Are psychosocial interventions effective at increasing condom use among Black men? A systematic review

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Abstract

Black men experience a disproportionate burden of sexually transmitted infections (STIs) in the United Kingdom (UK). STIs can seriously affect the health and well-being of affected individuals. With condoms effective at preventing STI transmission, this review aims to explore the evidence of effectiveness of psychosocial interventions at increasing condom use among Black men to inform UK-based interventions for this at-risk but unheard population. Nine databases were searched for qualifying studies. Two reviewers independently assessed the quality of studies. A narrative synthesis read across the heterogeneous studies for evidence of effectiveness. A total of 17 studies met the inclusion criteria. This review identified scientifically weak evidence of effectiveness in multifaceted psychosocial interventions to increase condom use among Black men, particularly men who have sex with women and men who have sex with men mainly from United States settings. The multifaceted nature of interventions provides obscure evidence on successful elements of interventions with positive effects. Despite the disproportionate STI burden among this group, no UK-based studies were identified. Future research should aim to better understand condom use behavioural experiences and motivators of condom use among UK Black men to inform ethnically culturally relevant and tailored interventions.

Keywords

Condoms, psychosocial, interventions, Black

Introduction

Sexually transmitted infection (STI) rates remain a significant challenge in the United Kingdom (UK).[1] Since the 1980s, Black people have experienced a disproportionate burden of STIs in the UK[2,3] Recent data highlight this inequality, particularly among Black men, who have the highest rates of chlamydia, gonorrhoea and syphilis.[4]

Condoms remain the main protection against STIs yet barriers to use are reported.[5] Psychosocial, preventative, theory-informed behaviour-change interventions can be effective at increasing safer sex behaviours.[6,7]

Current review

This review aims to identify evidence of effective psychosocial interventions for condom use among Black men to provide evidence-based recommendations on effective approaches and techniques for practice with UK Black men. For this study, 'Black men' refers to cisgender men of Black ethnicity.

Psychosocial interventions vary in nature and include therapeutic counselling approaches and behaviour-change techniques including goal setting, action planning and exploration of barriers and facilitators of change.[8,9]

Methodology

This review was conducted as specified by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses protocol.[10]

A population, intervention, comparison and outcomes framework[11] underpinned the inclusion and exclusion criteria.

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Inclusion criteria

Studies that

1. included Black men,
2. tested the effectiveness of a psychosocial intervention,
3. included a control/comparison intervention,
4. reported quantitative baseline and post-intervention outcomes on frequency or consistency of condom use or condomless sex,
5. published in English.

Studies that included transgender men, women or non-Black men were eligible provided they reported data disaggregated by ethnicity and/or gender, so relevant outcomes for cisgender Black men could be identified (Supplementary Material).

Exclusion criteria

Studies that

1. failed to report participants' ethnicity,
2. included couples as condom use behaviour can be modified by partner type, with prevalence lowest among regular or marital sexual partnerships,[12,13]
3. did not attempt to address causal attribution.

Search strategy and study selection

The following electronic databases were searched between February and May 2019: MEDLINE, CINAHL Plus, AMED, EBSCOhost, Information Science & Technology Abstracts, PsycArticles, PsycINFO, PsycBooks. Searches were conducted using a pre-defined search strategy (Supplementary Material) informed by the review's inclusion/exclusion criteria.

Merging and deduplication of search results was managed using the RefWorks programme and repeated manually. One reviewer screened titles and abstracts using the inclusion/exclusion criteria.

Grey literature searching

Citations in selected studies were hand-searched to identify additional studies. References of two similar reviews were hand-searched. Five studies were identified but excluded as they failed to report separate data for Black men.

Full-text screening

Two reviewers independently screened identified studies using the study eligibility form (Supplementary Material) to determine inclusion.

Quality appraisal and risk of bias assessment

The Effective Public Health Practice Project quality assessment tool was identified as suitable for assessing risk of bias among health behaviour studies.[14] Two reviewers independently assessed risk of bias, and findings were used to highlight strength of the evidence of studies within the narrative synthesis.

Data extraction

One reviewer used a pre-designed data extraction tool (Supplementary Material) to extract relevant data from included studies.

Data analysis and synthesis

In line with Cochrane Handbook for Systematic Reviews of Interventions recommendations,[15] a meta-analysis was not conducted due to diversity in the design, methodology and measurement of outcomes in included studies. Rather, a narrative synthesis was conducted, allowing for the summarising of findings and categorisation of identified patterns across included studies.

Results

In total, 17,760 records were identified. Five additional records were identified through grey literature searching. Seventeen studies remained for inclusion in the review after applying the inclusion and exclusion criteria (Supplementary Material).

Design and characteristics of studies

All studies adopted a randomised controlled trial (RCT) design. Two-arm RCT was the most common design with 16 studies adopting this design.

All studies except 1[16] were conducted in the United States of America (USA), presenting challenges associated with transferring international research findings and epidemiological data to a UK context for reasons including differences in reported risky behaviours and cultural contexts that may confound suggested associations with observed disparities, particularly among men who have sex with men (MSM).[17,18]

The 17 studies included approximately 5606 participants. Seven studies[19-25] included only young people (<30 years). The mean age of participants ranged from 14.64 to 44.94 years (Table 1).

Quality and risk of bias assessment

No studies were rated as 'strong' (Supplementary Material). Risk of bias will be discussed to frame the evidence from study findings.

Table 1. Characteristics of included studies.

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study A	I. RCT (individual), California, USA II. Intervention, n = 199 (retained, n = 166, 83%) Control, n = 197 (retained, n = 153, 78%) III. Baseline, 6-month and 9-month post-intervention	Men and women	Self-report survey assessing: (1) Frequency of intercourse using condoms and not using condoms with main and casual partners in the past 3 months	Theoretical underpinning: Information-Motivation-Behavioural Skills model Intervention overview: Four face-to-face sessions aiming to reduce HIV risk behaviour through the following mechanisms: • Information provision • Motivation building • Skills acquisition • Reinforcement of condom use messages • Goal setting	(1) No significant effects for condition (intervention vs. control) were found on condomless sex events with main ($p = 0.61$) and casual ($p = 0.39$) female partners or main ($p = 0.11$) and casual ($p = 0.96$) male partners.	Moderate
Study B	I. RCT (cluster), Angola (Angolan military personnel) II. Intervention, n = 280 (retained, n = 249, 89%) Control, n = 288 (retained, n = 242, 84%) III. Baseline, 3-month and 6-month post-intervention	Women	Self-report survey assessing: (1) Frequency of condom use during vaginal sex with girlfriends, occasional and commercial partners in the past 3 months (2) Number of condomless vaginal intercourse (CVI) acts per month across all partners in the past 3 months (3) Number of people engaging in condomless anal intercourse (CAI) with live-in partners and girlfriends in the past 3 months	Theoretical underpinning: Information-Motivation-Behavioural Skills model Intervention overview: Five face-to-face sessions aiming to enhance HIV risk-reduction knowledge, motivation and behaviours among Angolan soldiers through the following mechanisms: • Information provision • Personal and social motivation building • Behavioural skills acquisition	(1) Proportion of participants who reported an increase in condom use at 3-month follow-up was significantly higher in the intervention group (27%) than in the control group (20%) ($Z = 2.51$, $p < 0.01$). (2) No significant differences between the intervention and control group participants on number of CVI acts at both 3-month and 6-month follow-up. (3) Proportion of participants who reported a reduction in CAI acts with live-in partners at 3-month and 6-month follow-up was significantly higher in the intervention group than the control group ($Z = 2.41$, $p < 0.01$ and $Z = 2.91$, $p < 0.01$, respectively) (4) No between-group effects were found for reduction in CAI acts with girlfriends at 3-month or 6-month follow-up.	Weak

Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study C	I. RCT (individual), southern USA. City/state not specified II. Intervention, n = 141 (retained, n = 105, 74.5%) Control, n = 125 (retained, n = 92, 73.6%) III. Baseline and 3-month post-intervention	Women	Self-report survey assessing: (1) Frequency of condom use during the last act of penetrative (penile-vaginal or penile-anal) sexual intercourse with a female partner (2) Frequency of condomless penetrative sexual intercourse with a female partner in the past 3 months	Theoretical underpinning: Information-Motivation-Behavioural Skills model Intervention overview: One face-to-face session aiming to reduce condomless sex through the following mechanisms: • Information provision • Motivation building • Skills acquisition (condom use) • Condoms provision • Reinforcement of condom use messages	(1) Intervention participants reported significantly fewer acts of condomless sex (12.3 vs. 29.4; mean difference estimate = −17.1; 95% CI = −33.6, −0.5; relative difference = −58%). (2) Intervention participants were significantly more likely to report using condoms during their last episode of sexual intercourse (72.4% vs. 53.9%; univariate OR estimate = 2.25; 95% CI = 1.24, 4.07)	Weak
Study D	I. RCT (individual), Louisiana, USA, and North Carolina, USA II. Intervention, n = 349 (retained 78.5%) Control, n = 353 (retained 73.9%) III. Baseline, 2-month and 6-month post-intervention	Unclear	Self-report survey assessing: (1) Rates of correct and consistent condom use in the past 2 months (2) Proportion of participants reporting correct and consistent condom use in the past 2 months	Theoretical underpinning: Information-Motivation-Behavioural Skills model Intervention overview: One face-to-face session aiming to improve correct and consistent condom use through the following mechanisms: • Rapport building • Information provision • Motivation building • Skills acquisition (condom use) • Condoms provision	(1) At 2-month follow-up, whilst a greater proportion of intervention (53.5%) than control (49.6%) participants reported correct and consistent condom use, the finding was not significant (p = 0.41). (2) At 6-month follow-up, whilst a greater proportion of intervention (51.5%) than control (46.9%) participants reported correct and consistent condom use, the finding was not significant (p = 0.29).	Weak

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Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study E	I. RCT (individual), Mississippi, USA II. Intervention, n = 299. (retained n = 200, 69%) Control, n = 301 (retained n = 194, 64%) III. Baseline 3-months, 6-months, 9-months & 12-months post-intervention.	Men	Self-report survey assessing: (1) Frequency of consistent condom use during insertive anal intercourse (IAI) in the past 90 days (2) Frequency of consistent condom use during receptive anal intercourse (RAI) in the past 90 days	Theoretical underpinning: Information-Motivation-behavioural Skills model Intervention overview: One face-to-face session aiming to promote condom use through the following mechanisms: • Rapport and trust building • Information provision • Motivation building • Skills acquisition • Condoms provision • Reinforcement of condom use messages	Differences were examined between HIV- controls (reference group) with the other three groups: HIV+ controls, HIV- intervention, and HIV+ intervention. (1) Compared with HIV- control participants, HIV+ intervention participants had 64% greater odds of reporting consistent condom use for RAI over 12 months (EOR, 1.64; 95% CI, 1.23–2.17, p = 0.001). (2) Compared with HIV- control participants, HIV- intervention participants had more than twice the odds of reporting consistent condom use for RAI over 12 months (EOR, 2.14; 95% CI, 1.74–2.63, p < 0.001). (3) When modelling consistent condom use during IAI, the HIV+ intervention group had significantly reduced odds of consistent condom use for IAI compared with the HIV- controls (EOR, 0.37; 95% CI, 0.24–0.57; p < 0.001).	Weak

Table I. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study F	I. RCT (individual), USA. City/state not specified II. Numbers enrolled/retained per condition not specified III. Baseline, immediately post-intervention, 1-month and 6-month post-intervention	Unclear	Self-report survey assessing: (1) Frequency of condom use in the past 30 days	Theoretical underpinning: Self-regulation model of illness behaviour and self-efficacy theory Intervention overview: One videotape session aiming to promote condom use through the following mechanisms: • Information provision • Skills acquisition • Motivation building • Response efficacy and self-efficacy building • Increasing perceived susceptibility to HIV/STI	(1) At follow-up assessments, participants in all conditions reported using condoms more often in the past month than they reported at baseline (M = 2.4 across all conditions); 30 day follow-up: HE condition (M = 4.7), VT condition (M = 4.8), control (M = 4.8); 6-month follow-up: HE condition (M = 4.9), VT condition (M = 4.7), control (M = 5.1). (2) Participants across all conditions had used condoms less often in the month prior to the baseline than they had in the month prior to the 30-day ($p < 0.05$) and 6-month ($p < 0.05$) assessments.	Weak
Study G	I. RCT (individual), USA. City/state not specified II. Intervention, n = 108 (retained, n = 84, 78%) Control, n = 103 (retained, n = 82, 80%) III. Baseline, immediately post-intervention and 3-month post-intervention	Men and women	Self-report survey assessing: (1) Instances of condomless vaginal and anal intercourse (CVAI) in the past 3 months and the gender of their sex partners	Theoretical underpinning: Information-Motivation-Behavioural Skills model Intervention overview: Three online sessions aiming to increase motivation and skills to adopt safe practices. • Information provision Motivation building • Skills acquisition (sexual negotiation and condom use) • Goal setting • Identification of sources of social support	(1) Sexual risk behaviours declined from baseline to follow-up in both the intervention and comparison groups. (2) Participants in the intervention group had lower odds of reporting any CVAI at follow-up than those in the comparison group (aOR = 0.49; 95% CI 0.25–0.98; $p = 0.04$). (3) When examined by gender of sex partners, the intervention was associated with significantly lower odds of CAI with male partners (aOR = 0.55; 95% CI 0.34–0.91; $p = 0.02$). (4) However, there was no difference between the intervention and the comparison group in the odds of CVAI with female partners (aOR = 0.90; 95% CI 0.50–1.62; $p = 0.73$).	Weak

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Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study H	I. RCT (individual), California, USA II. Intervention, n = 198 (retained, n = 143, 73%) Control, n = 188 (retained, n = 131, 71%) III. Baseline, within 2-week post-intervention, 3-month and 6-month post-intervention	Men and women	Self-report survey assessing: (1) Number of episodes of CAI or CVI with male or female partners in the past 90 days	Theoretical underpinning: Theory of Reasoned Action/Theory of Planned Behaviour; Empowerment Theory and Critical Thinking and Cultural Affirmation Model Intervention overview: Eight (6 core plus 2 booster) face-to-face sessions aiming to reduce HIV risk behaviours through the following mechanisms: • Information provision • Skills acquisition (communication and empowerment) • Identification of personal motivators • HIV/STI testing • Goal setting	(1) Mean number of CAI acts with male partners significantly declined greater among intervention participants (baseline = 3.43 vs. 6-month follow-up = 1.43, $p = 0.04$) in comparison with control participants (baseline = 1.83 vs. 6-month follow-up = 1.69, $p = 0.84$). (2) Mean number of CVAI acts with female partners significantly declined greater among intervention participants (baseline = 5.09 vs. 6-month follow-up = 1.50, $p = 0.01$) in comparison with control participants (baseline = 2.72 vs. 6-month follow-up = 3.21, $p = 0.76$).	Weak
Study I	I. RCT (individual). Location not specified II. Intervention, n = 100 (retained, n = 94, 94%) Control, n = 112 (retained, n = 101, 91%) III. Baseline, within 2-week post-intervention and 3-month post-intervention	Men and women	Self-report survey assessing: (1) Number of episodes of vaginal and anal sex with and without condoms in the past 3 months	Theoretical underpinning: Theory of Reasoned Action/Theory of Planned Behaviour; Empowerment Theory and Critical Thinking and Cultural Affirmation Model Intervention overview: Six face-to-face sessions aiming to reduce condomless sex and number of sex partners through the following mechanisms: • Information provision • Skills acquisition (communication and sexual negotiation) • HIV/STI testing and treatment • Goal setting • Stress reduction	(1) Mean episodes of condomless sex declined for both intervention (baseline = 27.7 vs. 3-month follow-up = 8.0) and control (baseline = 25.6 vs. 3-month follow-up = 6.7) participants. (2) No statistically significant differences were found between the intervention and control arms for any condomless sex (1.74 (95% CI 0.70, 4.36)).	Weak

Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study J	I. RCT (individual), North Carolina, USA II. Intervention, n = 238 (retained, n = 175, 74%) Control, n = 236 (retained, n = 195, 83%) III. Baseline, 3-month, 6-month and 12-month post-intervention	Men	Self-report survey assessing: (1) Rate of CAI in the past 3 months	Theoretical underpinning: Integrated Behaviour Model Intervention overview: Information provision; access to interactive features including a discussion forum; access to online doctor and decision support tools	(1) Self-reported CAI at 3-month follow-up was 32% lower in the intervention group compared to the control group (incidence ratio 0.68, 95% CI 0.43, 0.93). The intervention effect was not sustained at 12-month follow-up. (2) From baseline to 12 months, the rate of CAI decreased by 39.1% in the intervention group (95% CI 28.3%, 50.0%) versus 32.0% in the control group (95% CI 19.9%, 44.1%).	Weak
Study K	I. RCT (individual), Philadelphia, USA II. Intervention, n = 85. Control, n = 72 Numbers retained not specified per condition. Overall, 150 (96%) were retained III. Baseline, immediately post-intervention and 3-month post-intervention	Unclear	Self-report survey assessing: (1) Episodes of condomless sex in the past 3 months	Theoretical underpinning: Not specified Intervention overview: Information provision; addressing problematic attitudes towards risky sexual behaviours and skills acquisition (condom use)	(1) Fewer episodes of condomless sex was reported by intervention participants (0.64) in comparison to control participants (2.38) (95% CI −2.86, −0.60).	Weak
Study L	I. RCT (individual), Philadelphia, USA II. Intervention, n = 295 (retained, n = 255, 86%) Control, n = 300 (retained, n = 248, 83%) III. Baseline, 6-month and 12-month post-intervention	Men	Self-report survey assessing: (1) Rate of consistent condom use in the past 90 days (2) Frequency of condomless sexual intercourse in the past 90 days	Theoretical underpinning: Social Cognitive Theory; and Reasoned Action Approach Intervention overview: Information provision; strengthen condom use outcome expectancies; increase self-efficacy; skills acquisition (condom use and negotiation with partners) and increase perceived susceptibility to HIV	(1) Irrespective of condition, self-reported consistent condom use in the past 90 days increased significantly ($p < 0.001$), averaged over the 6- and 12-month follow-ups compared with baseline. (2) Irrespective of condition, participants were less likely to report condomless intercourse ($p < 0.001$) averaged over the 6- and 12-month follow-ups compared with baseline.	Weak

(continued)

Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study M	I. RCT (individual), Georgia, USA II. Intervention, $n = 60$. Control, $n = 57$ Numbers retained not specified per condition. Overall, 81 (69%) were retained III. Baseline, 3-month and 6-month post-intervention	Women	Self-report survey assessing: (1) Frequency of CVI in the past 3 months (2) Percentage of condom-protected vaginal intercourse in the past 3 months	Theoretical underpinning: Information-Motivation-Behavioural Skills model and motivational interviewing Intervention overview: Information provision; motivation building; condom use attitudes exploration; skills acquisition (sexual communication, problem solving and condom use) and goal setting	Results of ANCOVAs controlling for baseline behaviour, age and education showed that: (1) At 3-month follow-up, intervention participants (baseline = 5.7 vs. 3-month follow-up = 1.8) reported significantly lower mean rates of CVI relative to the control participants (baseline = 9.4 vs. 3-month follow-up = 7.4) $F(1, 91) = 4.76$, $p < 0.05$, d = 0.44. (2) At 3-month follow-up, intervention participants (baseline = 51.8% vs. 3-month follow-up = 70.9%) reported significantly greater percentage of condom use during vaginal intercourse relative to the control participants (baseline = 45.8% vs. 3-month follow-up = 53.6%) $F(1, 91) = 4.76$, $p < 0.05$, d = 0.44. (3) However, differences between conditions at the 6-month follow-up were not statistically significant.	Moderate

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Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study N	I. RCT (individual), Illinois, USA II. Intervention, n = 68. Control, n = 68 Numbers retained not specified per condition. Overall, 120 (88%) were retained III. Baseline, 3-month and 6-month post-intervention	Unclear	Self-report survey assessing: (1) Frequency of condom use in the past 3 months (2) Frequency of condomless sex in the past 3 months	Theoretical underpinning: Social Cognitive Theory and Trans-Theoretical Model of Change (TTM) Intervention overview: Information provision and skills acquisition (condom use)	(1) Intervention participants reported an increase in mean condom use frequency (baseline = 2.27 vs. 6-month follow-up = 2.68) whereas control participants reported a decrease (baseline = 2.33 vs. 6-month follow-up = 1.74). (2) Intervention participants reported a decrease in mean condomless sex episodes (baseline = 1.50 vs. 6-month follow-up = 0.94) whereas control participants reported an increase (baseline = 1.61 vs. 6-month follow-up = 1.83). (3) Differences in change scores from baseline to 6 months between the intervention and comparison groups were statistically significant for both frequency of condom use (-0.08, $p \leq 0.05$) and frequency of condomless sex (-0.14, $p \leq 0.05$).	Weak
Study O	I. RCT (individual), New York, USA II. Intervention, n = 142 (retained, n = 128, 90%) Control, n = 141 (retained, n = 130, 92%) III. Baseline and 3-month post-intervention	Men	Self-report survey assessing: (1) Proportion of condom-protected anal sex acts in the past 3 months (2) Frequency of condomless IAI and condomless RAI in the past 3 months	Theoretical underpinning: Social Cognitive Theory Intervention overview: Information provision; healthy, low-cost meal preparation; exploration of eating and sexual behaviour influencing factors; exploration of HIV risk-reduction self-efficacy and outcome expectancies; identification of social support sources and goal setting	(1) Regardless of condition, proportion of condom-protected sex acts increased. Study arms did not statistically differ at 3 months. (2) Condomless IAI decreased from 69.5% to 39.4% for intervention participants vs. 69.8%–36.2% for control participants (p = 0.51). (3) Condomless RAI decreased from 59.4% to 35.2% for intervention participants vs. 54.3%–29.8% for control participants (p = 0.83).	Weak

Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study P	I. RCT (cluster), Philadelphia, USA II. Intervention, n = 72 (retained, n = 62, 86%) Control, n = 93 (retained, n = 81, 87%) III. Baseline, 8-week and 5-month post-baseline	Men and women	Self-report survey assessing: (1) Number of condomless anal and vaginal sex episodes in the past 3 months	Theoretical underpinning: Social Cognitive Theory; Stress and Coping Theory and ecosystems approach Intervention overview: Rapport building; eco-mapping to depict individual and social environment; problem solving and action planning; life coaching and development of coping strategies	(1) A greater proportion of intervention (69.4%) than control (46.9%) participants reported a significant decrease in condomless sex episodes with male partners ($p = 0.02$). (2) A greater proportion of intervention (80.6%) than control (61.7%) participants reported a significant decrease in condomless sex episodes with male and female partners combined ($p = 0.04$). (3) Whilst a greater proportion of intervention (58.1%) than control (45%) participants reported a decrease in condomless sex episodes with female partners, the finding was not significant ($p = 0.72$).	Weak

Table 1. (continued)

Study ID	I. Study design and location II. Numbers enrolled/retained per condition III. Data collection time points	Gender of sexual partners	Outcomes and measures	Intervention description	Findings	Quality appraisal rating
Study Q	I. RCT (individual), New York, USA II. Intervention, n = 164 (retained, n = 127, 77%) Control, n = 174 (retained, n = 133, 76%) III. Baseline, 3-month and 6-month post-intervention for intervention participants and baseline, 3-month and 6-month post-baseline for control participants	Men	Self-report survey assessing: (1) Number of episodes of condomless IAI with main and casual partners in the past 3 months (2) Number of episodes of condomless RAI with main and casual partners in the past 3 months	Theoretical underpinning: Social Cognitive Theory; Behavioural Skills Acquisition Model; TTM and Decisional Balance Model Intervention overview: Information provision; exploration of perceived susceptibility; enhancing intention to act and skills acquisition (communication, negotiation, problem-solving and risk-reduction)	(1) At 3-month assessment, there were no significant intervention effects on the number of any (RR = 0.55, 95% CI = 0.20–1.48), insertive (RR = 0.48, 95% CI = 0.14–1.68), or receptive (RR = 0.56, 95% CI = 0.16–1.98) CAI episodes with main partners. (2) At 6-month assessment, there were no significant intervention effects on the number of any (RR = 0.40, 95% CI = 0.13–1.25), insertive (RR = 0.37, 95% CI = 0.10–1.35), or receptive (RR = 0.65, 95% CI = 0.23–1.86) CAI episodes with main partners. (3) Relative to control participants, intervention participants reported significantly greater reductions in the total number of CAI episodes with casual partners at the 6-month assessment (RR = 0.34, 95% CI = 0.14–0.83, p = 0.01). (4) There was a significant intervention effect on reductions in condomless IAI episodes with casual male sex partners at the 6-month assessment (RR = 0.24, 95% CI = 0.09–0.65, p = 0.005). (5) There were no statistically significant intervention effects on condomless RAI with casual male partners at the 6-month assessment (RR = 0.58 95% CI = 0.20–1.67).	Weak

Intervention characteristics

Interventions were multifaceted, presenting challenges in summarising characteristics across interventions and identifying elements resulting in positive effects.

Nine interventions[19-23,26-29] were delivered in a one-to-one format whilst 7 interventions were delivered to groups. Six studies[19-23,25] trialled single-session interventions.

Sixteen studies reported that their intervention was underpinned by theory. The most common theories were the Information-Motivation-Behavioural Skills (IMB) model[30] and Social Cognitive Theory (SCT).[31]

Thirteen studies reported intervention setting. Of these, 4 interventions[19,21-23] were delivered in sexual health clinics, and 7 interventions[20,25-27,32-34] were delivered in community settings.

A summary of intervention characteristics is located in Supplementary Material.

Effectiveness of interventions

Effectiveness of interventions will be grouped according to gender of sexual partners.

Outcomes (frequency or consistency of condom use and/or frequency of condomless sex) will be reported, alongside the strength of evidence. Studies reporting positive intervention effects will be presented first followed by those with mixed effects.

Men who have sex with women. Four studies[16,19,25,32] trialled interventions among men who have sex with women (MSW). Three interventions were informed by the IMB model, whilst one was unclear about theoretical underpinning. Three studies were conducted in the USA. The other was conducted among Angolan military personnel. One study was assessed as moderate in attempts to reduce bias. The remaining were assessed as weak. Two studies[19,25] reported positive intervention effects whilst two reported mixed intervention effects.

Study C[19] trialled Focus on the Future (FoF), a clinic-based, face-to-face intervention delivered in a one-to-one single session and aiming to increase condom knowledge, acceptability and skills alongside enhancing condom use motivation. The findings conveyed that intervention participants (12.3) reported significantly fewer mean acts of condomless sex than control participants (29.4) (−17.1; 95% CI = −33.6,-0.5) and were significantly more likely (72.4%) to report using condoms during last intercourse than control participants (53.9%) (2.25; 95% CI = 1.24,4.07).

Study K[25] trialled a community-based, single-session, face-to-face intervention among Black adolescents. Whilst the intervention was not exclusively targeting MSW, very few participants reported being MSM or men who have sex with men and women (MSMW), with most participants engaging in heterosexual sexual activities. The 5-h group

intervention aimed to increase participants' knowledge on STIs/human immunodeficiency virus (HIV), weaken problematic attitudes towards risky sexual behaviours and explore correct condom use. The findings revealed fewer episodes of condomless sex among intervention participants (0.64) than control participants (2.38) (95% CI –2.86, −0.60).

Study B[16] trialled a 5-session, face-to-face intervention delivered to groups of Angolan military soldiers. All IMB model dimensions were covered. The intervention aimed to equip participants with knowledge on symptoms and stages of HIV/acquired immune deficiency syndrome and STIs, increase HIV personal and social prevention motivation, and provide behavioural skills to enable participants to avoid sex when consuming alcohol, successfully negotiate condom use with partners and demonstrate correct condom application. The findings revealed better short-term improvements in condom use for intervention participants (27%) than control participants (20%) at 3-month follow-up (Z = 2.51, $p < 0.01$). Whilst a greater proportion of intervention than control participants (Z = 2.41, $p < 0.01$ and Z = 2.91, $p < 0.01$ respectively) reported a reduction in condomless anal intercourse (CAI) acts with live-in partners at both 3-month and 6-month follow-up, no significant differences were observed between groups on number of CAI acts with girlfriends and total condomless vaginal intercourse (CVI) acts at both 3-month and 6-month follow-up.

Study M[32] trialled a community-based, 2-session, face-to-face intervention delivered to participants in groups. The intervention taught participants about HIV transmission risk, disease progression, prevention strategies, problem solving, condom use and sexual communication skills. Mixed intervention effects were reported. Intervention participants reported significantly lower rates of CVI (F (l, 91) = 4.76, $p < 0.05$, d = 0.44) and greater condom use during intercourse (F (1, 66) = 5.38, $p < 0.05$, d = 0.55) at 3-month follow-up. No statistically significant differences were found between the study arms at 6-month follow-up.

These findings demonstrate some evidence of effectiveness for IMB model informed interventions aiming to increase HIV/STI knowledge and prevention motivation and equip MSW participants with condom use behavioural skills.

MSM. Five USA-based studies[21,24,27,34,35] trialled interventions among MSM. All studies were assessed as weak in attempts to reduce bias and demonstrated mixed intervention effects.

Study E[21] adapted FoF to accommodate STI prevention needs of HIV positive (HIV+) young Black MSM (YBMSM) aged 15–29 years. The findings reported mixed intervention effects. HIV+ intervention participants had 64% greater odds of reporting consistent condom-protected receptive anal intercourse (RAI) over 12 months (EOR, 1.64; 95% CI, 1.23–2.17, $p = 0.001$) than HIV negative (HIV-) control participants, whilst HIV-intervention

participants had over twice the odds of reporting consistent condom-protected RAI over 12 months (EOR, 2.14; 95% CI, 1.74–2.63, $p < 0.001$) than HIV- control participants. However, for insertive anal intercourse (IAI), HIV+ intervention participants had significantly reduced odds of consistent condom use than HIV- controls (EOR, 0.37; 95% CI, 0.24–0.57; $p < 0.001$).

Study J[24] trialled an online intervention, 'Health-Mpowerment' (HMP) that was underpinned by the Integrated Behaviour Model.[36] HMP provided 3-month access to a knowledge library with educational articles on various topics including STI/HIV prevention and treatment, safer sex behaviours and managing stigma. Interactive features enabled participants to engage in forum discussions, access an online doctor and use brief surveys with feedback decision support tools. HMP demonstrated short-term positive intervention effects. Self-reported CAI at 3-month follow-up was 32% lower among intervention participants than control participants (incidence ratio 0.68, 95% CI 0.43, 0.93). However, at 12-month follow-up, decreased CAI rates were reported irrespective of condition, with a reported decrease of 39.1% for the intervention group (95% CI 28.3%, 50.0%) and 32.0% for the control group (95% CI 19.9%, 44.1%).

Study Q[34] trialled 'Many Men, Many Voices' (3 MV), a residential retreat-based, 6-session intervention underpinned by the SCT,[31] Behavioural Skills Acquisition Model,[37] Trans-Theoretical Model of Change (TTM)[38] and Decisional Balance Model.[39] 3 MV was delivered to participants in groups and focused on exploring relationships between racism and homophobia on risky sexual behaviours, personalising HIV/STI risk and developing relationship-focused risk-reduction behaviour-change options. Mixed effects were reported. At 6-month follow-up, there were no significant intervention effects on all CAI (RR = 0.40, 95% CI = 0.13–1.25), IAI (RR = 0.37, 95% CI = 0.10–1.35) or RAI (RR = 0.65, 95% CI = 0.23–1.86) episodes with main partners. However, intervention participants were more likely to report significantly greater reductions in the total number of CAI episodes (RR = 0.34, 95% CI = 0.14–0.83, $p = 0.01$) with casual partners. Whilst the intervention was significantly associated with a reduction in condomless IAI with casual partners (RR = 0.24, 95% CI = 0.09–0.65, $p = 0.005$), there were no significant intervention effects on condomless RAI.

These findings demonstrate weak evidence of effectiveness for psychosocial interventions containing exploration of risk and identification of risk-reduction strategies to increase condom use frequency or consistency among MSM.

MSMW. Five studies[26,28,29,33,40] trialled interventions among MSMW in the USA. Two studies[26,33] reported positive intervention effects whilst one study[28] reported mixed effects. All studies were assessed as weak in their attempts to reduce bias.

Study H[33] trialled 'Men of African American Legacy Empowering Self' (MAALES), an 8-session, group, face-to-face intervention underpinned by theories of Reasoned Action/Planned Behaviour,[41] Empowerment Theory[42] and Critical Thinking and Cultural Affirmation Model.[43] MAALES holistically explored societal influence, cultural norms and discrimination on sexual decision-making. Activities aimed to develop sexual risk-reduction goals, communication and empowerment skills. Two 2-h booster sessions reviewed learning from the main intervention and encouraged sharing of successes and challenges. More declines were observed among the intervention group in mean number of CAI acts with male partners (baseline = 3.43 vs. 6-month follow-up = 1.43, $p = 0.04$) and condomless vaginal and anal intercourse (CVAI) acts with female partners (baseline = 5.09 vs. 6-month follow-up = 1.50, $p = 0.01$).

Study P[26] trialled RISE, a community-based, one-to-one, 6-session, face-to-face holistic life-coaching intervention underpinned by the SCT, Stress and Coping Theory and ecosystems approach. Rather than focus solely on HIV risk behaviours, RISE provided life coaching exploring stress and coping, dealing with stigma and discrimination associated with race and sexual orientation. More intervention (69.4%) than control (46.9%) participants reported a significant decrease in condomless sex episodes with male partners ($p = 0.02$). More intervention (80.6%) than control (61.7%) participants reported a significant decrease in condomless sex episodes with male and female partners combined ($p = 0.04$). Whilst more intervention (58.1%) than control (45%) participants reported a decrease in condomless sex episodes with female partners, the finding was not significant ($p = 0.72$).

Study G[28] trialled POWER, an online, 3-session intervention informed by the IMB model and delivered via live chat. POWER aimed to provide culturally relevant HIV risk and protection education and increase motivation and behavioural skills required for safe practices. Culturally tailored videos demonstrated how culture, society and stereotypes of Black men can influence behaviours. Mixed intervention effects were reported. Intervention participants reported lower odds of any CVAI at follow-up than control participants (aOR = 0.49; 95% CI 0.25–0.98; $p = 0.04$). However, when examined by gender of partners, whilst the intervention was associated with significantly lower odds of CAI with male partners (aOR = 0.55; 95% CI 0.34–0.91; $p = 0.02$), no between-group differences were observed with female partners (aOR = 0.90; 95% CI 0.50–1.62; $p = 0.73$).

These findings demonstrate weak evidence of effectiveness to decrease frequency of condomless sex among MSMW using culturally relevant, multi-session holistic interventions that explore the impact of racial discrimination on sexual behaviours. A common aim of these interventions was to develop participants' communication and sexual negotiation skills.

Studies unclear in gender of sexual partners. Three studies[20,22,23] were unclear on gender of participant's sexual partners. All 3 studies were conducted in the USA and assessed as weak in attempts to reduce bias. Two studies[20,22] reported positive intervention effects.

An adapted version of FoF was trialled in Study D[22] among Black male youth aged 15–23 years. Adaptations included greater emphasis on graphic and visual presentations and negotiating condom use. Findings revealed that although nonsignificant, more intervention than control participants reported correct and consistent condom use at both 2-month (53.5% vs. 49.6%, $p = 0.41$) and 6-month (51.5% vs. 46.9%, $p = 0.29$) follow-up.

Study N[20] trialled a community-based, face-to-face intervention underpinned by the SCT[31] and TTM[38] delivered as a one-to-one, single-session intervention by HIV prevention specialists. The intervention aimed to increase knowledge and skills required to correctly use condoms. Findings revealed an increase in prior 3-month mean condom use for the intervention group (baseline = 2.27 vs. 6-month follow-up = 2.68) compared to a decrease for the control group (baseline = 2.33 vs. 6-month follow-up = 1.74). A decrease was reported in prior 3-month mean condomless sex episodes for the intervention group (baseline = 1.50 vs. 6-month follow-up = 0.94) whilst an increase was reported for the control group (baseline =1.61 vs. 6-month follow-up = 1.83). Between-group differences in change scores from baseline to 6 months were statistically significant for both frequency of condom use (-0.08, $p \leq 0.05$) and condomless sex (-0.14, $p \leq 0.05$).

These findings demonstrate weak evidence of effectiveness for one-to-one, single-session interventions focusing on condom use knowledge and skills to increase frequency or consistency of condom use among Black men.

Discussion

This review aimed to examine the effectiveness of psychosocial interventions at increasing condom use among Black men. Seventeen studies were included. All were assessed as weak to moderate in their attempts to reduce bias. Weak evidence of positive and mixed intervention effects was identified. Whilst no strong evidence was identified across studies, marginally statistically significant results were identified for some interventions, indicating potential in the design of these interventions to effect measurable improvements in condom use.

Potential was identified in the use of IMB model underpinned interventions focusing on increasing knowledge, motivation and condom use behavioural skills among MSW. Among MSM, potential was identified in interventions focusing on exploration and development of risk-reduction strategies. Evidence of potential among MSMW was identified in culturally relevant holistic interventions

focusing on experiences of racial discrimination and development of sexual negotiation and communication skills.

Common components across interventions demonstrating positive effects included increasing STI/HIV knowledge, identifying personal motivators, enhancing motivation to change behaviour, goal setting and condom use skills building, including sexual communication, negotiation and problem-solving skills. However, these components were also common in interventions that reported both mixed and no intervention effects. The multifaceted nature of interventions creates uncertainty around the successful component of interventions.

Interventions with potential require testing among UK Black men using scientifically rigorous frameworks to confidently determine level of effectiveness.

Strengths and limitations of included studies

Strengths were identified in the design of studies. All studies except 1[25] used theory to underpin interventions. Using theoretical frameworks to design behavioural interventions is reported to improve intervention efficiency, help sequence interventions and prevent elongation by focusing on important aspects.[44,45]

Most studies designed their interventions in conjunction with local community advisory boards (CABs). Collaboration with CABs can enhance the relevance of research to the community and provide community members with direct influence on research methods to ensure appropriateness and effectiveness.[46,47]

Limitations were also identified in the design of included studies suggesting caution when interpreting findings.

Studies relied heavily on self-reported data, susceptible to intentional misrepresentation, under-reporting of stigmatised behaviours and over-reporting of normative behaviours.[48] However, most studies attempted to address this by using audio computer-assisted interviews, a tool that has previously been shown to reduce reporting bias.[49]

All studies were unclear in their description of the blinding process, presenting challenges in knowing whether participants and researchers were aware of the exposure status of participants to study arms, potentially introducing bias towards finding statistically significant results.

Implications for practice and research

As a collective body of evidence, the findings of included studies lack clear, strong evidence on the successful components of psychosocial interventions aiming to increase condom use frequency or consistency among Black men.

Interventions demonstrating potential requiring further evaluation were multifaceted with elements including increasing STI/HIV knowledge, identifying personal motivators, enhancing motivation to change behaviour, goal

setting and condom use skills building, including sexual communication, negotiation and problem-solving skills.

This review identified no condom use interventions among UK Black men and a limited number among Black MSW. MSW have long been considered an important but under targeted group in sexual health research. [50] Research among MSW is needed to develop a better understanding of factors influencing their sexual behaviours.[51]

Future, UK-based research should acquire an understanding of condom use behavioural experiences and motivators of condom use among Black MSW to ensure future, UK based intervention trials are tailored, relevant and appropriate to UK Black MSW.

Future trials should adopt robust scientific methodology with multiple study arms and adequate control conditions that enable comparison of the effectiveness of interventions delivered in various formats (one-to-one, group, single-session and multi-session) and/or settings. To increase strength of evidence, researchers should describe blinding procedures.

Limitations of current review

This review was conducted to inform interventions among UK Black men. The findings of this review have limits in its application to the UK Black men as most studies were conducted in the USA.[17,18]

The heterogeneity among populations in this review presents challenges as the unique sexual health needs and behaviours of each group make it inappropriate to apply findings from one group (e.g. YBMSM) to another (e.g. older Black MSM).

This review only reported on condom use frequency/consistency or condomless sex frequency, disregarding psychological constructs (e.g. self-efficacy) that have been shown to influence behaviour.[44]

Time constraints resulted in data extraction being conducted by one reviewer which could have introduced error and bias into the findings. This was mitigated by using a concise data extraction tool focused on critical aspects of data which establish the foundation for the review conclusions.

Whilst a comprehensive search was performed, it is possible that some relevant studies were missed.

Many studies included focused on HIV risk reduction. Historically, condom promotion has targeted HIV prevention among populations at higher risk of HIV, such as MSM compared to wider STI prevention, particularly chlamydia among young people.[52] With perceived susceptibility influencing health-protective behaviours,[53] increases in the availability of pharmacological HIV preventative initiatives (e.g. post-exposure prophylaxis and pre-exposure prophylaxis) means studies should broaden their intervention focus to address wider consequences of condomless sex.

Conclusion

This review consisted of 17 studies, of which 11 demonstrated weak to moderate evidence of potential among interventions. Potential was identified among multifaceted interventions with emphasis on increasing HIV/STI knowledge, prevention motivation and condom use behavioural skills; exploration of risk and risk-reduction strategies and culturally relevant, holistic interventions acknowledging the influence of racial discrimination and stereotypes on sexual behaviours.

Most studies included were conducted in the USA, highlighting an absence of UK trials despite epidemiological evidence of disproportionate STI rates among UK Black men. Future research should aim to develop a better understanding of condom use behavioural experiences and condom use motivators of UK Black men to underpin ethnically culturally relevant and tailored interventions.

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Supplemental material

Supplemental material for this article is available online.

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