EARLY CANCER DETECTION BEHAVIOURS AMONG BLACK MALES

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ABSTRACT

Background and Objective

It is believed that the differentials in the chances of surviving cancer diagnoses may be due to barriers that limit access to timely, appropriate, and high-quality medical care. Understanding the motivation for early cancer detection behaviour among Black males may begin to diminish the prevalence of having an imminent and aggressive cancer diagnosis among this gendered population. To add to this understanding, this study examined perceptions, beliefs, and engagement in early detection cancer behaviour in a sample of Black males 23–63 years of age.

Materials and Methods

Participants (N=312) responded to survey items assessing knowledge, beliefs, and perceptions of cancer, early cancer detection behaviour, illness attitude, masculinity, attachment style, and demographic characteristics via a Qualtrics link published on Amazon MTurk. Using hierarchical regression models, associations were estimated between demographic variables, social (illness attitude, identity), behavioural (masculinity, attachment) variables, and early cancer detection behaviour.

Results

Data showed age ($\beta = -.28$, $p<.01$), education ($\beta = -.180$, $p<.01$), illness attitude ($\beta = .24$, $p<.01$), masculinity ($\beta = -.22$, $p<.01$), and avoidant ($\beta = .31$, $p<.01$) and anxious ($\beta = -.14$, $p<.01$) attachment being associated with early cancer detection behaviour among Black males.

Conclusion

Understanding the motivation for early cancer detection behaviours may begin to address the use of mechanisms, by which to ensure a timely diagnosis, of preventable cancers, among this adult population. Our findings should be useful for researchers seeking to understand why people resist beneficial health information, and for practitioners who aim to create interventions that may reduce such resistance.

Research contends that health disparities persist among the Black race, with documented lower life expectancy, and higher death and infant mortality rates, with increased multi-morbidities (e.g., cancer, hypertension, and chronic pain).[1] These statistics are all the more apparent with a cancer diagnosis. The incidence and mortality rates of cancer, for example are a serious public health concern nationally and globally. According to the American Cancer Society (2017),[1] cancer is recognized as the second leading cause of death among adult males in the US. In 2016, the estimated number of new cancer cases among this gendered population, for all cancers, was 841,390, with a mortality rate of 314,290 deaths.[2] Similar statistics are found among Black males in particular, where cancer is the second leading cause of death, thus accounting for less than one-third of all deaths.[3] This suggests that the incidence rates, for all cancers combined, are higher among Black males, with prostate, lung, colorectal, kidney, and pancreas cancers being the most prevalent diagnoses.

This contends with more recent empirical data documenting the lifetime probability of being diagnosed with cancer at 41% among Black males.[4] Recent Surveillance, Epidemiology, and End Results (SEER) data show Black males having a higher adjusted incidence rate of all cancers than their White gendered counterparts (571.8 vs. 508.2 per 100,000).[3,4] This is all the more disparaging considering that Black males represent a little less than half of the total number of cancer-related deaths among Black adults (35,660 vs 69, 410).[4]

Despite the improvement in the collective health status nationally and globally, Black adult males continue to receive cancer diagnoses at later and more aggressive stages.[5] In comparison to other racial or ethnic groups, Black males witness a disproportionate share of the cancer burden – they have highest death rate and shortest survival.[6] One of the factors responsible for this disparity in survival is a fatal stage of diagnosis among Black males.[7]

Existent data suggest that these differences, as experienced among Black males, may be attributed to limited access to timely and quality medical care.[2] With these systemic indicators, there may also exist age-related differences in perceptions and beliefs about cancer and cancer diagnoses among older Black males,[8] with older Black males feeling more vulnerable to cancer diagnoses and a stronger fear towards cancer.[9] While the relationships between health and masculinity, illness attitude, ethnic identity, attachment style, and certain demographic factors have been reported among this gendered population, much less is known about how these factors influence early cancer detection behaviours.

UNDERSTANDING HEALTH BEHAVIOUR AMONG BLACK MALES

Current data show that Black males are less likely to participate in preventive health or lifestyle behaviour changes, such as dietary change, cancer screening, or smoking cessation, when compared to White males.[8,10,11] This may suggest a gendered-role expectation, by which males are socialized to project strength, endurance, and avoid any expression of weakness.[12] These expectations are evident with certain behavioural patterns, where males are more likely to engage in riskier health behaviours.[13,14]

With these findings, there is further evidence suggesting that illness attitudes may similarly dictate the lack of adhering to preventive health behaviours. Perceptual attitudes, such as perceived vulnerability to cancer, have been shown to influence health decision making, including engagement in cancer screening.[9] Individuals hold beliefs and perceptions about illnesses, which in turn guide how they conceive health threats due to illnesses.[15] These beliefs and perceptions involve their understanding of the illness and its symptoms, causes, and treatment; and are consequence of both informal and formal sources of information which may influence behaviours performed to mitigate a health threat. For example, Black males perceive cancer as a death sentence, which may present as yet another major barrier to early cancer detection.[16]

With perceived notions of health, illness, and cancer diagnoses among Black males, the attachment style theory posits that dependence on the attachment figure(s) creates early experiences that are internalized, accentuating the enduring schemas of the self and others.[17] Research suggests that adults with a secure attachment style participate in preventive health behaviours more than those with an anxious or avoidant attachment styles.[18] While the relationship

between attachment and ill health has been examined among the general population, few data are available highlighting this relationship among Black males.

The importance of early cancer detection behaviour cannot be overemphasized, particularly as it leads to increased survival rates.[19] Although the impact and benefits of cancer screening have received overwhelming attention among majority populations, there remains a lack of empirical evidence recognizing identified facilitators and barriers to early cancer detection behaviours among Black males. To understand the influence of various psychosocial factors on the willingness to screen for cancer, this study aimed to determine the significance demographic (age, education), social (identity, masculinity), and behavioural (illness attitude, avoidant attachment, anxious attachment) characteristics have on early cancer detection behaviour among Black males. Results from this study contributes to our understanding of health behaviours among Black males and address the critical void regarding early cancer detection behaviour among Black males.

METHOD

Participants

This study included a sample of males (N=312) who self-identified as Black American, aged 23–63 years, able to read and understand English and provide consent for study participation. Data were collected using Qualtrics links, published on Amazon's Mechanical Turk (MTurk) website, set to identify only Black American male residents in the United States. Participants were assessed on measures of beliefs and perceptions of early cancer detection behaviour, masculinity, identity, illness attitude, attachment, and demographic details. The online survey was designed to last approximately 30 minutes, and respondents received a monetary gift for study participation. This investigation was approved by the university's Institutional Review Board.

MEASURES

Social

Ethnic identity was assessed using the Multi-group Ethnic Identity Measure–Revised (MEIM).[20] The MEIM is a six-item questionnaire that includes two subscales: exploration (seeking out information about their own identity), and commitment (the extent to which individuals feel attached to their ethnic group). Response choices ranged from 1 (strongly disagree) to 5 (strongly agree), with higher scores endorsing greater ethnic identity) (Cronbach's α = .78).

Illness Attitude

The Illness Attitude Scale (IAS)[21] was used to measure general attitudes, beliefs, and fears about an illness. The IAS includes seven scales: worry about illness; concern about pain; health habits; hypochondriac beliefs; death phobia; disease phobia; bodily preoccupation; treatment experience; and effects of symptoms. Participants rated themselves using a five-point Likert scale (0=rarely, 1=not very often, 2=occasionally, 3=somewhat often, and 5=very often) (Cronbach's α = .96).

Behavioural Variables

The Males Role Norms Inventory-Short Form (MRNI-SF), a 21-item questionnaire, was included to assess conformity to dominant cultural norms of masculinity (avoidance of femininity, negativity towards sexual minorities, self-reliance through mechanical skills, toughness, dominance, importance of sex, restrictive emotions). Participants responded to items on a seven-point Likert scale (1=strongly disagree to 7=strongly agree) (Cronbach's α = .88). For this study, only the avoidance of femininity, toughness, and restrictive emotion scales were used. High total scores indicate greater conformity to traditional norms of masculinity.[22]

Experience in Close Relationships: The Experience in Close Relationships (ECR-16) scale was included to assess secure attachment. This 16-item scale includes two sub-scales: avoidance (Cronbach's α = .68) and anxiety (Cronbach's α = .88), which were included in subsequent analyses as separate scores as opposed to a composite score. Responses choices for both subscales ranged from 1 (disagree strongly) to 7 (agree strongly). Higher scores indicate greater attachment insecurities.[23]

HEALTH VARIABLES

Early cancer detection: Early cancer detection behaviour was measured with six single-item questions:

(1) I screen for cancer even if I am not told to do so; (2) I regularly inspect my body for any possible changes; (3) I regularly see my doctor for annual exams; (4) I only go to the doctor if something is physically wrong or I am in pain (reverse coded); (5) My concern for being diagnosed with cancer make me regularly see a doctor; and (6) I go for cancer screening if my spouse/significant other suggests it. Each question was assessed on a four-point Likert-scale (0 = never, 1= rarely, 2=often, and 3 = always), with higher scores indicating greater participation in early cancer detection behaviours. Respondents similarly responded to two questions about their perceived benefits of being screened for cancer. The question are: (1) briefly tell us one or more possible benefits of screening for cancer that you know; and (2) how important are these benefits.

Beliefs about cancer diagnoses: Beliefs about Black males being diagnosed with cancer were assessed with three single-item questions: (1) How likely are Black males to be diagnosed with cancer? (2) How likely do you feel as a Black male that you will be diagnosed with cancer? and (3) How likely will other Black males feel that they will be diagnosed with cancer? Response choices ranged from 1=not very likely, 2=somewhat likely, and 3=very likely. Higher scores indicate a stronger belief that Black males are more likely to be diagnosed with cancer in comparison to their White counterparts.

Reason for beliefs about cancer diagnoses: Also, the respondents were provided with eight statements from which they indicated the reason for belief about cancer diagnoses questions. The statements are: (1) Black males are tougher than White males; (2) Black males eat healthier than White males; (3) Black males are biologically/genetically different than White males; (4) Black males don't easily get sick unlike White males; (5) Black males are tougher than White males; (6) Black males don't easily die of sicknesses when compared to White males; (7) Black males eats healthier than White males; (6) Black males take care of their health more than White males; (7) Black males are not different from White males; and (8) Black males and White males have equal chance of having cancer. Respondents were instructed to check all those that apply and/or state any other reason that was not listed in the option.

Demographic Characteristics

Age was measured by asking respondents to indicate their current age in years. Because of the distribution, this variable was recoded into two categories: those aged < 39 years and those $\geq$ 40 years. Education was entered as a dichotomous variable (<12 years; $\geq$12 or more years of education). Although the study was designed to only include Black males, participants were asked to self-identify their race group (Black American, White, Hispanic, Asian), with Black American referring to Blacks originally from Africa, Haiti, Jamaica, and Caribbean, and Blacks born in America. Those who did not self-identify as Black American male were excluded from study participation.

Data Analytic Strategy

Descriptive analyses were calculated to provide measure performance and a profile of the sample's demographic (age, education) and health (knowledge of prevalence, beliefs, and perception of cancer) characteristics. Using pairwise deletion, a series of bivariate correlations were calculated to determine a parsimonious model (p<.05), and to determine the strength of the associations between early cancer detection behaviour and each study covariate. A hierarchical regression analysis was further specified to determine the amount of unique variance in early cancer detection behaviour accounted for by the demographic, social, and behavioural variables. Utilizing three regression models, demographic variables (age, education) were entered first (Model I), followed by identity and illness attitude (Model II). The remaining behavioural variables (masculinity, avoidance attachment, anxious attachment) were entered as the final set of predictor variables (Model III). Standardized beta coefficients were reported to describe the relative importance of the predictor variables within the regression model.

Exploratory analyses were conducted using an independent sample *t*-test to compare younger ($\leq$ 39 years) and older Black ($\geq$ 40 years) males on early cancer detection behaviour, masculinity, avoidance attachment, anxious attachment, illness attitude, identity, and beliefs about a cancer diagnosis. Statistical significance was determined with the probability of

a type I error, $p \leq 0.05$. All statistical analyses were conducted using SPSS version 22.0 (SPSS Inc., Chicago, IL).

RESULTS

Sociodemographic Characteristics

The study included a sample of Black males (N=312) 23-63 years of age, with a mean age of 35.1 ($SD = 8.1$) years. The majority of the participants (94%) reported having more than 12 years of education, while 43% reported being married. While 24% reported a family history of males being diagnosed with cancer, only 24% of the participants reported having been screened for cancer. More than one-third (35%) of the sample reported knowing a male who is currently diagnosed with cancer (Table 1).

Participants reported prostate cancer (89%), followed by lung (70%), liver (51%), kidney (38%), and colorectal cancers (38%) as the most commonly known cancer diagnoses in their communities.

Perception of Cancer Diagnoses

Approximately 45% of the respondents reported that Black males are very likely to be diagnosed with cancer, with more than half (52%) reporting that as Black males feel very likely to be diagnosed with cancer. Reported reasons for these beliefs included: Blacks and Whites have equal chances of being

diagnosed with cancer (47%), Black males are tougher than Whites (20%), and Black males are genetically different (39%). Additional stated reasons included "Black men tend to ignore the health problems that are common in African-Americans," and "Black men don't get the quality of health care that White men get." Other demographic, health, and social characteristics are provided in Table 2.

Associations Between Early Cancer Detection Behaviour and Study Covariates

Results from Table 3 show a significant negative association between early cancer detection behaviour and age ($r= -.21$, $p<0.01$), and education ($r= -.17$, $p<0.01$). Even with higher reported levels of education, older Black males are less likely to engage in early cancer detection behaviour. A significant correlation was found between early cancer detection behaviour and masculinity ($r=-.22$, $p<0.01$), suggesting that

TABLE 1 Demographic and Social Characteristics ($N = 312$)

Variable	$M \pm SD$/%
Age	35.1±8.1
Education (More than 12 years)	94%
Marital Status (% married)	43%
Family history of cancer associated with male(%Yes)	24%
Know a male currently diagnosed with cancer (%Yes)	35%
Have screened for cancer (%Yes)	24%
Have a primary care physician (%Yes) 66%	

TABLE 2 Cancer Diagnoses Beliefs and Perceptions

Statements	%
Cancer diagnosis belief	
Believe that Black males are more likely than Whites to be diagnosed	45
Feel that as Black males they are more likely to be diagnosed	52
Believe other Black males will feel likely than Whites to be diagnosed	42
Perception for cancer diagnosis belief	
Black males and White males have equal chances of being diagnosed	47
Black males are genetically different so are less likely be diagnosed	39
Black males are not different from White males	31
Black males are tougher than Whites so are less likely to be diagnosed	20
BLACKS MALES DON'T EASILY GET SICK UNLIKE WHITES	15

those who conform more to masculinity beliefs and expectations are less likely to engage in early cancer detection behaviour. Early cancer detection behaviour similarly correlated with avoidance attachment ($r=30$, $p<.01$) and anxious attachment ($r= -.11$, $p<.05$). Data similarly showed a significant moderate association between early cancer detection behaviour and beliefs about cancer, with reporting a higher belief about the likelihood of being diagnosed with cancer leading to more participation in early cancer detection behaviour ($r=.52$, $p<0.05$).

Multiple Regression Analysis

A hierarchical multiple regression model was calculated to determine the amount of unique variance in early cancer detection accounted for by the demographic and social variables (Table 4). The first step in model development involved entering the demographic variables (age, education; Model I). These variables accounted for twenty-six percent of the total early cancer detection behaviour. Age ($\beta = -.20$, $p<.01$) and education ($\beta = -.16$, $p<.01$) were significant indicators of early cancer detection behaviour. Identity ($\beta = .04$, $p=NS$) and illness attitude ($\beta = .24$, $p<.01$) were entered next (Model II), and accounted for 34% of the total variance. When entered, the association with age ($\beta = -.39$, $p<.001$) and education

TABLE 3 Association Between Early Cancer Detection Behaviour and Study Covariates

Variable	r
Age	−.21**
Education	−.17**
Masculinity	−.22**
Identity	.06
Avoidance attachment	.30**
Anxious attachment	−.11*
Illness attitude	.01
Beliefs about cancer diagnosis	.52**

Pearson-Product Moment
p=.05*; p<.01*

($\beta = -.17$, $p<.001$) remained as significant indicators in Model II. Table 4 shows that after controlling for the variables in Model 1 and Model 11, behavioural variables (masculinity, avoidance attachment, and anxious attachment; Model III) accounted for another 50% of the model's variance. The full regression model was significant ($F [7, 303] = 14.24$, $p< 0.001$). When the three models were included in the final analysis, only identity was not a significant indicator of early cancer detection behaviour in Black males.

Age Groups Comparison of Study Variables

Exploratory analyses were conducted by age group (young vs. old) in assessing early social (illness attitude, identity), behavioural (masculinity, attachment) variables, and early cancer detection behaviour. An independent-samples t-test was conducted comparing the incidence of social and behavioural variables between younger Black males ($<=39$ years of age) and those 40+ years (using 40 as the median age). There was a significant difference in the scores of early cancer detection behaviours between the older ($M = 8.00$, $SD = .41$) and younger ($M = 9.16$, $SD = .30$) Black males; $t (2.26) = 310$, $p< .05$). The older cohort also differed significantly from younger Blacks in conformity to masculinity beliefs ($t [-3.82] = 310$, $p< .001$), and illness attitude ($t [−17.17] = 310$, $p< .001$). There was no significant difference between older Black males and younger Black males in avoidance attachment ($t [1.52] = 310$), anxious attachment ($t [−.17] =309$), and cancer beliefs ($t [−.15] = 310$). These results suggest that older Black males differ from younger Black males in their cancer screening behaviour but not in their belief about cancer diagnoses (Table 5).

DISCUSSION

There is need to better understand the pathways linking psychosocial factors to health and health outcomes, while also identifying populations most vulnerable to certain health risks. Although there is a myriad of data explaining the influence psychosocial and demographic characteristics have on cancer prevention behaviours,[24] efforts are needed to identify constructs (e.g., health-related behaviours) that influence their daily lived experiences as males of colour in the United States.[9] While we know that inequities

TABLE 4 Predictors of Early Cancer Detection Behavior among Black Males

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| | Model | | |
Variable	Model 1	Model 2	Model 3
Demographic			
Age	−.20*	−.39*	−.28*
Education	−.16*	−.17*	−.18*
R^2			.07
Adjusted R^2			.06
R^2 change			.07
P value			<0.001
Social			
Identity		.05	.04
Illness attitude		.29*	.24*
R^2			.12
Adjusted R^2			.10
R^2 change			.05
P value			<0.001
Behavioral			
Masculinity			−.22*
Avoidance attachment			.31*
Anxious attachment			−.14*
R^2			.25
Adjusted R^2			.23
R^2 change			.13
P value			<0.001

Hierarchical regression
*p<.01**

exist in Black males exposure to an expansive range health determinants[8,25] there must be concerted efforts to further understand the impact certain chronic illness, such as cancer, have on the abilities of this gendered group to function physically, psychologically, and socially within the context of their environment.[9,26]

Data from this investigation showed education as is a significant predictor of early cancer detection behaviour, where those with more years of education

TABLE 5 Age Group Comparisons on Study Variables

Variables	*t*-test
Early cancer detection behaviour	2.26**
Masculinity	−3.82*
Avoidance attachment	1.52
Anxious attachment	−.17
Illness attitude	−17.17*
Identity	.96
Beliefs about cancer diagnosis	−.15

Independent t-Test
*p<.05**; p<.01**

were less likely to engage in early cancer detection behaviour (going for annual examination). Research suggests that cancer knowledge is positively related to steps towards being screened for cancer.[27] Data from this study suggest that those with higher education are less likely to actively seek information regarding their health and health status. Findings from this investigation may suggest that those with more education consider themselves to be healthier, thus having the perception that they are least vulnerable to be diagnosed with cancer, thereby delaying screening. Results further showed that participants with more education reported higher conformity to masculinity norms. This suggests that those exhibiting greater masculinity are more likely to interpret the screening (particularly for prostate cancer) to be invasive, thereby countering their beliefs of what it means to be a 'man.'

Results showed that Black males with higher cancer preventive attitudes were more likely to participate in early cancer detection behaviour due to their belief and fear of cancer diagnoses. This is consistent with past research indicating that health beliefs and attitudes are potentially important factors in preventive health in Black males.[28,29] Thus, beliefs about cancer and attitudes, such as not worrying about someone's health, may present as a barrier to early cancer detection behaviour.

Consistent with the current data, it was also found that those who reported higher conformity to masculinity norms were less likely to engage in early cancer detection behaviour showing the influence masculinity, and masculinity beliefs have on decision making and well-being of men. Recent reports document the significant association with high conformity to masculinity beliefs and less engagement in (cancer) preventive health.[8,29] This observed conformity to masculinity roles may be due to their lived experiences as men of colour, as well as societal ill-stated expectations and objectified ideas about them.[11] Black American males may interpret their societal roles, as providers and protectors, of more importance than engaging in healthier lifestyles and behaviours. This may counter the traditionally contrived male role norms and expectations, which may position Black men to be at a higher risk for poorer health outcomes.[30]

This study suggested that attachment style was a significant factor in early cancer detection behaviour among Black males. Data suggests that Black males who are less anxious about establishing relationships and being abandoned reported higher participation in early cancer detection behaviours. In addition, Black males that avoid showing an outward desire for closeness, warmth, affection, or love are more likely to engage in early cancer detection behaviour. The well-being and care of individuals diagnosed with cancer depends on the care from others, and care from others suggest loss of autonomy and display of vulnerability. As such, Black males high on anxious attachment are possibly more likely to engage in preventive health behaviours to avoid displays of vulnerability such as cancer screening.

Exploring the extent to which a person's emotional and physical attachment dictates their actions towards preventive health may present for a better understanding of reasons for those behaviours. More secure attachment may lead to confidence in engaging in health behaviour (in this case, early cancer detection behaviour) and avoiding health detrimental acts. Being securely attached can counter internalized masculinity norms and increase Black men's willingness to engage in cancer screening.[8] Understanding attachment trends among this target group may increase the understanding of health threats and health care seeking behaviour(s). These findings should be useful for researchers seeking to understand why people resist beneficial health

information, and for practitioners who aim to create interventions that may reduce such resistance.

Existent data suggests that age is a significant factor in cancer awareness, whereby older people are more likely to be recommended for cancer screening than their counterpart.[13] The American Cancer Society (2017) recommends that at age 45 African American males should discuss cancer screening options with their health care providers.[31] Yet, when compared to their younger counterparts, our data reveal that although older Black males hold a stronger illness attitude, they are less likely to engage in early cancer detection behaviour. Past findings suggests that cancer diagnoses such as prostate cancer in Black adults 55+ years of age may be associated with embarrassment and shame.[32] They fear for stigmatization by family and peers, the embarrassment of discussing symptoms related to sensitive or sexual areas of their body, and the invasiveness of physical examinations.

Observed differences in cancer diagnoses and survival rates may be due to barriers that limit access to timely, appropriate, and high-quality medical care. The basic understanding of the factors associated with early cancer detection behaviour is paramount to the effective formulation of public health strategies that reduce risks associated with a cancer diagnosis. There is strong evidence that early cancer detection behaviour is a function of normative beliefs and expectations among Black males.[8,9] Exploring the role psychosocial factors have in early cancer detection behaviour may increase knowledge of what might promote screening behaviours among Black males.

It is important that public health initiatives focus on providing a more thorough explanation of the influence determinants of health have on decision-making behaviours among Black males. This may include designing messages about early cancer screening that are convincing to the Black males, as well as chronic disease self-management programs that are specifically tailored to the needs of Black adults in general, and Black males in particular. It is equally important to understand their beliefs toward cancer screening so that information gaps and misconceptions can be identified and addressed early on. A better understanding of the mechanisms underlying early cancer detection behaviours can inform how

researchers, health service providers, and public health practitioners develop tools to promote cancer screening behaviours in Black males.

Our study addressed important and significant results drawing attention to the trends of early cancer detection behaviour among Black males. However, there are certain limitations that must be acknowledged. Due to our inability to analyze early cancer detection behaviour over a period of time, our findings do not imply causation. Also, there was a higher number of younger Black males within the sample (73%) who are under the age of 40; these men are yet to reach the age where cancer screening becomes highly of essence. Therefore, our ability to generalize these findings to older men, particularly those at the age where cancer is more prevalent, is limited. Additionally, the cross-sectional nature of our study precludes us from making firm conclusions about the causal links between psychosocial factors and early cancer detection behaviour. Finally, because we did not examine early cancer detection behaviour for specific cancers (e.g., prostate, colorectal, liver), we cannot conclusively compare our findings with other studies that examined specific early cancer detection behaviours. These limitations notwithstanding, our findings make a significant contribution to the literature as it explores barriers to cancer detection behaviours among Black males.

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