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# The impact of ethnicity on decisions and decision making in prostate cancer: an integrative review

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## ABSTRACT

**Objectives:** There are various factors that influence men's treatment decision-making for prostate cancer. However, the evidence has not been synthesized by ethnicity. The aim of this integrative review is to identify studies exploring men's decision-making treatment choices for prostate cancer by ethnicity.

**Design:** Literature was sought from the British Nursing Database, CINAHL, PsycINFO and PubMed. The inclusion criteria consisted of studies that concerned men from any ethnic background and had received a diagnosis of prostate cancer and treatment decision-making was discussed. 12 papers were included in this review.

**Results:** The results showed that a combination of external and internal influences affected men's treatment decision-making based on ethnicity. Men from certain ethnic backgrounds opted for certain types of treatment over others depending on their personal contexts which was further divided amongst age, education, and language spoken. Generally, White men were more likely to opt for surgery, with Black and Hispanic men less likely to undergo surgery.

**Conclusion:** In this review, White and Black men stated that their doctors' recommendation was a factor in their treatment decision-making for prostate cancer; however, other men reported that their doctors were less helpful with language representing a barrier. Further UK studies are required.

## ARTICLE HISTORY

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## KEYWORDS

Prostate cancer; ethnicity; treatment decision making; review

## SUSTAINABLE DEVELOPMENT GOALS

SDG 3: Good health & well-being; SDG 10: Reduced inequalities

## Introduction

Prostate cancer is the fourth leading diagnosed cancer worldwide (WHO 2020). In the United Kingdom [UK], on average over 150 cases of prostate cancer are diagnosed daily making it the most common cancer in men, and the second most common cancer of all behind breast cancer (World Cancer Research Fund 2023). Evidence obtained from the World Cancer Research Fund (2023) reported that, in the United Kingdom, for the year 2019 there were 55,068 cases of prostate cancer diagnosis and of these 12,169 deaths occurred. In the UK, prostate cancer diagnosis rate varies by

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ethnicity, such as with Black men having a 1 in 4 chance of getting prostate cancer, compared to a 1 in 8 for White men (Lloyd et al. 2015).

Men of different ethnic backgrounds who are diagnosed with prostate cancer may face different psychosocial, physical and financial challenges alongside treatment options (Ross et al. 2016). Men are generally presented with several treatment options, such as different types of surgery, and various forms of therapy (Ross et al. 2016), or may choose to delay treatment, or opt for other remedies. Regardless of the different treatment options, it is unclear how ethnicity may influence men in their choices to select a certain treatment, which is known as decision-making. For example, do family, friends, support groups or doctors hold greater sway and is this dependent on a man's ethnic background? Therefore, men of different ethnicities may approach treatment decisions differently, and some may not fully understand the impact, the possible risks, and the side effects that their decisions may have on their health and wellbeing (Ross et al. 2016). Cancer health inequalities could be attributed to many socioeconomic factors such as income, health literacy, education, housing and access to quality care, and these factors can also vary by ethnicity, thus influencing patients' freedom of choice and decision-making, and contributing to racial and ethnic differences in prostate cancer treatment and decision making.

It has been postulated that the decision-making framework in medical care comprises doctors only, patients only and patient-doctor collaboration; in other words, shared decision-making (Song et al. 2013). Research has shown that doctors who are in charge of making decisions on behalf of patients are often poor judges of a patient's values and quality of life (Walz et al. 2007). Conversely, some patients may not want the responsibility of deciding which treatment they should undertake and would value the expertise of doctors in assisting them in their treatment decisions (Song et al. 2013). However, the evidence suggests that shared decision-making with patient involvement will result in better outcomes and an increase in satisfaction for both patients and doctors (Crawford et al. 2002).

Table 1 displays selected literature that details the likelihood of a particular treatment or strategy being chosen by men of a particular ethnicity (Asian, Black, Hispanic or White), as well as the possible side effects of this treatment. However, the evidence has yet to be synthesised following a systematic search to examine why men opt for certain treatments or strategies. Due to the paucity of literature in this area, this review will focus on studies exploring men's decision-making treatment choices for prostate cancer by ethnicity. It aims to address this knowledge gap by synthesising findings from existing literature on treatment and decision choices. It will provide a unique insight and will illuminate how men make decisions about their treatment options for prostate cancer.

The aim of this review is to identify studies exploring men's decision-making treatment choices for prostate cancer by ethnicity by summarizing differences between ethnic groups in treatment decisions taken, to investigate the factors that influence the decision-making process, and to explore the decisions made among men with prostate cancer and whether these decisions differ between ethnic groups.

**Table 1.** Treatment decision-making by ethnicity and reported side-effect.

Localised Stage	Treatment/Strategy	Decision Making	Possible side effects
<b>T1 or T2; N0 (There is no cancer in nearby lymph nodes) or NX (Cancer in nearby lymph nodes cannot be measured); M0 (Cancer has not spread to other parts of the body) or MX (Metastasis cannot be measured)</b>	Active Surveillance	Black men were most likely to receive no treatment (Tyson II and Castle 2014).	Active Surveillance was associated with a lower risk of urinary incontinence, loss of libido, impotence, and fatigue (Steentjes et al. 2018). Active Surveillance may be associated with a lower risk of side effects and might be useful for men wanting to avoid incontinence and impotence (Steentjes et al. 2018). Anxiety and depression (Cancer Research UK 2015). If having a biopsy: pain or discomfort, short-term bleeding, risk of infection, acute urine retention, sexual problems (Prostate Cancer UK 2022a).
	Watchful Waiting	Black men were most likely to receive no treatment (Tyson II and Castle 2014).	Watchful Waiting was associated with a lower risk of urinary incontinence, loss of libido, impotence, and fatigue (Steentjes et al. 2018). Worry about cancer growing (Prostate Cancer UK 2022b).
	Radical Prostatectomy	Black men demonstrated a lower rate of receipt of radical prostatectomy than other ethnicities (Moses et al. 2016; Nocera et al. 2021). White men are likely to opt for radical prostatectomy equally with Asian men, and more often than Black men (Nocera et al. 2021). Asian men are likely to opt for radical prostatectomy equally with White and Hispanic men, and more often than Black men (Nocera et al. 2021).	Radical Prostatectomy was associated with a higher risk of urinary incontinence, loss of libido, and erectile dysfunction, hot flushes and fatigue (Steentjes et al. 2018). Infection, erectile dysfunction, leakage of urine, feeling tired and weak (Cancer Research UK 2022a).
	Radiotherapy: External beam radiotherapy (EBRT)	Black men demonstrated a lower rate of receipt of radiotherapy than other ethnicities (Moses et al. 2016). Black men are more likely to opt for radiotherapy (Cancer Research UK 2022a). White men were less likely to opt for radiotherapy than Black, and equally with Asian men (Nocera et al. 2021). Asian men are more likely to undergo radiotherapy (Tyson II and Castle 2014). Asian men were less likely to opt for radiotherapy than Black and Hispanic men, and equally with White men (Nocera et al. 2021).	Radiotherapy was associated with a higher risk of bowel problems and hot flushes (Steentjes et al. 2018). Tiredness and weakness, sore skin in the treatment area, loss of pubic hair, problems passing urine, diarrhoea, erectile dysfunction (Cancer Research UK 2022b).

High Intensity Focused Ultrasound	Significantly less Black patients were found to undergo ultrasound compared to non-Black patients (Gordetsky et al. 2018).	Bleeding, pain, infection (Cancer Research UK 2022c).
Cryotherapy	Black men demonstrated a lower rate of receipt of cryotherapy than other ethnicities (Moses et al. 2016).	Pain, bruising, constipation, blood in urine, bleeding from the cryotherapy area, erectile dysfunction, urinary incontinence, problems passing urine, infection (Cancer Research UK 2022d).
Chemotherapy	The effect of chemotherapy has not been associated with lower overall mortality in African-Americans (Hoeh et al. 2022).	Feeling sick, loss of appetite, losing weight, feeling very tired, infection, bleeding and bruising easily, diarrhoea or constipation, hair loss (Cancer Research UK 2022e).
Hormone Therapy	Asian men have superior overall survival than men of other race, whilst Non-Hispanic whites and blacks who receive treatment with ADT or chemohormonal therapy have comparable outcomes (Bernard et al. 2017).	Any hormone therapy was associated with a higher risk of loss of libido, breast changes, and hot flushes (Steenjtes et al. 2018). Low amount of sex hormones in the body, hot flushes, problems with sleeping, breast swelling, weight and muscle changes, difficulty thinking and remembering things, risk of heart disease and diabetes, bone problems, sexual difficulties (Cancer Research UK 2022f).

Locally Advanced Stage	Treatment/Strategy	Decision Making	Possible side effects
<b>T1 or T2 or T3 or T4 N0 or N1 M0</b>	Radical Prostatectomy	Black men demonstrated a lower rate of receipt of radical prostatectomy than other ethnicities (Moses et al. 2016; Nocera et al. 2021). White men are likely to opt for radical prostatectomy equally with Asian men, and more often than Black men (Nocera et al. 2021). Asian men are likely to opt for radical prostatectomy equally with White and Hispanic men, and more often than Black men (Nocera et al. 2021).	Radical Prostatectomy was associated with a higher risk of urinary incontinence, loss of libido, and erectile dysfunction, hot flushes and fatigue (Steenjtes et al. 2018). Infection, erectile dysfunction, leakage of urine, feeling tired and weak (Cancer Research UK 2022a).
	Radiotherapy: External beam radiotherapy (EBRT)	Black men demonstrated a lower rate of receipt of radiotherapy than other ethnicities (Moses et al. 2016). Black men are more likely to opt for radiotherapy (Tyson II and Castle 2014). White men were less likely to opt for radiotherapy than Black, and equally with Asian men (Nocera et al. 2021). Asian men are more likely to undergo radiotherapy (Tyson II and Castle 2014). Asian men were less likely to opt for radiotherapy than Black and	Radiotherapy was associated with a higher risk of bowel problems and hot flushes (Steenjtes et al. 2018). Tiredness and weakness, sore skin in the treatment area, loss of pubic hair, problems passing urine, diarrhoea, erectile dysfunction (Cancer Research UK 2022b).

(Continued)

**Table 1.** Continued.

Localised Stage	Treatment/Strategy	Decision Making	Possible side effects
	Brachytherapy: Brachytherapy (low and high dose rate) (BT)	Hispanic men, and equally with White men (Nocera et al. 2021). Black men demonstrated a lower rate of receipt of brachytherapy than other ethnicities (Moses et al. 2016). Brachytherapy is a less likely treatment option for Black men, White men, and Asian men (Nocera et al. 2021).	Brachytherapy was associated with a lower risk of impotence, fatigue, and erectile dysfunction (Steentjes et al. 2018). Problems passing urine, leakage of urine, impotence, bowel problems, inflammation of the back passage, small chance of cancer of the bladder or lower bowel (Cancer Research UK 2022g).
	High Intensity Focused Ultrasound	Significantly less Black patients were found to undergo ultrasound compared to non-Black patients (Gordetsky et al. 2018).	Bleeding, pain, infection (Cancer Research UK 2022c).
	Cryotherapy	Black men demonstrated a lower rate of receipt of cryotherapy than other ethnicities (Moses et al. 2016).	Pain, bruising, constipation, blood in urine, bleeding from the cryotherapy area, erectile dysfunction, urinary incontinence, problems passing urine, infection (Cancer Research UK 2022d).
	Chemotherapy	The effect of chemotherapy has not been associated with lower overall mortality in African-Americans (Hoeh et al. 2022).	Feeling sick, loss of appetite, losing weight, feeling very tired, infection, bleeding and bruising easily, diarrhoea or constipation, hair loss (Cancer Research UK 2022e).
	Hormone Therapy	Asian men have superior overall survival than men of other race, whilst Non-Hispanic whites and blacks who receive treatment with ADT or chemohormonal therapy have comparable outcomes (Bernard et al. 2017).	Any hormone therapy was associated with a higher risk of loss of libido, breast changes, and hot flushes (Steentjes et al. 2018). Low amount of sex hormones in the body, hot flushes, problems with sleeping, breast swelling, weight and muscle changes, difficulty thinking and remembering things, risk of heart disease and diabetes, bone problems, sexual difficulties (Cancer Research UK 2022f).

Table 1. Continued

Metastasised Stage	Treatment/Strategy	Decision Making	Possible side effects
<b>Any T stage; Any N stage; M1</b>	Enzalutamide Monotherapy	Use of enzalutamide between Black and White men is even (George et al. 2021).	Most commonly reported adverse effects were fatigue and gynecomastia (Shore et al. 2022). Fatigue, hot flushes and sweats, high blood pressure, falls, bone pain or fractures (Cancer Research UK 2022h).
	Radium 223	Black men had longer overall survival than nonblack men, although they appeared to receive radium later in the disease course (Zhao et al. 2020).	Diarrhoea and sickness, low levels of blood cells, infection, anaemia, bruising (Cancer Research UK 2022i).
	Cabazitaxel	Patients with metastatic castration-resistant prostate cancer can be reassured that cabazitaxel will not reduce quality of life when compared with treatment with a second androgen signalling-targeted inhibitor (Fizazi et al. 2020).	Risk of infection, breathlessness and looking pale, bruising and bleeding, loss of appetite and weight loss, taste changes, lung problems, diarrhoea or constipation, nausea, abdominal pain, hair loss, joint or back pain, blood in urine, tiredness and weakness (Cancer Research UK 2016).
	Radical Prostatectomy	Black men demonstrated a lower rate of receipt of radical prostatectomy than other ethnicities (Moses et al. 2016; Nocera et al. 2021). White men are likely to opt for radical prostatectomy equally with Asian men, and more often than Black men (Nocera et al. 2021). Asian men are likely to opt for radical prostatectomy equally with White and Hispanic men, and more often than Black men (Nocera et al. 2021).	Radical Prostatectomy was associated with a higher risk of urinary incontinence, loss of libido, and erectile dysfunction, hot flushes and fatigue (Steentjes et al. 2018). Infection, erectile dysfunction, leakage of urine, feeling tired and weak (Prostate Cancer UK 2022a).
	Radiotherapy: External beam radiotherapy (EBRT)	Black men demonstrated a lower rate of receipt of radiotherapy than other ethnicities (Moses et al. 2016). Black men are more likely to opt for radiotherapy (Tyson II and Castle 2014). White men were less likely to opt for radiotherapy than Black, and equally with Asian men (Nocera et al. 2021). Asian men are more likely to undergo radiotherapy (Tyson II and Castle 2014). Asian men were less likely to opt for radiotherapy than Black and Hispanic men, and equally with White men (Nocera et al. 2021).	Radiotherapy was associated with a higher risk of bowel problems and hot flushes (Steentjes et al. 2018). Tiredness and weakness, sore skin in the treatment area, loss of pubic hair, problems passing urine, diarrhoea, erectile dysfunction (Cancer Research UK 2022b).
	Brachytherapy: Brachytherapy (low and high dose rate) (BT)	Black men demonstrated a lower rate of receipt of brachytherapy than other ethnicities (Moses et al. 2016). Brachytherapy is a less likely treatment option for Black men, White men, and Asian men (Nocera et al. 2021).	Brachytherapy was associated with a lower risk of impotence, fatigue, and erectile dysfunction (Steentjes et al. 2018). Problems passing urine, leakage of urine, impotence, bowel problems, inflammation of the back passage, small chance of cancer of the bladder or lower bowel (Cancer Research UK 2022g).
	High Intensity Focused Ultrasound	Significantly less Black patients were found to undergo ultrasound compared to non-Black patients (Gordetsky et al. 2018).	Bleeding, pain, infection (Cancer Research UK 2022c).

(Continued)

**Table 1.** Continued.

<b>Metastasised Stage</b>	<b>Treatment/Strategy</b>	<b>Decision Making</b>	<b>Possible side effects</b>
	Cryotherapy	Black men demonstrated a lower rate of receipt of cryotherapy than other ethnicities (Moses et al. 2016).	Pain, bruising, constipation, blood in urine, bleeding from the cryotherapy area, erectile dysfunction, urinary incontinence, problems passing urine, infection (Cancer Research UK 2022d).
	Chemotherapy	The effect of chemotherapy has not been associated with lower overall mortality in African-Americans (Hoeh et al. 2022).	Feeling sick, loss of appetite, losing weight, feeling very tired, infection, bleeding and bruising easily, diarrhoea or constipation, hair loss (Cancer Research UK 2022e).
	Hormone Therapy	Asian men have superior overall survival than men of other race, whilst Non-Hispanic whites and blacks who receive treatment with ADT or chemohormonal therapy have comparable outcomes (Bernard et al. 2017).	Any hormone therapy was associated with a higher risk of loss of libido, breast changes, and hot flushes (Steentjes et al. 2018). Low amount of sex hormones in the body, hot flushes, problems with sleeping, breast swelling, weight and muscle changes, difficulty thinking and remembering things, risk of heart disease and diabetes, bone problems, sexual difficulties (Cancer Research UK 2022f).

## Materials and methods

This integrative review will synthesise the literature on men's decision-making treatment choices for prostate cancer by ethnicity. Both qualitative and quantitative data were sought for this study. The review will adopt the framework described by Whittemore and Knafl (2005) as a guide. This methodological approach allows for the simultaneous synthesis of qualitative and quantitative data.

### Search strategy

Original primary research articles were sought from four key healthcare databases: British Nursing Database, CINAHL, PsycINFO and PubMed. The following keywords were used across all databases: (**prostate cancer**) AND (**treatment**) AND (**ethnicit\* OR racial**) AND (**decision making**). Aside from English Language, no other limiting options were applied to collect as much literature available on this topic from the first available date to 2024. The results can be seen in [Figure 1](#).

### Inclusion criteria

- Studies that concerned men from any ethnic background.
- Studies where men had received a diagnosis for prostate cancer and treatment decision-making was discussed.
- English Language only.
- Qualitative, quantitative or mixed methods studies.

### Exclusion criteria

- Studies that involved spouses, partners, or family members.
- Studies that did not discuss treatment decision-making for prostate cancer.
- Studies that incorporated other forms of cancer.
- Other reviews, grey literature, and non-English language papers.

### Quality appraisal

The Mixed Methods Appraisal Tool (MMAT) is a critical appraisal tool that is designed for the appraisal stage of systematic mixed studies reviews (Hong et al. 2018) and was applied to the chosen literature to assess their quality. The studies for this integrative review all scored high marks to ensure their inclusion (see [Table 2](#)).

Out of the 12 studies selected for this integrative review, 7 were quantitative, 4 used a qualitative approach and 1 was mixed methods. The characteristics of each study can be found in [Table 3](#). Data were extracted from the papers and added to individual cells in Google Sheets. This method enabled the authors to find common meanings, similarities and differences amongst the data, as described by Pfaff et al. (2014). Subsequently, the authors were able to discern a number of themes emerging from the codes. The authors discussed the codes and the emerging subthemes, culminating in major themes as identified in the results section.

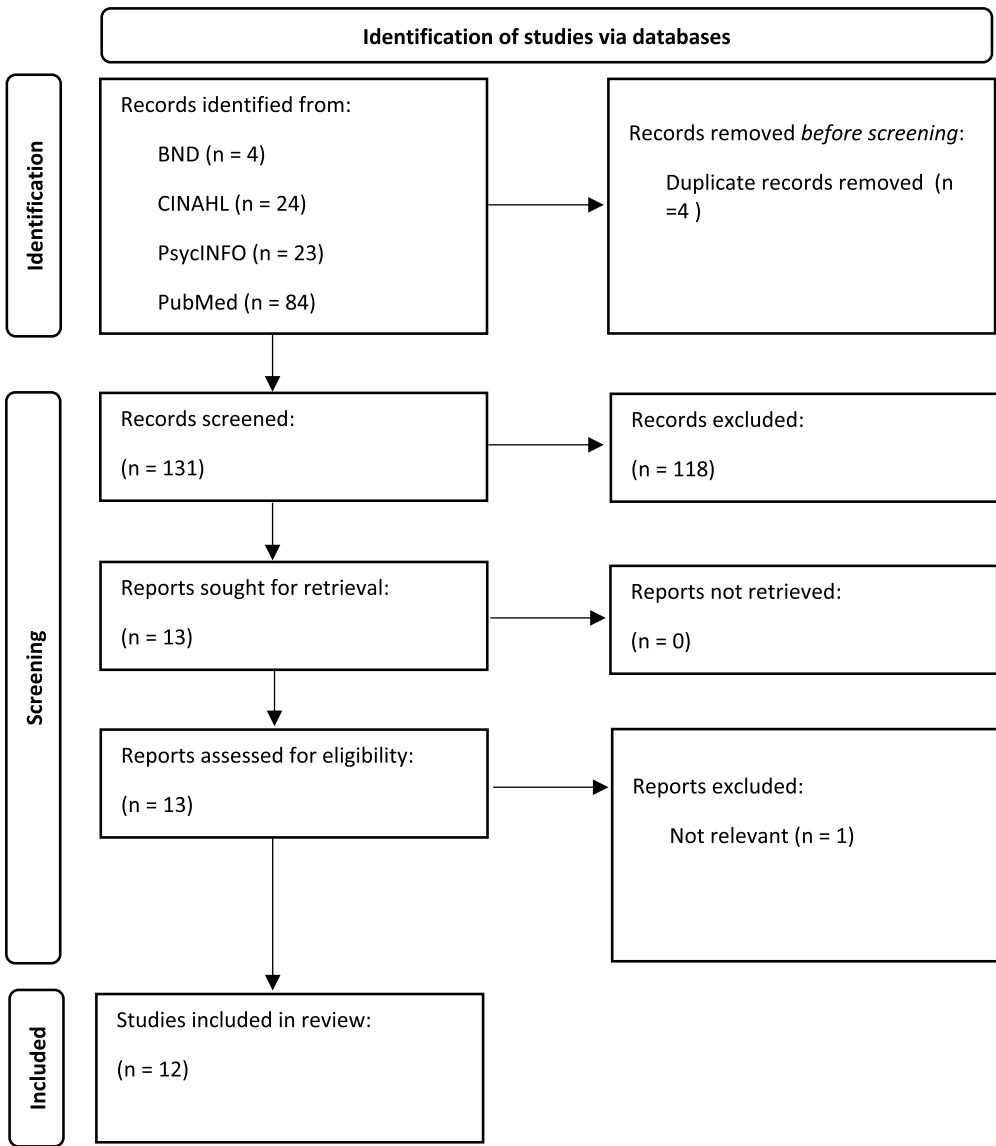


Figure 1. PRISMA flow diagram, Page et al. (2021).

## Results

The codes were subsequently aggregated and organised under 2 themes (Internal influences on decision-making, and External influences on decision-making) and 6 sub-themes (Personal attributes, Attitudes and beliefs about cancer and treatment, Perceptions of treatment options, Doctor’s influence, Impression from family & friends, Societal impact).

**Table 2.** Mixed Methods Appraisal of the studies.

	Bamidele and McCaughan 2022	Guan et al. 2023	Xu et al. 2011	Xu et al. 2012		
1. Qualitative						
1.1. Is the qualitative approach appropriate to answer the research question?	Yes	Yes	Yes	Yes		
1.2. Are the qualitative data collection methods adequate to address the research question?	Yes	Yes	Yes	Yes		
1.3. Are the findings adequately derived from the data?	Yes	Yes	Yes	Yes		
1.4. Is the interpretation of results sufficiently substantiated by data?	Yes	Yes	Yes	Yes		
1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?	Yes	Yes	Yes	Yes		
3. Quantitative nonrandomized	Hoffman et al. 2019					
3.1. Are the participants representative of the target population?	Yes					
3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	Yes					
3.3. Are there complete outcome data?	Yes					
3.4. Are the confounders accounted for in the design and analysis?	Yes					
3.5. During the study period, is the intervention administered (or exposure occurred) as intended?	Yes					
4. Quantitative Descriptive	Gordon et al. 2019	Palmer et al. 2019	Ross et al. 2016	Steenland et al. 2011	Trinh et al. 2020	Xu et al. 2016
4.1. Is the sampling strategy relevant to address the research question?	Yes	Yes	Yes	Yes	Yes	Yes
4.2. Is the sample representative of the target population?	Yes	Yes	Yes	Yes	Yes	Yes
4.3. Are the measurements appropriate?	Yes	Yes	Yes	Yes	Yes	Yes
4.4. Is the risk of nonresponse bias low?	Yes	Yes	Yes	Yes	Yes	Yes
4.5. Is the statistical analysis appropriate to answer the research question?	Yes	Yes	Yes	Yes	Yes	Yes
5. Mixed methods	Owens et al. 2021					
5.1. Is there an adequate rationale for using a mixed methods design to address the research question?	Yes					
5.2. Are the different components of the study effectively integrated to answer the research question?	Yes					
5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Yes					
5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Yes					
5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	Yes					

**Table 3.** Study Characteristics.

Authors	Participants	Country	Study Design
Bamidele and McCaughan 2022	25 Black men	England	Qualitative, face-to-face, Skype and telephone interviews
Gordon et al. 2019	1170 African American and White men	USA	Quantitative, telephone survey
Guan et al. 2023	43 Asian American, Black, Hispanic/Latino and White men	USA	Qualitative, semi-structured interviews
Hoffman et al. 2019	1171 Black, Hispanic/Latino and White men	USA	Quantitative, prospective cohort study.
Owens et al. 2021	17 African American and 13 European American men	USA	Mixed Methods, individual interviews followed by survey
Palmer et al. 2019	855 African American, Asian American, Latino and White men	USA	Quantitative, cross-sectional telephone survey
Ross et al. 2016	877 African American and White men	USA	Quantitative, telephone survey
Steenland et al. 2011	516 African American and White men	USA	Quantitative, survey/interview
Trinh et al. 2020	886 Hispanic, Black, White, Others and Undisclosed men	USA	Quantitative, questionnaire
Xu et al. 2011	21 men (14 Black and 7 White)	USA	Qualitative, semi structured interviews
Xu et al. 2012	21 men (14 Black and 7 White)	USA	Qualitative, semi structured in-person interviews
Xu et al. 2016	260 men (132 Black and 128 White)	USA	Quantitative, survey

### Internal influences on decision making

This theme concerns men's internal decision-making processes. The subthemes are Personal Attributes, Attitudes and beliefs about cancer and treatment, and Perceptions of treatment options.

#### *Personal attributes*

Personality traits and education were reported to play a major role in decision-making style (Xu et al. 2011). For African American men, older age, lower Gleason score, low health literacy, and good health status made them more likely to be engaged in treatment decision-making (Palmer et al. 2019). Comparably, White men with higher levels of education and health insurance coverage were more likely to believe that the treatment chosen was best in contrast to Black men (Ross et al. 2016). In the study by Xu et al. (2011), both Black and White men mentioned that their age was influencing their decision.

Being young was a justification for rejecting Watchful Waiting (WW)/Active Surveillance (AS), with younger Black and White men in this study believing that WW/AS was for older men and emphasizing their quality of life over survival (Xu et al. 2011). Gordon et al. (2019) also reported that preserving quality of life was a very important factor influencing both Black and White men's treatment decisions. In contrast, Black, Hispanic/Latino, and White men in another study who opted for active treatment (AT) valued taking active steps to remove and cure cancer and increase their length, though not their quality of life (Hoffman et al. 2019). These men also reported more decisional certainty and were more likely to prefer assuming responsibility for decision-making (Hoffman et al. 2019).

For Black men who opted for brachytherapy, one study reported that their decision was motivated by a preference for a less invasive procedure, minimal and convenient travel to and from a hospital for treatment, and the need for a speedy recovery, which

would enable them to return quickly to their normal routine lives post-treatment (Bamidele and McCaughan 2022). In a separate study, Black and White men who chose surgery were younger and made treatment choices based on their age, and made their decision regardless of what the doctor recommended or whether the treatment was convenient for them (Steenland et al. 2011). Steenland et al. (2011) also reported that White men were more likely to choose surgery than Black men. In another study, the fear of cancer progressing caused the majority of Black and White men in this study to choose surgery despite its potential side effects, but some later changed their minds once learning about the possible side effects of this treatment (Xu et al. 2011).

### ***Attitudes and beliefs to cancer and treatment***

Black and White men reported in one study their belief that cancer should be treated and cured as soon as possible because if left untreated it would be fatal (Xu et al. 2012). A separate study with Black and White men by Xu et al. (2011) noted that treatment decisions were affected by prior beliefs about cancer and cure, perceptions of efficacy and side effects of treatment, aggressiveness of the cancer, coping styles, and religion and faith. Furthermore, future bladder problems were more influential for White men than Black men in the decision-making process, as reported in another study (Trinh et al. 2020).

Priority for survival informed promptness, in one study with Black and White men, to take up medical treatment, and despite receiving guidance from their doctors, doing personal research and discussing with partners and peers, the men had the autonomy to make the final decision on which treatment option to take (Gordon et al. 2019). There was reported delaying of medical treatment because Black men were trying traditional remedies which were motivated by a desire to recover naturally in order to prolong their lives without having to undergo medical procedures, which they perceived as an invasion of their bodies and synthetic (Bamidele and McCaughan 2022).

Although some Black and White men in the study by Xu et al. (2012) understood the rationale for WW/AS as an alternative to an aggressive treatment with potential side effects, they still considered it too risky and were afraid their treatment choices might be limited if the cancer progressed and therefore they would prefer to either have surgery or radiotherapy. Being alive and reducing the risk of cancer recurrence also informed some Black men's choice for radical prostatectomy in the study by Bamidele and McCaughan (2022).

In the study by Gordon et al. (2019), perceived cancer risk appears to be the dominant factor associated with whether Black and White male patients received treatment or no treatment. Similarly, doing nothing was not an option for some participants in the study by Xu et al. (2012), however, the majority of Black and White men in this study believed that early treatment would lead to a cure when treatment might not necessarily improve survival and chose aggressive treatment to get rid of cancer, or to be cured, so they could move on with their life (Xu et al. 2012). If the cancer was perceived to be not that aggressive, White men in another study chose AS, whereas for Black men radiotherapy was the most common choice (Gordon et al. 2019). In contrast, Xu et al. (2012) reported that the fear of cancer progressing caused many Black and White men to reject WW/AS as too risky, as they were fearful that the cancer might spread during the time between diagnosis and treatment and were reluctant to wait (Xu et al. 2012).

### **Perceptions of treatment options**

Owens et al. (2021) reported that African American and European American men prioritized treatment based on one or more of five factors including the best probability of getting rid of cancer, least time to recovery, and least side effects. Recovery time, treatment time, impact on daily activities, and cost were all important decisions made by African Americans in choosing a treatment option in the study by Gordon et al. (2019). One study reported that Black, Hispanic/Latino, and White men on observation, unlike men on AT, were more aware of both their low-risk status and the option for observation, and preferred shared decision-making (Hoffman et al. 2019).

In another study, a Black patient acknowledged the way in which his beliefs about the fairness of the healthcare system shaped his treatment decisions (Steenland et al. 2011). One Black patient had articulated a level of scepticism and mistrust about the healthcare system and allopathic medicine generally and was reluctant to have medical intervention entirely (Guan et al. 2023). Young Black and White men in one study were aware of WW/AS as a potential treatment option but had limited knowledge and many misunderstandings, feeling that WW/AS was only for older men who cannot have surgery (Xu et al. 2012). In addition, Xu et al. (2016) found that Black and White men who chose surgery or radiation believed they would achieve an increase in life expectancy of more than a decade compared with those not receiving any treatment, and selected these options based on this misconception. Guan et al. (2023) cited linguistic limitations as a factor that influenced their Asian American and Hispanic/Latino participants' ability to receive relevant information to inform their treatment decisions.

### **External influences on decision making**

This theme examines external factors that influence men's decision-making. The sub-themes are the Doctor's influence, Impression from family and friends, and Societal impact.

#### **Doctor's influence**

In the study by Guan et al. (2023), all patients, across all racial and ethnic groups, expressed faith in their physician's training and affiliation with reputable institutions. Further evidence highlighted that doctors influenced treatment decisions, with Black and White men believing that as a result of the discussion their chosen treatment was the best compared to those whose doctors did not discuss (Ross et al. 2016). Bamidele & McCaughan (Xu et al. 2012) reported that for Black men with more aggressive and advanced cancers, their treatment options were more limited and they decided to go with their doctor's recommendation for more intensive treatment including hormone therapy. Furthermore, Steenland et al. (2011) found that Black and White men who chose brachytherapy plus external radiation treatment tended to do so because their doctor recommended this treatment, whilst Xu et al. (2011) also reported that Black and White men were influenced by a direct recommendation from their doctor citing the urologist that their best chance for cure was surgery based on the men's age.

However, Palmer et al. (2019) reported that Asian American prostate cancer patients were less likely to report that their doctors asked them to help decide their treatment plan, with language a significant contributing factor. The same study found that, for Latino men, lower education was associated with patients less likely to report that their doctors asked them to help decide their treatment plan (Gordon et al. 2019). Hoffman et al. (2019) reported that Black, Hispanic/Latino and White men on observation were also more likely to report having received a urologist's recommendation for observation and less likely to have discussed treatment with a radiation oncologist, spouse/partner, or friend. In contrast, Xu et al. (2012) found that a number of Black and White men in their study said that their urologists and radiation oncologists thought that WW/AS was not suitable for them, and they felt pressured to seek aggressive treatment.

### ***Impression from family and friends***

Perceptions of others, including family members, who had treatment for prostate cancer were considered in African American and European American participants' decisions about their own treatment (Owens et al. 2021). Black and White men who chose no treatment at 6 months were more likely to have had that course recommended by a friend, to have had poor communication with their doctor and to have not followed the doctor's recommended treatment option (Steenland et al. 2011).

Xu et al. (2011) reported that one man initially chose brachytherapy based on his friend's experience, despite his urologist's recommendation of surgery, whilst most Black and White men sought information and advice from friends or family, particularly those with personal experience with prostate cancer. In a separate study, some Black and White men described that their family members urged aggressive treatment despite the fact that WW/AS would have been a suitable option for them (Xu et al. 2012).

### ***Societal impact***

Trinh et al. (2020) observed that famous people were more likely to be considered influential in the decision-making process for Hispanic and Non-Hispanic Black men than Non-Hispanic White men. Guan et al. (2023) found that several racially and ethnically minoritized patients described the impact of socialized expectations of masculinity, particularly around sexual intimacy and function, on their treatment decisions. Erectile dysfunction affected the decision-making process for Black men in one study, despite understanding that fear and humiliation around potential erectile dysfunction stemmed from gendered expectations about sexuality, these perceptions still played a role in their own decision-making and those of other Black men they knew (Guan et al. 2023). One of the Hispanic/Latino patients implicated machismo as a factor that hindered their ability to make timely decisions about their medical care (Guan et al. 2023). Future bladder problems were more influential for White men than Black men in the decision-making process, as reported in another study (Trinh et al. 2020).

In the study by Trinh et al. (2020), Non-Hispanic Black and Hispanic men reported religion as more influential in decision-making than Non-Hispanic White men.

Similarly, among White participants in the study by Guan et al. (2023), only one individual mentioned the importance of religion, whereas in contrast, more minority participants described varying ways in which religion and spirituality were significant for their decision-making. Xu et al. (2011) also reported that for some, prayer and faith in a higher being helped determine their approach to treat cancer, which was especially true for Black men more than White men.

## Discussion

In this integrative review, it was clearly demonstrated that choosing a particular treatment option was a complex process and was influenced by factors such as personality traits, education, age, low health literacy and health insurance (Palmer et al. 2019; Xu et al. 2011). In terms of WW/AS, White men were found to choose this treatment option if the cancer was not perceived as aggressive, with Black men previously found to be more inclined to take this approach (Tyson II and Castle 2014). This choice was ideal for avoiding urinary incontinence (Steentjes et al. 2018) which White men were reported to, in one study, be more inclined to consider in their decision-making than Black men (Trinh et al. 2020). The evidence from the review determined that White and Asian men were more likely to select surgery over Black men (Steenland et al. 2011), with this evidence supported by other studies (Moses et al. 2016; Nocera et al. 2021). Black men were reported to be trying traditional remedies to avoid medical intervention (Bamidele and McCaughan 2022). However, evidence from a UK study suggests that herbal remedies are ineffective in the treatment of prostate cancer (Alexis 2020). Despite the evidence, Black men saw this as a way of taking control of their health and avoiding what was perceived to be an invasion of their bodies through surgery. Such views could be tied to societal and cultural norms around masculinity, where minoritized ethnicities were more likely to adhere to sexualized notions of masculinity, as Black men were reported to be (Guan et al. 2023). Indeed, some treatment decisions were motivated around issues of erectile dysfunction, a side effect of radical prostatectomy (Steentjes et al. 2018). These decisions happened more so with Black men than other ethnicities, with Hispanic/Latino men also espousing machismo as a reason for avoiding making a decision about their treatment options (Guan et al. 2023).

Conflicting evidence was reported over radiotherapy, with one study noting that Black men were less likely to take this treatment option (Moses et al. 2016) whilst other evidence highlighted that Black men were more inclined to undergo radiotherapy compared to White and Asian men (Cancer Research UK 2022a; Nocera et al. 2021). However, Asian men were also reported to be more likely to undergo radiotherapy than Black and Hispanic men (Tyson II and Castle 2014). As previously noted, Black and Hispanic/Latino men may be less inclined to opt for surgery due to the side effects pertaining to their masculinities, whereas White and Asian men might be less concerned by this. Similarly, brachytherapy was selected by Black men partly for being a less invasive procedure, and resulting in a speedy recovery (Bamidele and McCaughan 2022) and posing a lower risk of impotence and fatigue (Steentjes et al. 2018) which may account for the decision making of Black men in this instance. In contrast, other studies reported a lower rate of receipt of brachytherapy amongst Black men over other ethnicities (Moses et al. 2016; Nocera et al. 2021). The evidence in the review found that doctors

(Steenland et al. 2011) and urologists (Xu et al. 2011) were influential in this decision-making, which could explain some differences in results, whilst taking other factors noted in the literature into consideration, such as cost and time taken to travel and recover (Gordon et al. 2019).

Indeed, doctors were reported to be influential in decision-making across all ethnicities (Guan et al. 2023; Ross et al. 2016; Xu et al. 2011); however, research conducted by Palmer et al. (2019) found that Asian American men were not always consulted by their doctors regarding their treatment plan. Similarly, Hispanic/Latino survivors of prostate cancer, whose education attainment was lower than the average US population, reported that their doctors were less likely to include them in treatment decision-making (Palmer et al. 2019). In contrast, White men felt their treatment options were better, compared to Black men, due to their education and health coverage (Ross et al. 2016) suggesting that education plays a vital role in decision-making. The study by Ross et al. (2016) reported on the importance of doctors discussing the various treatment options with men. The majority of men stated that these discussions were apparent and the treatment chosen was in collaboration with doctors. Language barriers and lower health literacy may pose a problem, especially as a number of men who chose surgery or radiation did so based on misconceptions (Xu et al. 2016) which, for some, led to a change of opinion upon learning of the side effects of these treatments (Xu et al. 2011).

Furthermore, some studies reported that Black and White men felt pressured by family and their doctors to opt for aggressive treatment over WW/AS (Xu et al. 2012). Men of all ethnicities must be presented with clear information about their treatment options and potential side effects, and not feel pressured to take a certain course of action against their wishes. Treatment decisions for some Black men were based on their beliefs about prostate cancer, the side effects of the treatment, and their religious and spiritual beliefs (Xu et al. 2011). Religious beliefs were found to influence decision-making for Black and Hispanic/Latino men more so than White men (Guan et al. 2023; Trinh et al. 2020; Xu et al. 2011). Given that medical advice was available and offered to Black men, they instead chose to be autonomous in their decision-making when it came to their treatment options (Bamidele and McCaughan 2022). Having sufficient time could enable men to seek information about their treatment options from other doctors, especially younger men who may not make an informed decision compared to older men (Steenland et al. 2011; Xu et al. 2011). This opinion may contribute to positive experiences and in turn, may give men a sense of control over their involvement in decisions that impact their health and wellbeing (Song et al. 2013).

For some Black men, the mistrust of the healthcare sector is deeply rooted in history and may have stemmed from controversies such as the Tuskegee Syphilis Study (Alexis and Worsley 2018). Evidence suggests that Black men perceive that the system is set up against them and that racism serves only to devalue Black men thus resulting in them being afraid to trust the healthcare system (Alexis and Worsley 2018). This may have contributed to them not seeking early intervention for prostate cancer treatment which may impact their treatment options. Similarly, Xu et al. (2011) reported that some Black men spoke about their distrust of the healthcare system, including distrust of physicians, and these views may impact their treatment decisions, despite the evidence that shared decision-making results in more effective patient outcomes (Crawford et al. 2002).

During men's journey, they may not always obtain the needed information from healthcare professionals and therefore may turn to family and friends to support them in their decision-making (Alexis 2020). Ideas about masculinity and what it means to be a 'man' are intimately tied to certain attitudes, norms and lifestyle choices. In this review, men's treatment decisions were essentially rooted in cultural ideals and concepts of masculinity. Not only did masculinity influence some men's decisions, but age, education, religion, perceptions about treatments and risks, and outside influences were all contributing factors as well.

## Conclusion

This review found a number of factors influencing men's decision-making to select various treatment options for prostate cancer by ethnicity. Internal factors stemmed from personal perceptions, attitudes and beliefs towards cancer and its treatment, whereas external factors related to doctor's advice, influence from family and friends, and societal expectations. Men from certain ethnic backgrounds opted for certain types of treatment over others depending on their personal contexts which was further divided amongst age, education, and language spoken. Generally, White men were more likely to opt for surgery, with Black and Hispanic/Latino men less likely to undergo surgery. A doctor's recommendation carried a lot of weight with both White and Black men, but non-English speaking patients reported that their doctors were less helpful. Shared decision-making is crucial and therefore efforts are needed by healthcare professionals to develop strategies to improve shared decision-making for men from diverse populations who have been treated for prostate cancer. Providing and engaging them with the many treatment options available could decrease decisional conflict. Future studies should investigate how men of different ethnic backgrounds decide on treatment options for prostate cancer in the UK.

## Limitations of the study

Four databases were systematically searched. Checking more databases could have yielded further results. This review excluded grey literature and articles not written in English, whereas inclusion could have resulted in a more comprehensive review. Most of the literature was based in the USA, with only one study set in England, meaning the findings are predominantly US-based and may not be wholly applicable.

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