Can targeting women with behavioural science ‘nudges’ help black men to find out more about their high risk of contracting prostate cancer?

Abstract

Objectives

Prostate cancer is now deadlier than breast cancer in the UK, with more than 12,000 men dying from it in the country in 2018. Black men are nearly three times more likely to suffer prostate cancer, with one in four contracting the disease in their lifetime. Despite being a high risk group very few black men aged 45 and over visit their GP to discuss the pros and cons of screening. This is a problem as early onset of the disease presents no symptoms and when symptoms do appear, such as urinary problems, and men do visit a doctor it is often too late to reverse the cancer’s spread. This study investigates using the strong social norm of wives and girlfriends being the guardian of black men’s health as a way of influencing their behaviour.

Methods

Using a historically controlled study via email we tested the social norm nudge in the field with 13 Afro-Caribbean organisations across the UK.

Results

The trial found the social norm nudge produced a 15.5 per cent click-through rate, which was significantly higher than the historical controls.

Conclusions

At a national level the social norm nudge would equate to 37,315 black women taking positive action to find out more information about their husband or boyfriend’s high risk of contracting prostate cancer.

Practice implications

Prostate Cancer UK should target its marketing and communications towards the wives and girlfriends of black men aged 45 to nudge a significant proportion of the hard-to-reach group to speak to their doctor about the disease.

Introduction

Prostate cancer killed 12,032 men in 2016 according to Cancer Research UK (Prostate cancer statistics 2019) and its deadliness is on the rise. By 2018, in the UK, more men died of prostate cancer than women died of breast cancer, making it the third deadliest cancer in the country (Culhane 2018). Since the 1990s the number of men contracting prostate cancer has increased by 41 per cent and it is predicted that by 2035 there will be 233 cases per 100,000 - up from 205 per 100,000 in 2014 (Prostate cancer statistics 2019).

There are some high risk groups and these include black men aged 45 and over. It is especially important that this group is aware of prostate cancer as black men are two-to-three times more likely to contract the disease than white men (Chinegwundoh 2018), with one in four suffering from it in their lifetime (Prostate Cancer UK Report 2016).

Reviewing the literature revealed a strong cultural social norm in black communities in the US and the UK around women having a significant influence on their husband or boyfriend's health (Prostate Cancer UK Report 2016).

There are many studies into behaviour around cancer that show women have an influence on their partner (Stoller 1993; Norcross et al 1996; Rubenstein 1994), with married couples more likely to go for a screening (Krongrad et al 1996, Ndubuisi et al 1995; Van Jaarsveld 2006).

But the research around black men and prostate cancer indicates this influence is even more pronounced in black communities (Hunter et al 2015; Boyd et al 2001), with Roberts (2010) finding three studies emphasising the importance of wives and girlfriends in being the guardian of their partner's health in black communities.

Thus, this study seeks to investigate if this social norm can be used as a nudge to push black men into finding out more information about their high risk of contracting prostate cancer.

Dolan et al (2010) define the social norm bias as being "the behavioural expectations, or rules, within a society or group". One social norm Dolan et al describe is using existing social networks as a 'contagion', where because our social group is behaving a certain way we do as well. The social network we are attempting to exploit in this experiment is the well-observed influence of women over their husband's or boyfriend's health.

With interventions using more than one technique having a larger effect on recipients' behaviour than using them in isolation (Webb et al 2010), it was decided to combine this social norm nudge with the messenger effect after analysing our options using the Mindspace tool (Dolan et al 2010). Hafner et al (2019) describe the messenger effect as the weight people give to information they receive being dependent on their "reaction to the messenger source". **They argue this is one of the most robust effects found in behavioural science and the influence of the messenger is defined by three key components: expertise, trustworthiness and attractiveness (both physically and ideologically).**

The results were compared with not only a historical control, but also a standard email being used by Prostate Cancer UK at the time of the trial.

The trial found that 15.5 per cent of female recipients showed a positive attitude to finding out more about prostate cancer for their husband or boyfriend by clicking through to the

charity's website. This compares to a historical control of 2.6 and 2.8 per cent and a standard Prostate Cancer UK email which had a click-through rate of 6.3 per cent.

At a national level, this would equate to 37,315 more black men taking positive action to find out about their high risk thanks to the influence of their wives and girlfriends, which could well lead to them making an appointment and talking to their GP, as advised by Prostate Cancer UK.

This research was done with the support of Prostate Cancer UK.

Methodology

When using the Mindspace tool (Dolan et al 2010) we decided combining the social norm bias with the messenger effect would be the most appropriate nudges after examining the literature on black men's awareness and attitude towards prostate cancer and behaviour around screening for the disease. Also there is plenty of evidence showing that combining nudges produces better results, especially when using the internet or digital tools, such as email (Webb et al 2010), which we did.

The social norm bias would utilise the evidence in the literature that wives and girlfriends have a great influence over black men's health decisions. The messenger effect would utilise more evidence that black men respond better to advice from black experts.

By enlisting the help of Afro-Caribbean associations we devised a randomised controlled trial that saw emails sent to wives and girlfriends of black men aged 45 and over, while another batch of emails were sent to just black men aged 45 and over.

Both emails were identical. They utilised the messenger effect, with them being addressed from a black doctor, whose picture was placed prominently at the top of the email. Thus, we could see if the social norm bias of women influencing black men's health decisions would produce significant results.

We utilised 13 Afro-Carribbean Associations and organisations to help with the trial. This amounted to 657 potential triallists, 341 women and 316 men. But not all of these members were on email. Plus, it was decided to separate couples as it was likely they would discuss the email among themselves or they would either share the same email account. Thus, organisers were instructed to send an email to only one of a couple residing at the same address. This reduced the number to 463 triallists, 315 women and 148 men (see Table 3).

Table 3: The organisations involved in the trial along with the amount of women and men who were able to take part.

Organisation	Region	Women	Men
Harrow African Caribbean Association	London	10	6
African Caribbean Leadership Company	UK wide	15	7
Derby West Indian Community Association	East Midlands	6	4
Reigate & Banstead Borough African	Surrey	10	8

Caribbean Community Association			
New Testament Church of God	West Midlands	56	17
SADACCA (Sheffield And District African Caribbean Community Association)	Yorkshire	50	31
Chesterfield African Caribbean Community Association	East Midlands	16	9
Burton Caribbean Association	West Midlands	45	22
Newham African Caribbean Resource Centre	London	40	18
Wellingborough African Caribbean Centre	East Midlands	14	10
African & Caribbean Dental Association	UK wide	11	6
Ipswich African Caribbean Cultural Development Association	East Anglia	11	5
New Wine Church	London	31	5
Total		**315**	**148**

It is recommended to use more than one historical data to capture the heterogeneity in usage (Ghadessi et al 2020). We used data from email automation platforms Mailchimp and Campaign Monitor. The latter's 2020 annual report analysed 30 billion emails sent to people across 171 countries between January and December 2019 (Campaign 2020).

According to Mailchimp's 2019 annual report the company sent out nearly 350 billion emails for the year (Cannon 2020). **We will compare the percentage of people clicking on our emails' links - known as the click-through rate - with the Non-profit industry average as thousands of charities use Mailchimp and Campaign Monitor. We will also compare our click-through rate with the standard email sent out by Prostate Cancer UK. It has a list of email addresses on its database of 11,215, which it sends a weekly email to (Appendix A).**

We conceived an email using the messenger effect by enlisting the help of Frank Chinegwundoh, an urologist and renowned for his work in prostate cancer, who is black. The email was addressed from Dr Chinegwundoh with his headshot included.

This was then sent to women and men to test the social norm nudge, which is that women have a big influence on their husband or boyfriend's health and so will persuade them to click on a link to Prostate Cancer UK to find out more about the disease and their high risk or click on it themselves to learn more and then inform their partner.

See Appendix B for a copy of the email sent to men and women. Although identical, the female and male emails had different links to the Prostate Cancer UK website page, thus, we could track which sex the messenger effect had the strongest influence over.

The emails were sent to the 13 organisations, who were instructed to copy and paste it into an email and send it to a list of the female members and their male members.

We were then able to calculate how many men and women had clicked on the link through Google Analytics where the coded link was tracked.

Hypothesis

Due to the social norm nudge, the messenger effect will have a greater impact on women who have male partners aged 45 and over than black men aged 45 and over alone. Thus, we expect to see a greater proportion of black women click on the link to the Prostate Cancer UK website.

Standard approach

We obtained several examples of Prostate Cancer UK's standard email that the charity sends to its list of 11,215 emails. The standard email used by Prostate Cancer UK (see Appendix B) does not use a messenger effect, and contains only 'news' on events it is holding, or new campaigns, or new research into treating the disease. It will then have a green 'button' below to click on to find out more information.

In comparison, the messenger effect email is from a black doctor and is aimed at black men, containing data on the high risk they are under of contracting the disease. It then also asks for recipients to click on a link to find out more information.

Results

The email to men saw the link to the Prostate Cancer UK website used 67 times, with 57 of these being unique clicks on the link. This means 91 men didn't click on the link.

They may not even have opened the email, but we do not have access to open rates in this trial. The European Union General Data Protection Regulation (GDPR) meant the organisations were not able to give us the email addresses and most of the organisations were not using platforms that allowed them to record which emails were opened.

There were 54 page views of the Prostate Cancer UK website by women, with 49 of them being unique, leaving 266 emails that did not produce a link click.

For the purposes of the trial we concentrated on unique views as the most telling statistic. This produced a click-through rate of 15.5 per cent for women and 38.5 per cent for men and a total click-through rate for both sexes of 22.9 per cent (see Table 4).

The click-through rates for the messenger effect emails are a lot higher than the Non-profit industry average, which in October 2019 was 2.8 per cent (Mailchimp 2019), while Campaign Monitor's 2020 report had Non-profit industry click-through rates at a similar 2.6 per cent (Campaign 2020).

The Prostate Cancer UK email campaign used as the standard approach had a click-through rate of 6.3 per cent.

A chi-square test of independence was performed to examine the relation between genders and clicking the required link to find out more information on prostate cancer. The relation between these variables was significant, X^2 (1, N = 463) = 30.1, p = .00001.

Thus, men were more likely than women to click on the link, which rejects our hypothesis. However, the high click-through rate for women suggests this is still an avenue worth

pursuing for Prostate Cancer UK, especially as it is a novel approach and an, as yet, untapped source.

Table 4: The unique clicks on the link and click-through rate for men and women receiving the emails.

Gender	Total emails sent	Unique clicks on link	Click-through rate
Women	315	49	15.5 per cent
Men	148	57	38.5 per cent
Total	463	106	22.9 per cent

Discussion and Conclusion

1) Discussion

This study investigated the impact of enhancing the standard approach used in emails by Prostate Cancer UK by combining a social norm nudge with the messenger effect.

By comparing the messenger effect on emailed men and women with historical data, we saw relatively high click-through rates. Indeed, the click-through rate of the social norm nudge of targeting the wives and girlfriends of black men combined with the messenger effect of 15.5 per cent is sufficiently high to warrant more exploration of using black women to inform and influence their husbands and boyfriends into tacking positive action over prostate cancer.

The response was around six times more than the Non-profit industry historic rate of 2.6 to 2.8 and roughly 2.5 times more than Prostate Cancer UK's standard approach.

To the author's knowledge this is the first test of wives and girlfriends as a social norm nudge in the domain of prostate cancer. It has been found that wives have an influence on their husbands' decision to take **other** various cancer screenings (Van Jaarsveld 2006; Boyd et al (2001). And the results are supported by studies in other areas of health that show women heavily influence their partner's decisions (Rubenstein 1994; Norcross et al 1996).

Although these are interesting results, doing the trial in the field presented several problems due to the lack of oversight.

The trial relied on the organisations not instructing their members to click the links and thus nullifying the effects of the nudges in the emails.

There is also the concern that anybody receiving the email could have then forwarded it on to friends or family, who may not be in the target audience and if they clicked on the links we do not know if they were female or male. Members could have also discussed the emails between themselves and come to a collective decision to either click or not click on the emails, perhaps persuading others to do so or not to.

The trial may well have been aimed at a section of the black community that were already well informed about their susceptibility to the cancer due to being part of organisations that have been in contact with Prostate Cancer UK before - a couple of the

groups also had prostate cancer committees to tackle the problem and educate their community.

Doing the trial in lab conditions would have eliminated these problems, but with no budget this was not possible. Besides, it is often a criticism of lab-based experiments that they do not replicate the real world and transferring them into the messy, complex everyday environment finds any effects wiped out or difficult to trace.

Taking the trial into the field gives us a close-up examination of the nudges and the complicating factors that are involved. Indeed, Prostate Cancer UK could build on the relationships that have been developed with these organisations and introduce more trials to test their communications with black men aged 45 and over.

This could be a cost effective way to trial other methods of communication with the high risk group other than via email. For instance, one organisation that turned down the chance to take part in the trial revealed it communicates with its members via WhatsApp, which would present an interesting medium to trial more behavioural science nudges.

It is important to explain the differences between the trial group and the group used in the historical controls (Ghadessi et al 2020). Using the click-through rates for the Non-profit industry from two sources as the historical control throws up some differences with the present trial, namely the sample size.

Both Mailchimp (2019) and Campaign Monitor (2020) used samples that ran into the billions to measure their click-through rate, while this trial was limited to 463 people. Also, our sample is UK-based, while Campaign Monitor and Mailchimp send emails all over the world.

2) Conclusion

We sought to use insights from behavioural science to nudge hard-to-reach groups to find out more about prostate cancer and the high risk they face, namely black men aged 45 and over.

After reviewing the literature and using the Mindspace tool devised for policymakers we identified two nudges that could be used in a field trial; the messenger effect and the social norm bias. The social norm bias was informed by the literature, which revealed that wives and girlfriends were a heavy influence on black men's health and use of the health system.

It was found that the messenger effect worked best on men, but both men and women produced high click-through rates, much higher than the non-profit industry average and the standard approach from Prostate Cancer UK.

Such that the social norm bias saw 15.5 per cent of female respondents click the link to the Prostate Cancer UK website. This is around six times more than the Non-profit industry historic rate of 2.6 to 2.8 and 2.5 times more than Prostate Cancer UK's standard approach.

At a national level this would equate to 37,315 black women in the UK finding out more information on the disease for their husbands or boyfriends.

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3) Practice implications

This novel approach highlights the potential use of black women in the marketing and communication activities of Prostate Cancer UK to persuade more black men aged 45 and over to make an appointment with their GP to discuss the advantages and disadvantages around being screened and aiding early detection of the disease.

The higher than usual click-through rate for the emails may well be due to them being sent by the organisations, so recipients look out for the emails from their Afro-Caribbean Associations for instance. It will be a familiar address to them plus it will not go straight to their junk folder. This may give an unrealistic click-through rate for a marketing or public relations campaign, but also indicates a better route for Prostate Cancer UK to communicate with the high risk group.

By using organisations such as Afro-Caribbean Associations and the African and Caribbean churches, with their large congregations, Prostate Cancer UK could launch marketing campaigns through them with a higher penetration of respondents.

Although this study does not look at participation behaviour in visiting a GP to discuss a potential screening, other studies have found a close link between interest and going on to have a screening, with Wardle (2002) finding it being “highly predictive of screening attendance”. She found 82 per cent expressing definite interest attended, and 60 per cent who were probably interested went for a screening for bowel cancer.

While Sieverding et al (2010) discovered in a longitudinal study that men who declared an intention to get a screening in the next year were significantly more likely to actually get one.

Thus, the click-through rates of this trial are a good indication of the number of people who would make an appointment with their doctor, which is the ultimate aim of Prostate Cancer UK when dealing with high risk groups.

The majority of the charity’s marketing and communications efforts to persuade black men aged 45 and over to discuss the disease with their GP are aimed at those black men. However, targeting the wives and girlfriends of black men could add an additional number of men, formerly out of reach, to those seeking early health advice on the disease.

According to this trial 15.5 per cent of black women in the UK would seek to find out more information on prostate cancer to help advise their husband or boyfriend about their increased risk. We can extrapolate this to a national level by using the latest census data for the UK.

The 2011 census counted the black population of 45 and over in the UK to be 472,043, with 51 per cent of them being women. Thus, 15.5 per cent of a total of 240,742 black women aged 45 and over would see 37,315 of them be willing to find out more information about the increased risk that black men have in contracting prostate cancer, with the evidence from other studies showing the vast majority would go on to make an appointment with their GP to discuss the increased risks.

When added to Prostate Cancer UK’s marketing with men this could potentially be a significant additional number of high risk black men reached via their wives and girlfriends and persuaded to seek out advice from their doctor or at least the charity’s website.

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Appendices

Appendix A

The email with the messenger effect sent to male and female members of the 13 Afro-Caribbean organisations.

Hi, This is Dr Chinegwundoh

In the UK, about 1 in 4 black men will get prostate cancer in their lifetime. Black men are more likely to get prostate cancer than other men, who have a 1 in 8 chance of getting prostate cancer.

You may also be more likely to get prostate cancer as a black man if:

- you are aged 45 or over – and your risk increases as you get older
- your father or brother has had it.

Most men with early prostate cancer (cancer that's contained inside the prostate) don't have any symptoms. Symptoms usually develop if the cancer spreads out of the prostate and into nearby areas or around the body.

If you do have prostate cancer and it's caught early before it causes symptoms, there's a good chance treatment could stop the cancer spreading. It may not be possible to cure your cancer but you may be able to have treatment to help control the cancer and manage symptoms.

Prostate Cancer UK have reliable and up-to-date information about prostate cancer and prostate problems.

Find out more about prostate cancer and how it is diagnosed by visiting Prostate Cancer UK website, click here.

Dr Chinegwundoh MBE

SUPPORTING PROSTATE CANCER UK

Appendix B

The standard approach email from Prostate Cancer UK sent to the 11,215 emails

PROSTATE CANCER UK

And we need your help this weekend. View this email online

More men are living longer thanks to you. We must keep this momentum.

Ashley, we recently got incredible news from researchers in Madrid: we can expect a radical drop in death rates from prostate cancer in 2020 due to big improvements in diagnosis and treatments in recent years. Big improvements funded by people like you, meaning thousands more men are still with their loved ones.

But with prostate cancer research at a standstill because of the coronavirus crisis, we risk losing this momentum if we don't act now.

Ashley, we're asking all our supporters to help protect the incredible research gains that are now at risk by getting active or creative and taking the 2.6 challenge this weekend.

GET THE FULL STORY AND SIGN UP TO YOUR 2.6 CHALLENGE