

Self-assessment of cardiovascular risk: Public use of the JBS3 derived online heart age tool

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INTRODUCTION

- NHS England's Health Check Programme was developed to address the ongoing burden of cardiovascular disease (CVD) and enhance prevention efforts
- Criticisms of the program include use of a 10 year algorithm to convey risk, especially among females and young people
- The JBS3 tool was developed to enhance risk communication using lifetime risk assessment metrics
- A modified version of the JBS3 "heart age" tool was introduced online to broaden access to personalised risk assessment to the general population and encourage participation in the NHS Health Check Programme

OBJECTIVES

To assess the uptake of the tool and report on the characteristics of individuals who chose to assess their own CVD risk online

METHODS

Data generated through user interaction with the NHS Choices website page that is hosting the Heart Age tool is continuously captured and stored in an analytics database.

Population

- All users from 11th February to 25th April 2016
- Descriptive analysis limited to those who completed the user journey yielding a valid "heart age"
- By using the tool, users consented to providing data items online and use of their data in an anonymized fashion
- No other personal identifiable data including IP address were requested or captured

Data sources

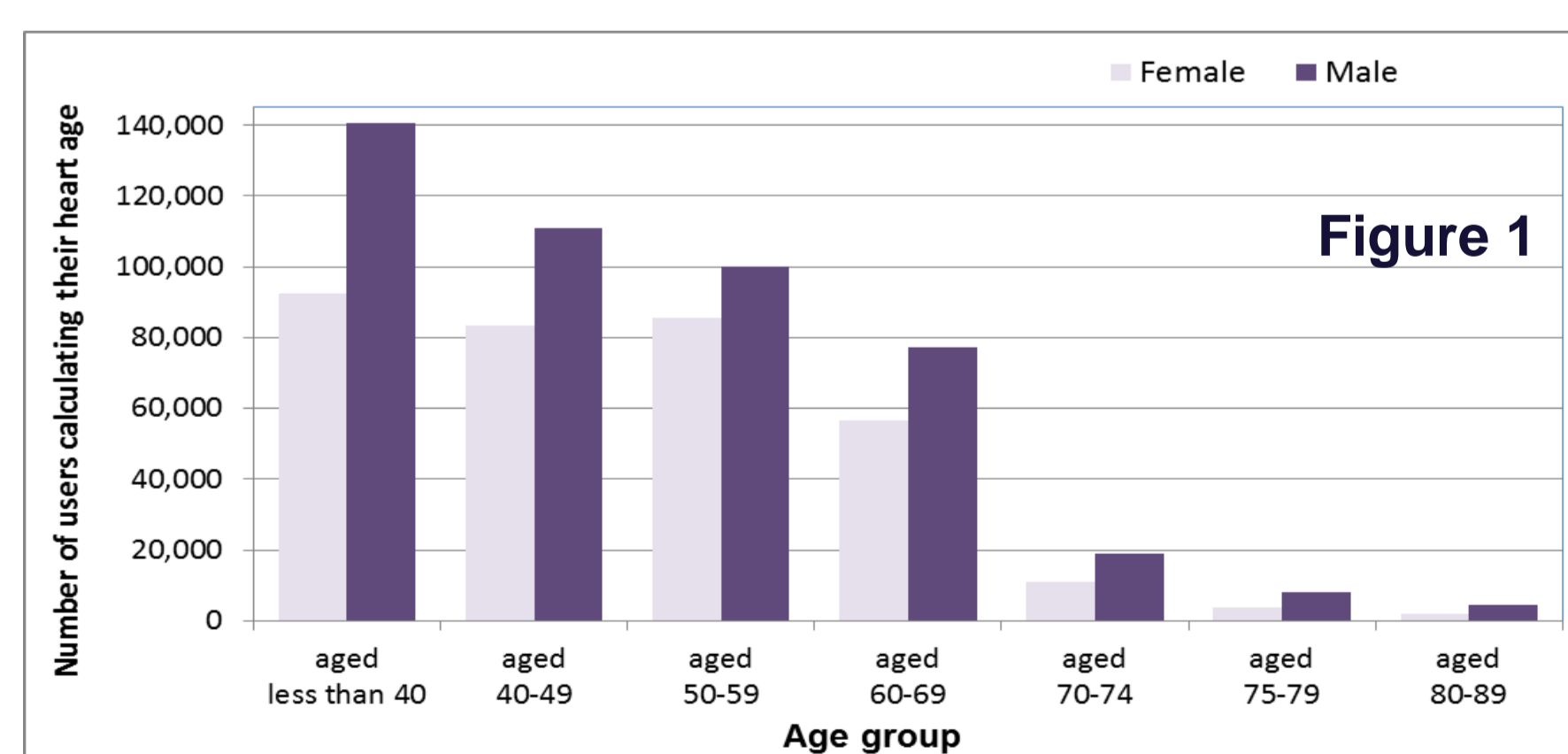
- The JBS3 calculator estimates a "heart age", through multivariable modelling, based on the QRISK® Lifetime system of scoring for risk of CVD - referenced to someone of the same age, gender, ethnicity with optimal risk factors.
- Public Health England, British Heart Foundation and Joint British Societies developed a new public facing 'My Heart Age' digital tool, based on the JBS3 (Joint British Societies for the prevention of CVD) risk calculator.
- This modified Heart Age tool, hosted on the NHS choices website, was launched on 11th February 2015 to complement the NHS Health Check programme
- At the end, individuals were signposted to personalised behavioural and physiological advice and support, such as Couch to 5K and the NHS Health Check programme, to further engage the public in taking action to address key risk factors

1. How many people accessed the Heart Age tool?

- In 14 months, the JBS3 Heart Age tool landing page was accessed 1,931,865 times
- Nearly 800,000 completed data journeys
- Majority of dropouts (n=503,719) at the front page ("splash" screen) with a steady attrition rate at each subsequent page (Table 1)
- Marked increases in viewings and completion on days when there was national media coverage

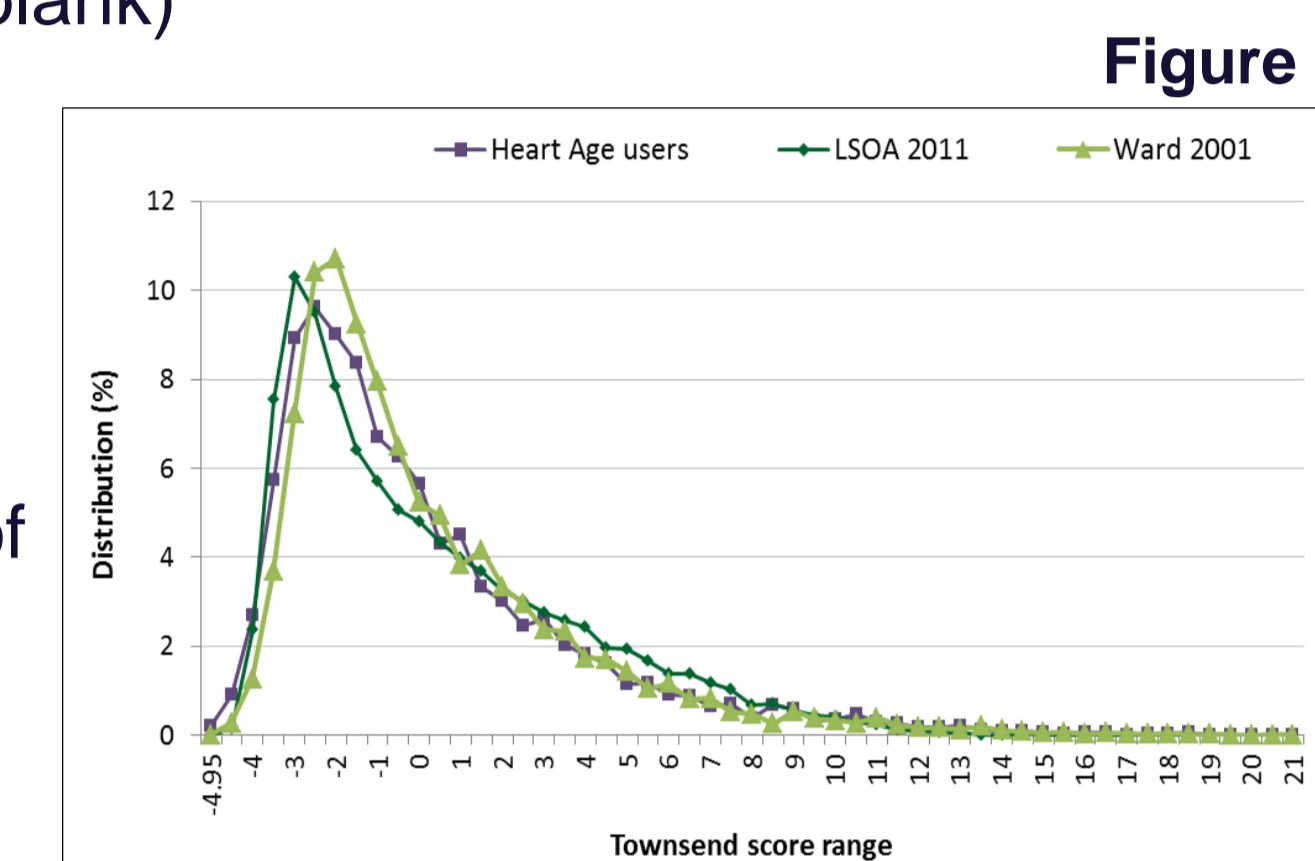
| Stage in Journey | User Starting N | User Dropout N | Screenshots |
|---|-----------------|----------------|-------------|
| Page 0 Reach Heart age tool website | 1,931,865 | 503,719 | |
| Page 1 Enter demographics, ask for prior CVD** | 1,428,146 | 242,991 | |
| Page 2 Smoking status, height & weight | 1,185,155 | 78,732 | |
| Page 3 Cholesterol and blood pressure | 1,106,423 | 155,764 | |
| Page 4 Medical conditions | 950,659 | 155,391 | |
| Page 5 Result | 795,268 | - | |

2. Who are the users of the Heart Age tool?



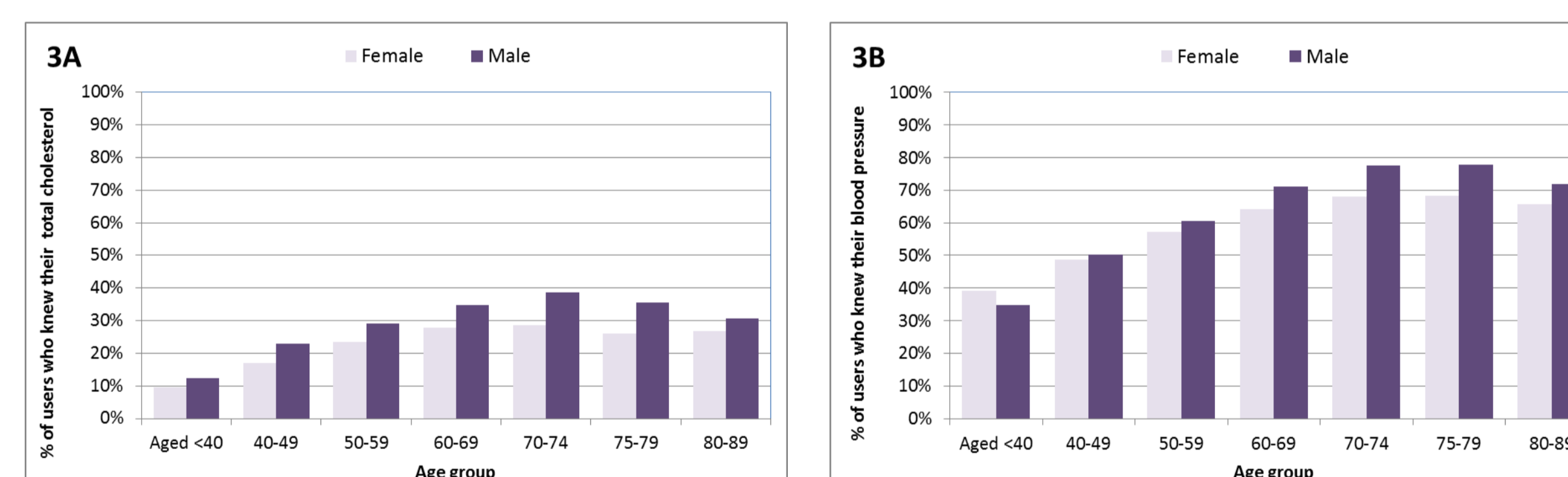
RESULTS

- Age:** Most people were aged 30 to 60 with only 2% being >75 years. Almost 1/3 were <40 years. The remaining 2/3 were 40-74 years (target age for the NHS Health Checks)
- Gender:** Overall 57.9% of risk estimates were for male participants (of those completing) (Figure 1)
- Ethnicity:** The majority (87.6%) of users self-reported ethnicity as white (the default option if left blank)
- Postcode:** 44.4% entered a valid English postcode from which a Townsend score for deprivation could be estimated – showed excellent coverage of the full deprivation scale with the distribution matching with Census data. (Figure 2)



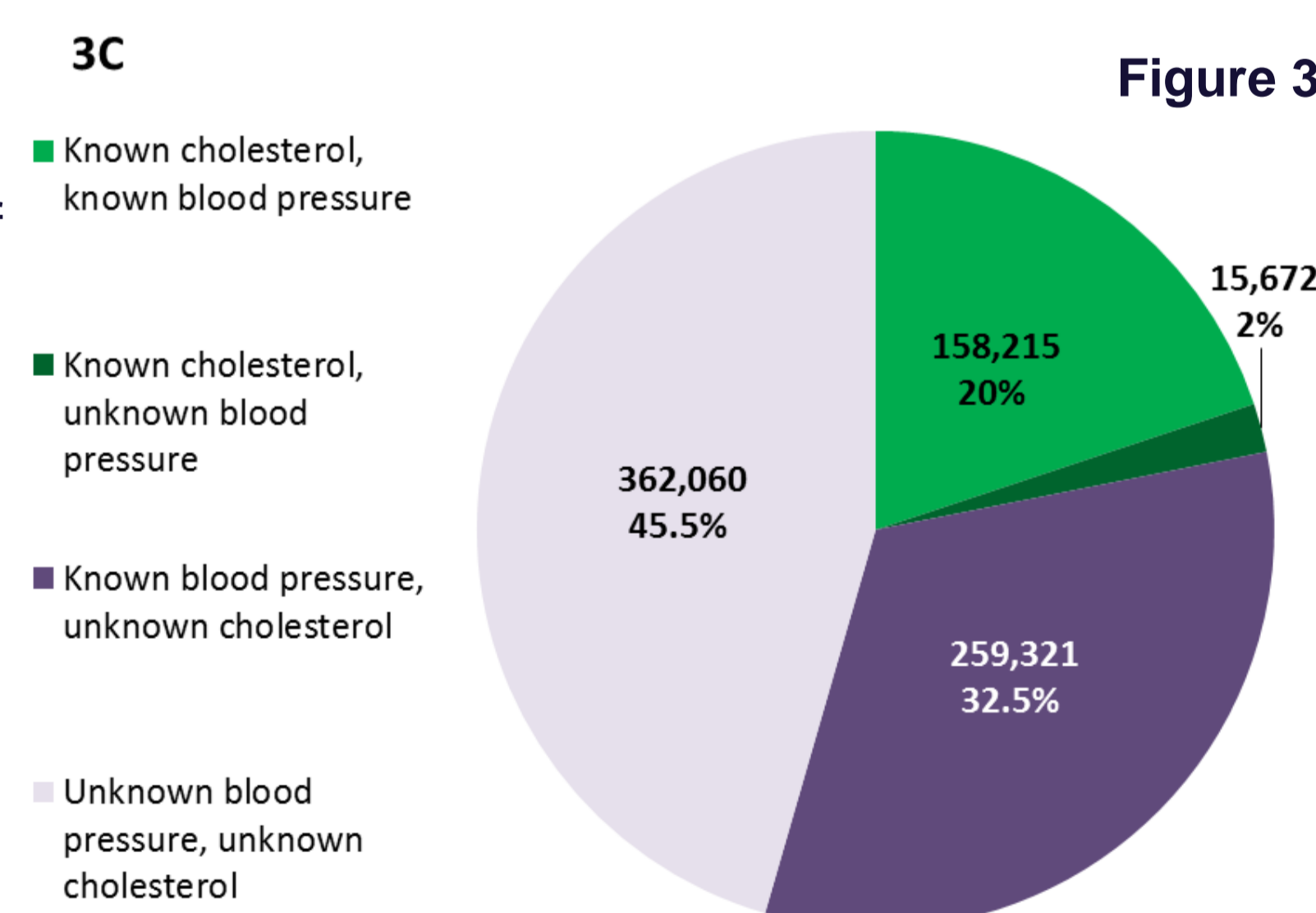
3. Do Heart Age tool users 'know their numbers'?

Users were asked if they knew their cholesterol and blood pressure (BP) values. Where they answered no, national averages were applied in the calculation of their heart age and the user was informed that their risk estimate might not be accurate.



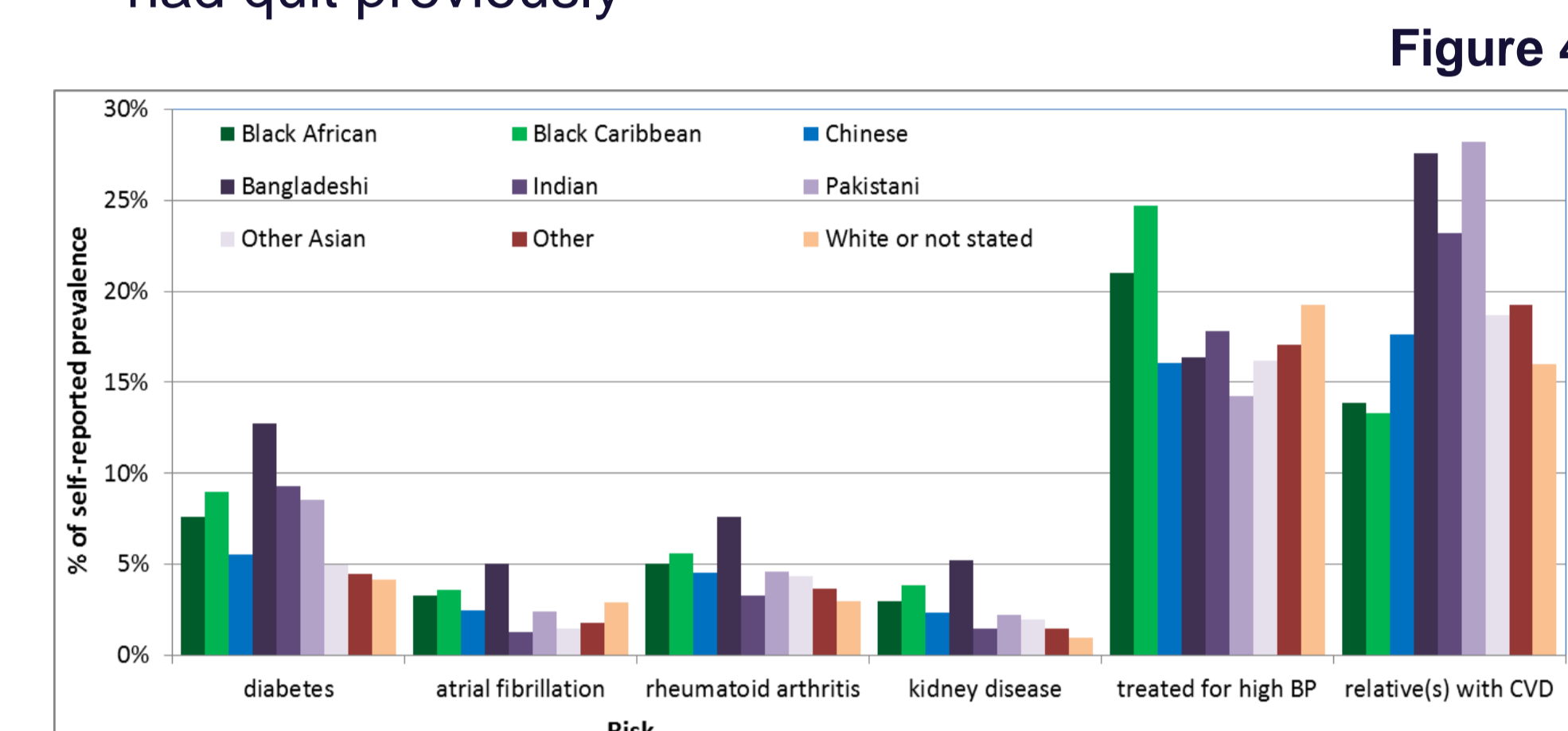
Over ¾ did not know their cholesterol numbers (3A) while half of all users (47.5%) did not report knowing their systolic BP (3B)

In combination, just under half of users (45.5%) did not know either value whereas 20% knew both values (3C)



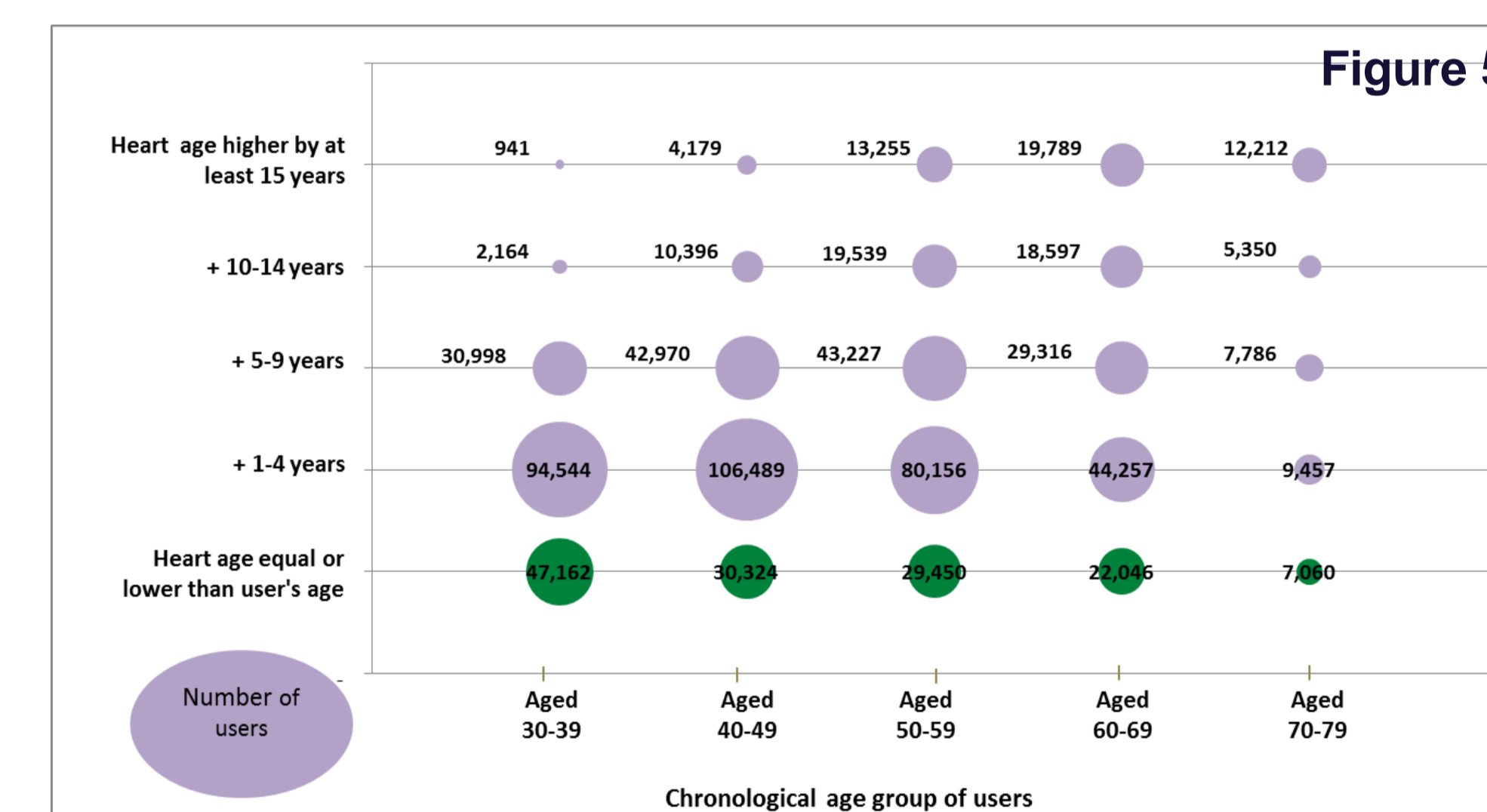
4. What CVD risks factors were reported by users?

- BMI** – Mean 26.8 (5.8) kg/m²; 26.2% were obese; Distribution almost identical to UK census data
- Total Cholesterol** – Mean 5.0 (1.3) mmol/L: 43% reported value >5mmol/L
- Blood Pressure** – Mean 121.4 (20.7) mmHg; 21% reported a value >140mmHg or treated for high BP
- Smoking** - 14.4% were current smokers while 5.3% had quit previously



Ethnic differences: Important trends towards ethnic differences were apparent in the distribution of CVD risk factors and medical conditions (Figure 4)

Heart age: 81% had a calculated heart age older than their chronological age, while only 8.4% were younger. 87% of males <40 years had a predicated heart age > than their chronological age, compared to 41% of women, despite low traditional 10 year risk estimates. (Figure 5)



NEXT STEPS

- My Heart Age v2.0 to address limitations of current tool
- Opportunity to demonstrate benefit to users - such as improvement in heart age by quitting smoking
- Aim to capture data on motivation for use, geographical location of users, and encourage and track further online activity accessing suggested resources

ACKNOWLEDGEMENTS

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CONCLUSIONS

- The online heart age tool hosted by NHS Choices generated a high level of interest among the public for self-assessment of CVD risk
- Many users did not know their numbers. NHS Health Check provides an opportunity to address this knowledge gap
- The demographic reached is different to those presenting to GPs for health consultations while also having a high burden of untreated CVD risk

DISCLOSURES:
No Conflicts of Interest



www.nhs.uk/myheartage
www.jbs3risk.com

