Exploring non-attendance at colonoscopy among socioeconomically deprived and ethnically diverse populations taking part in FIT-based CRC screening

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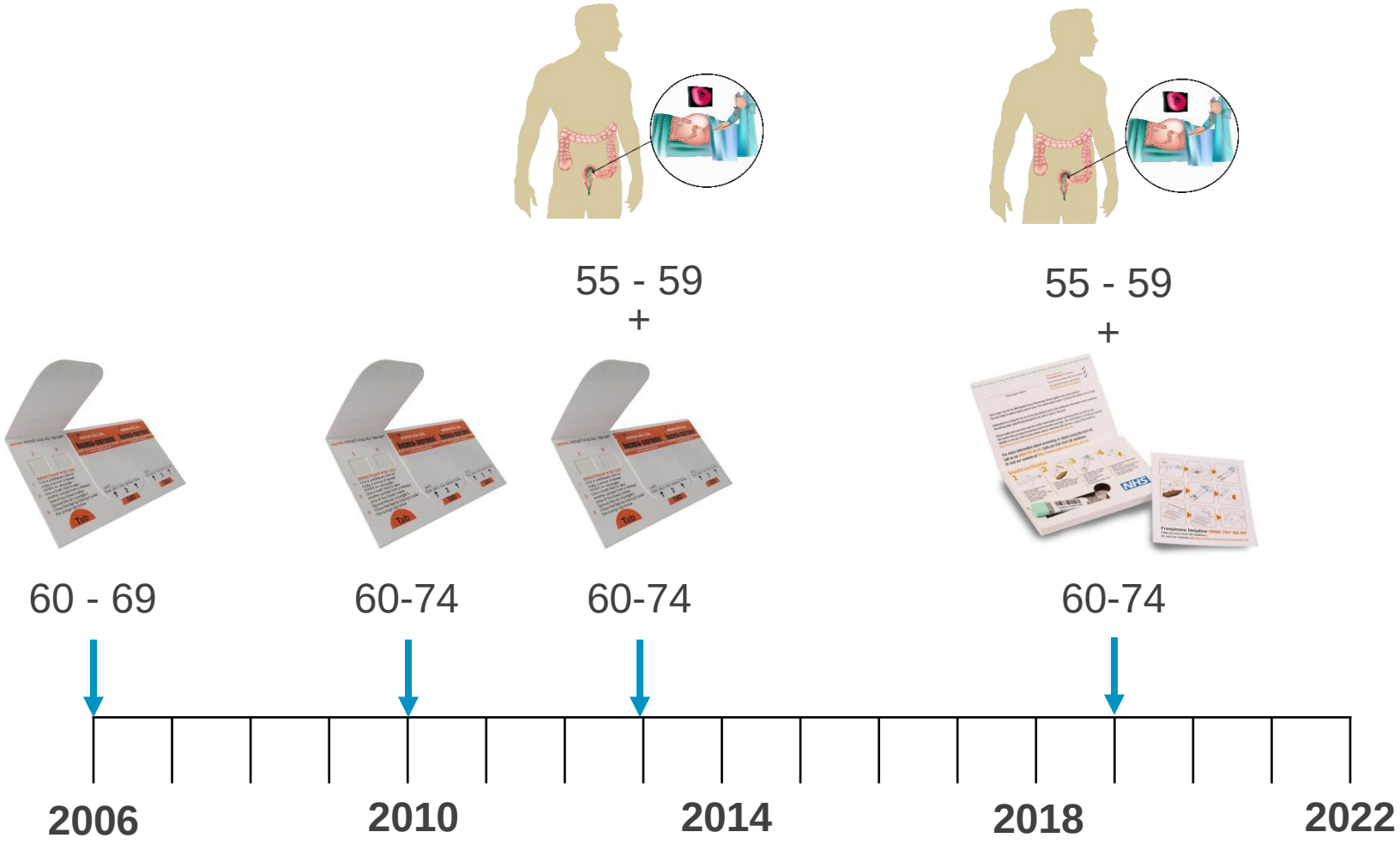
The English BCSP: a brief history



The English BCSP: Switching to FIT

- Uptake ↑↑↑ (6 - 9%)
- Positivity ↑↑↑ (~1%)
- Acceptable kit rate ↑↑↑ (~98.4% → 99.6%)
- One thing which has not changed, is the diagnostic procedure rate (~80%)

Source: Northern Bowel Cancer Screening Hub

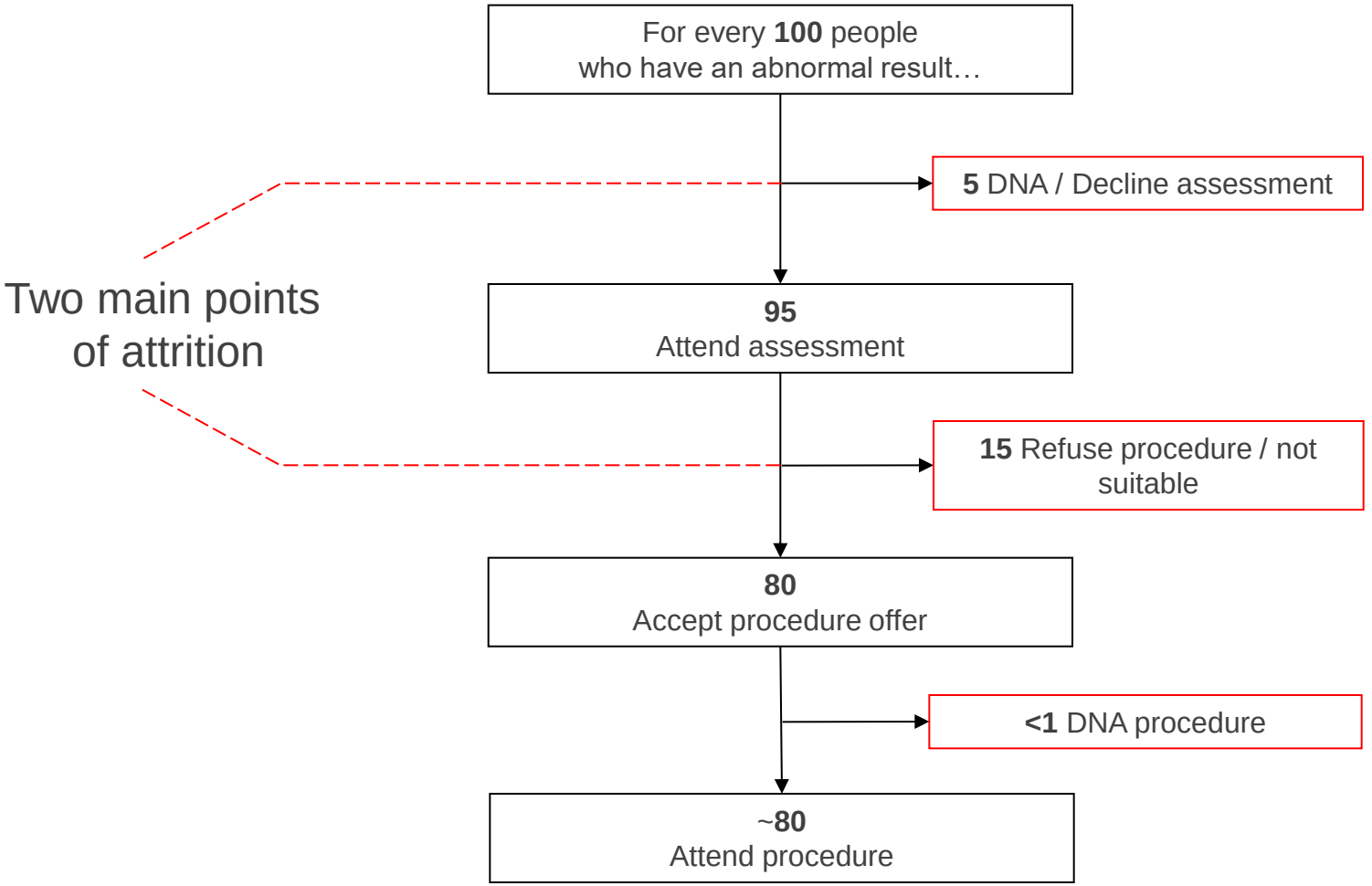
Why is this important?

- **1 in 10** with an abnormal result will have CRC
- CRC is only diagnosed if individuals attend a ‘diagnostic procedure’ (**DP**)
- Individuals who do not attend a diagnostic procedure tend to get diagnosed at a later stage and have poorer outcomes (Beshara et al., 2019; Kaalby et al., 2019)

What do we currently know?

- Studies have predominantly been epidemiological
- Of 38 identified in a recent review (Dalton et al., 2017), only one was conducted in England (Morris et al., 2012)
- In that study, DP rates were:
  - ↓↓↓ More socioeconomically deprived areas
  - ↓↓↓ More ethnically diverse areas

What else do we know?



Source: Median values Manchester screening centres in 2018 – Data provided by Public Health England

A space for behavioural science

- While epidemiological studies can tell us *who* is less likely to attend a DP and *when* and *where* they drop-out of the pathway, behavioural science can tell us *why* some individuals do not attend a DP
- Why is this important?
- By understanding *why* some individuals do not attend a DP, we can begin to understand *how* best to intervene

The Behaviour Change Wheel

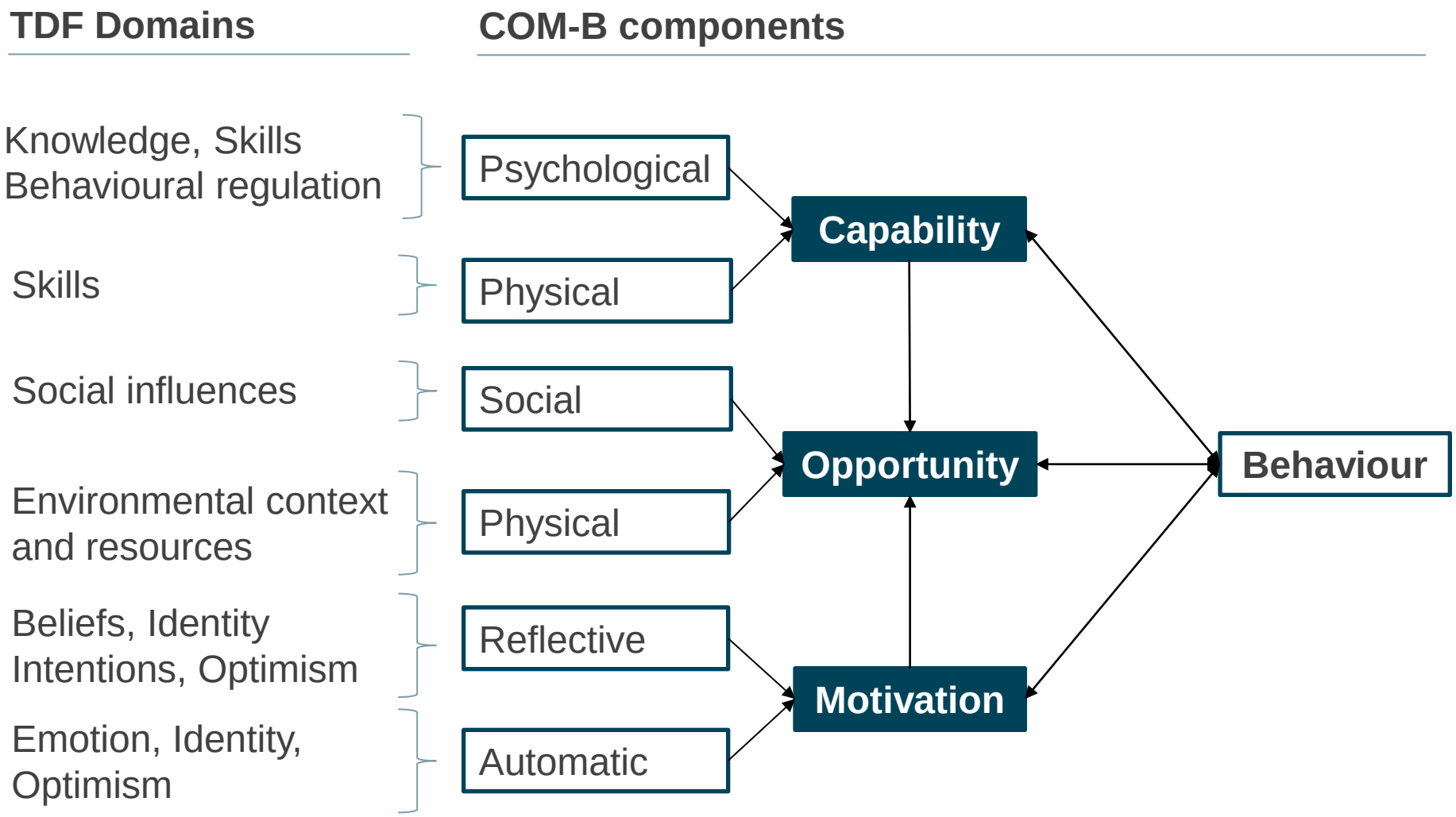
- One popular approach to developing behavioural interventions is the Behaviour Change Wheel (Michie et al., 2011; citations: **2,964**)

- The BCW is a *systematic* approach to developing interventions (as opposed to *ISLAGIATT*), which begins with a 'behavioural diagnosis' and terminates with a theory-based intervention

How does the BCW enable a 'behavioural diagnosis' to be achieved?

- Encourages researchers to frame the problem in terms of: 'who', 'what', 'where', 'how' and 'when'
- Provides a series of worksheets that help researchers achieve this
- Places the 'COM-B' model and 'TDF' at the centre of the behavioural diagnosis

COM-B and TDF


TDF Domains
COM-B components
Knowledge, Skills
Behavioural regulation
Skills
Social influences
Environmental context
and resources
Beliefs, Identity
Intentions, Optimism
Emotion, Identity,
Optimism
Psychological
Physical
Social
Physical
Reflective
Automatic
Capability
Opportunity
Motivation
Behaviour

After the behavioural diagnosis

- After understanding *what* needs to be targeted (i.e. in COM-B and TDF terms) in *whom*, *when* and *where*, a matrix can be used to advise *how* to manipulate behavioural targets

Selecting relevant interventions / BCTs

Table 1. Intervention function matrix

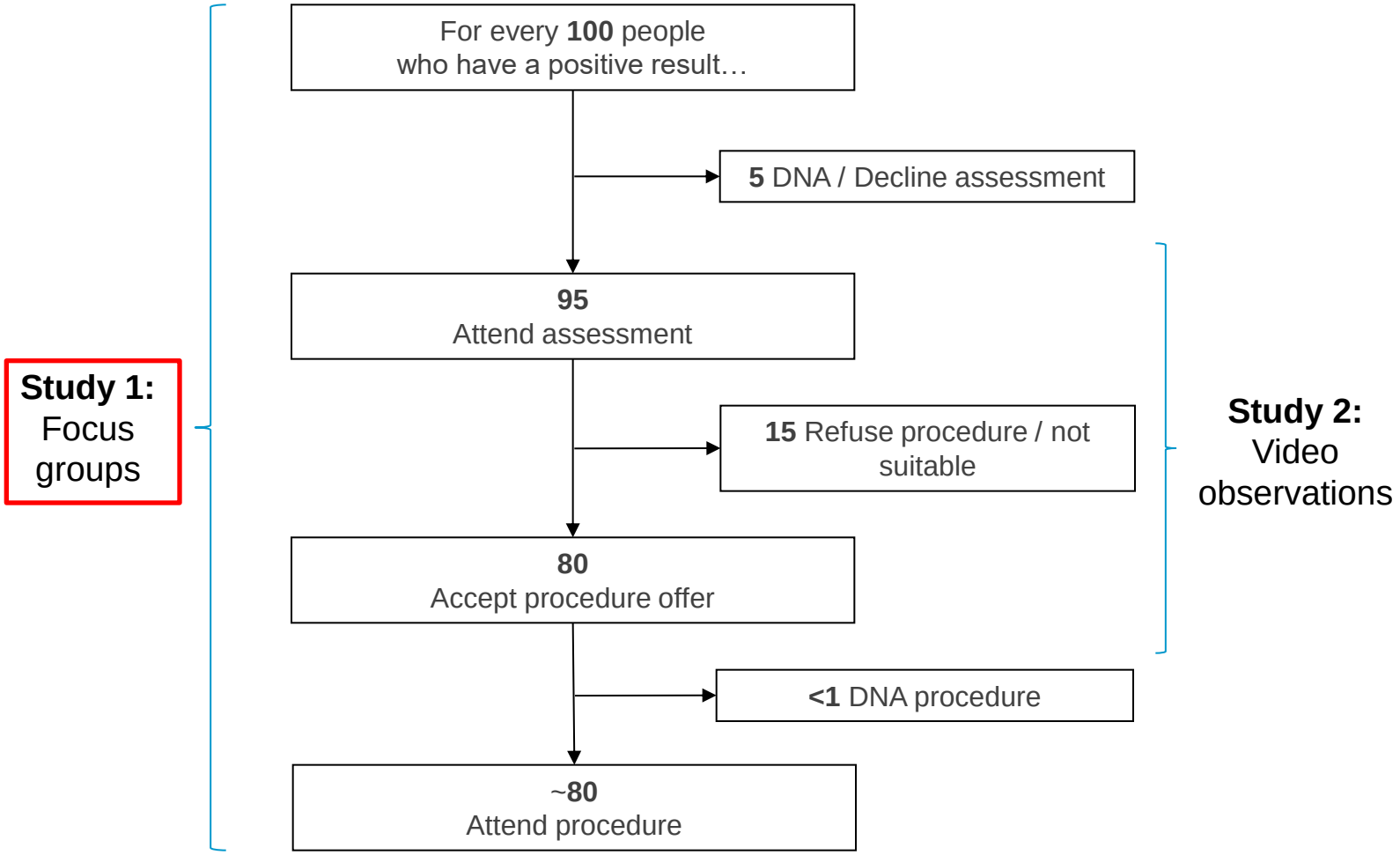
	Education	Persuasion	Incentivisation	Coercion	Training	Environmental restructuring
Physical capability					✓	
Psychological capability						
Physical opportunity						
Social opportunity						
Automatic motivation						
Reflective motivation						

Objectives

1. Explore non-attendance at assessment and DP among low uptake groups

2. Test the effectiveness of interventions to address individual targets in online experiments, prior to formal development and testing in a pragmatic RCT

Overview


For every **100** people who have a positive result…
5 DNA / Decline assessment
95 Attend assessment
15 Refuse procedure / not suitable
80 Accept procedure offer
<1 DNA procedure
~80 Attend procedure
Study 1: Focus groups
Study 2: Video observations

Study 1: Focus groups

Study 1: Focus groups

Objectives

1. Identify modifiable factors that are potentially important for attendance at assessment and DP

2. Map factors onto the TDF and COM-B

Study 1: Focus groups

Design

- Homogenous focus groups with White British, South Asian and Southern European and Eastern European men and women who:
  - Are eligible for FIT
  - Have previously completed FIT
  - Not had a +ive FIT result

Study 1: Focus groups

Why these ethnic minority groups?

- Recoding the data used by Morris et al in their 2012 paper, we found these ethnic groups specifically had lower attendance

Why include White British?

- By conducting focus groups with White British adults, it will be possible to disentangle ‘culturally-specific barriers’ from ‘general barriers’

Study 1: Focus groups

Table 2. Planned focus groups

Ethnicity		Gender		
		Male	Female	Total Focus
South Asian	Bangladeshi	1	1	2
	Indian	1	1	2
	Pakistani	1	1	2
Southern and Eastern European	Polish	1	1	2
	Portuguese and Spanish	1	1	2
White British	British	2	2	4
Total		7	7	14

Study 1: Focus groups

Table 3. Target areas

Ethnic subgroup	Region	Colonoscopy Attendance	Age-standardised CRC mortality compared with England
South Asian	Birmingham	61.3%	Worse
	Coventry	57.9%	Similar
Eastern and Southern European	Waltham Forest	73.7%	Worse
	Haringey	74.3%	Similar
White British	Halton	75.0%	Similar
	Hull	75.4%	Worse

Study 1: Focus groups

Recruitment

- Participants will be recruited by community centres located within target areas

Procedure

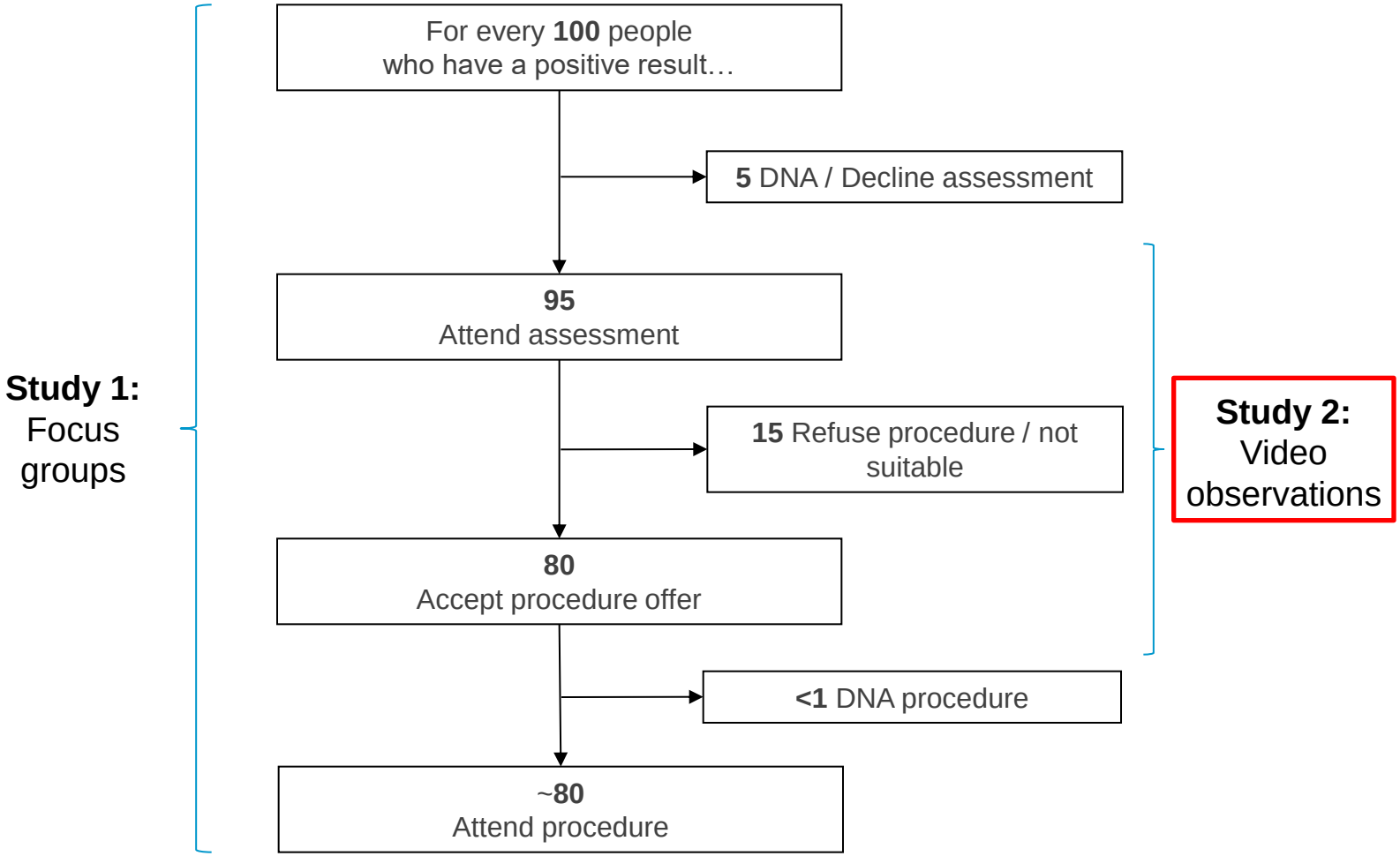
- Focus groups will be conducted in the first language spoken by participants (where required), by bilingual Bowel Cancer Screening staff

Study 1: Focus groups

Analysis

- Audio recordings will be translated and transcribed verbatim
- Transcripts will then be analysed using thematic analysis
- Themes will subsequently be mapped onto the TDF and ‘plugged into’ the BCW to identify possible interventions

Overview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Study 1: Focus groups
Study 2: Video observations

Study 2: Video observations

Study 2: Video observations

Objectives

1.Examine how verbal and non-verbal communication between SSPs and patients varies between centres with the highest (91%) and lowest (68%) attendance at DP.

2.Capture reasons for declining DP offer

3.Map factors onto the TDF and COM-B

Study 2: Video observations

Participants

- Participants will be SSPs who conduct the assessment and the patients who are being assessed

Recruitment

- Screening centres that meet the eligibility criteria will be approached by the research team.
- Patients attending the appointment will be consented by the practitioner performing the assessment

Study 2: Video observations

Procedure

- Two cameras will be placed in the room, one focussing on the patient and another on the practitioner

Analysis

- Verbal data from the video recordings will be translated and transcribed verbatim

Study 2: Video observations

Analysis (ii)

- Transcripts will be supplemented with non-verbal data, using previous literature on non-verbal communication to develop a coding framework for this

- Where possible, themes will be mapped onto the TDF and COM-B and ‘plugged into’ the BCW

Study 3: Online experiments

Study 3: Online experiments

Objectives:

1.Test the effectiveness of candidate interventions BCTs to modify psychological targets

Study 3: Online experiments

Design:

- Two arm, randomised (controlled), online experiments

Participants

- Men and women
- Completed FIT, but not had an abnormal result
- Report they would not go to colonoscopy if abnormal

Study 3: Online experiments

Recruitment:

- Participants will be recruited through *Ethnos*, an online research company that specialises in in recruiting from ethnic minority groups

Measures

- Demographics
- Psychological factors
- Intentions (primary outcome)

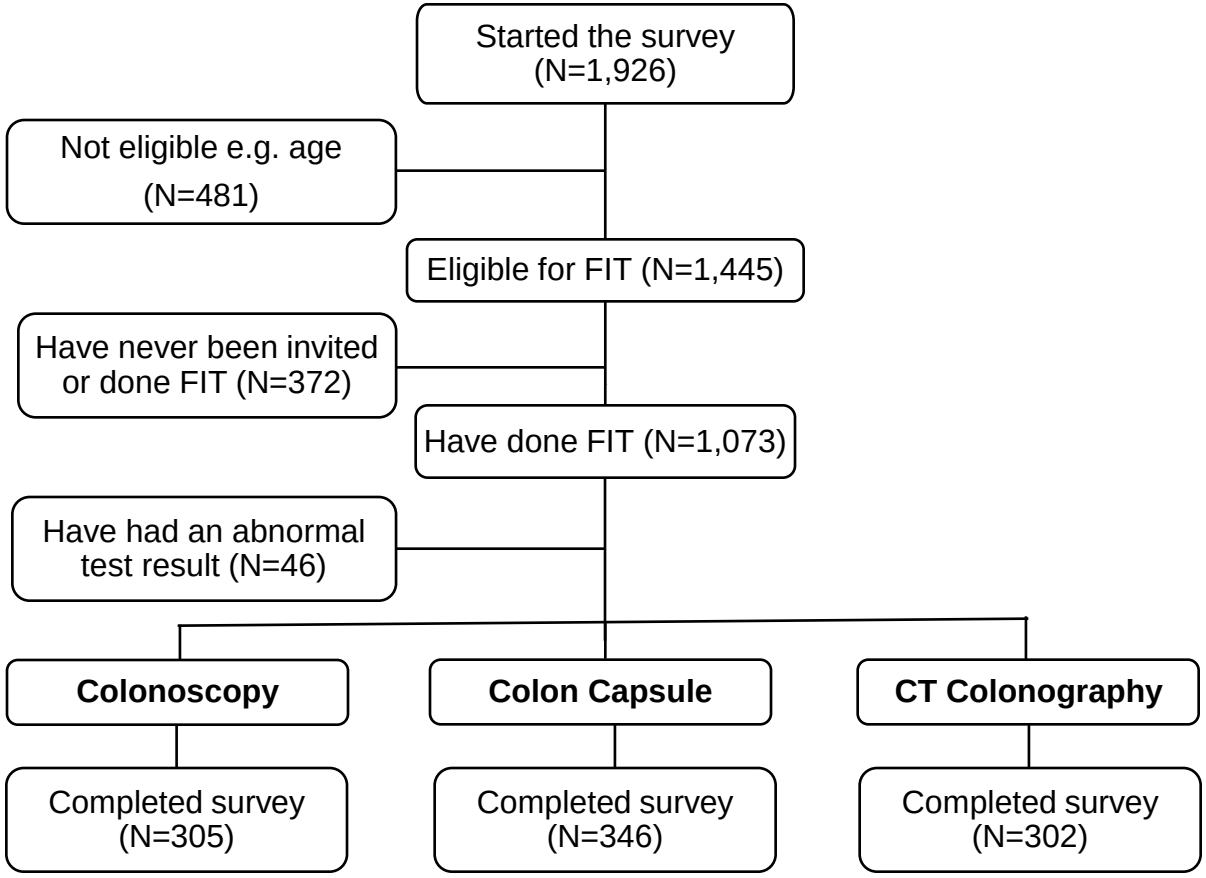
Study 3: Online experiments

Analysis:

- Between group differences in intentions, after exposure to the intervention (e.g. demonstration of behaviour), will be assessed using multivariate binary logistic regression

- Between group differences in psychological factors, before and after exposure to the intervention, will be assessed using multivariate linear regression (most likely)

Example


Started the survey (N=1,926)
Not eligible e.g. age (N=481)
Eligible for FIT (N=1,445)
Have never been invited or done FIT (N=372)
Have done FIT (N=1,073)
Have had an abnormal test result (N=46)
Colonoscopy
Colon Capsule
CT Colonography
Completed survey (N=305)
Completed survey (N=346)
Completed survey (N=302)

Example

Table 4. Multivariate logistic regression of probably or definitely not wanting the test

	Intend to go for test N (%)	aOR (95%CI)
Condition		
Colonoscopy	280 (91.8)	Ref.
Capsule endoscopy	292 (93.4)	1.276 (0.69, 2.35)
CT colonography	323 (96.7)	**2.642 (1.22 - 5.73)***

*P≤0.05
Adjusted for Age, gender, ethnicity, deprivation, employment status and numeracy skill

Table 5. Multivariate logistic regression of emotional barriers

	Off-putting	Uncomfortable	Embarrassing	Worry about risks of test	Afraid of results	Worry about cancer
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Condition						
Colonoscopy	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Capsule endoscopy	0.75 (0.53, 1.05)	**0.11 (0.07 0.16)****	**0.33 (0.23, 0.48)****	**0.70 (0.51, 0.967)***	0.75 (0.54, 1.03)	0.82 (0.59, 1.13)
CT colonography	**0.66 (0.46, 0.94)***	**0.51 (0.34, 0.77)****	0.72 (0.51, 1.02)	0.73 (0.52, 1.02)	0.92 (0.66, 1.28)	1.15 (0.83, 1.59)

*P≤0.05
Adjusted for Age, gender, ethnicity, deprivation, employment status and numeracy skill

Watch this space!

Thank you for listening!

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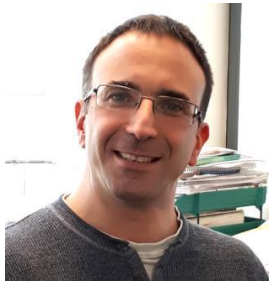

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References

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