended were typically the 'worried well' rather than those from hard-to-reach groups.

Conclusions: Implications discussed include the impact of low uptake on the usefulness of the quantitative data obtained, and lessons relevant to research design. Relevance to current guidance regarding early identification strategies is discussed and the importance of addressing the needs of less accessible groups is highlighted.

1. Introduction

It is estimated that around 552 million people worldwide will be diagnosed with diabetes by 2030 [1]; the majority of these people will have type 2 diabetes mellitus (T2DM). Early intervention can prevent or delay the development of T2DM; programmes involving identification of both T2DM and those at high risk of developing this condition, with appropriate intervention for people identified with high risk, are

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particularly effective in terms of patient outcomes [2] and cost [3]. Confirmation of diagnosis of T2DM or impaired glucose regulation (IGR) involves measuring blood glucose levels, but there are some additional strategies for initially estimating risk. These include self-assessment measures, such as risk-score questionnaires [4] and waist circumference measurement [5,6] which can be helpful for identifying those people for whom diagnostic tests would be most valuable.

Many countries are implementing programmes for identifying people with, or at high risk of, T2DM, including the NHS Health Checks programme in the UK, delivered through primary care providers [7]. The Measure Your Waist (MY-WAIST) study was conducted in a primary care setting in Leicestershire, UK, which has an ethnically diverse population including high numbers of people of South Asian origin, particularly within the city of Leicester. The study was initiated prior to the start of the Health Checks programme and included formal evaluation of a specific early identification strategy, using both quantitative and qualitative methods.

Recruitment of patients for the MY-WAIST intervention was unexpectedly low and was affected by difficulties with engaging and sustaining interest from primary care centres and by low uptake by patients. Reasons for low uptake have been previously reported, from the perspective of patients [8]. These findings suggested that patients' decisions about whether to accept the assessments offered were influenced by their beliefs regarding likelihood of developing T2DM ('candidacy' [9]). Early identification of T2DM was also considered to be less necessary than for some other conditions such as cancers, and the oral glucose tolerance test (OGGT) emerged as an important perceived barrier. The current paper has the following objectives: firstly, to describe the quantitative findings from this study and highlight limitations of the data obtained, due to low uptake; secondly, to explore the ways in which qualitative data collected from primary care staff build on the previously reported patient data in terms of explaining low uptake; thirdly, to consider the implications of our findings.

2. Methods

2.1. Procedures

The MY-WAIST study received ethical committee (LNR REC: 07/H0402/66) and local approvals and has been previously described [8]. Briefly, assessments were offered by 11 participating general practices (primary care centres) located either within the city of Leicester or outside the city in the county of Leicestershire, UK. Patients aged 40–70 years (30–70 years for those of South-Asian and African-Caribbean origin) were eligible. There was no pre-selection on the basis of potential risk factors apart from age, but people with a recorded diagnosis of diabetes or coronary heart disease were excluded. The study aimed to recruit 1000 individuals; practices were offered up to £40 (approximately 48 Euros) per patient who attended, to cover the cost of the appointment. Mailed invitations included a risk score questionnaire, and a specific request for patients to measure their waist using the instructions provided. In a nested randomised controlled trial (RCT), patients invited by eight of the 11 participating practices were randomised to receive/not receive a tape measure with their study invitation, in order to investigate the potential impact of this simple intervention on uptake. Patient participants attended an appointment at their own general practice between September 2008 and April 2010; this visit lasted approximately 2.5 h and included an OGTT and measurement of weight, height and blood pressure. To investigate the correlation between self-assessed and healthcare provider-assessed waist size, waist circumference was re-measured by a healthcare provider during the appointment. Participants were also asked to complete a set of study questionnaires, comprising the Dietary Intervention for Nutrition Education (DINE) questionnaire [10]; the International Physical Activity Questionnaire (IPAQ) [11]; the Hospital Anxiety and Depression Scale (HADS) [12]; and a study-specific questionnaire including demographic details and information about lifestyle and medical and family history.

2.2. Quantitative analysis

The proportion of those who participated from those invited was determined to assess overall uptake. For ethical reasons, we were unable to collect data for non-responders, so it was not possible to compare this group with responders at detailed, individual patient level, but we compared patients from county practices (more affluent) with those from inner-city practices (more deprived, with high numbers of South Asians). For general practices included in the nested RCT, the proportion of those invited who attended was compared for people who did or did not receive a tape measure. For these comparisons, the statistical significance of differences between proportions was assessed by calculating continuity corrected p-values from chi-squared tests, and also 95% confidence intervals (CIs). Yield (those identified as having undiagnosed IGR, including T2DM), was determined by calculating the proportion of those tested who were found to be in this combined category. The study had aimed to investigate different strategies for risk assessment, including waist measurement and a paper-based risk score questionnaire. We had also planned to compare self-assessed waist size with assessment by a healthcare provider and to explore additional potential predictors of having undiagnosed IGR, including lifestyle habits (from DINE and IPAQ questionnaire data), symptoms of depression (from HADS), body size measurements, and demographic information. These analyses were, however, considered to be of little value due to the limited dataset resulting from low recruitment.

2.3. Qualitative analysis

Ten semi-structured qualitative interviews were conducted with a purposive sample of healthcare providers with a range of work roles (doctor, nurse, healthcare assistant), from a range of participating practices in county and inner-city locations. The interviews were conducted by a non-clinical researcher and were facilitated using a flexible topic guide. Areas for discussion included views about early identification and screening in general and specifically in diabetes, and the MY-WAIST assessment process (including the use of OGTTs); reflections on patients' reactions to the study invitation;