Racial Disparities of African American Women with Uterine Fibroids

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Abstract

Uterine fibroids, which are benign, abnormal growths of surrounding tissue that develops on the inner lining of uterine walls or the myometrium, affect one out of three women by age 50. While half of women with fibroids will not experience symptoms, those who are symptomatic are often misdiagnosed with other common disorders. Black women face two to three times the risk of encountering uterine fibroids when compared to white women and will even experience these symptoms as early as the age of 18. Here, I reviewed literature on uterine fibroids to explore the hypothesis that black women are disproportionately affected by uterine fibroids through experiencing this disease at an earlier age, have more severe symptoms, and have a higher risk of being misdiagnosed compared to other races. In analyzing these potential racial disparities, my research was mainly focused on the potential biological bases for these disparities of a higher prevalence of uterine fibroids in black women, as well as potential disparities in the fibroid screening process, treatment options, and education. The analysis did support the hypothesis that black women are two to three times more likely to undergo hysterectomies, removal of the uterus, and myomectomies, removal of the fibroids. Black women reported that physicians mentioned hysterectomies as the only treatment and that their treatment plan was curated based on their race and were subjected to more severe surgeries. With the prevalence of hysterectomies and myomectomies black women have three times the death rate in hospitals from complications with treatment. This literature review finds that this is due to implicit bias of medical professionals, a lack of treatment options and a lack of education of uterine fibroids. These results strongly support the need for more policies to be put in place as a preventative measure for implicit bias and racial inequality across medical institutions and systems. In addition, it is recommended that routine bias training be made available for medical professionals as well as an accountable system to enable the reporting of discrimination, with penalties that can affect the pay and even the position of offending medical professionals. Furthermore, policies are needed to spread awareness of uterine fibroid education, as well as uterine fibroid treatment, to ensure the safety of the black women that are struggling with this disease.

Methods

This literature review analyzed various scientific journal articles that concerned uterine fibroids. This was first assessed by understanding what biological functions attributed to the formation and overall growth of fibroids. Then the focus shifted to how women were affected by this disease overall and compare this to data concerning black women specifically. To get an in-depth look at how black women were being affected disproportionately, research was separated into the categories: biological reasoning on why black women have a higher prevalence with uterine fibroids, the screening process/ diagnosis that contributes to misdiagnosis of black women due to implicit bias, treatment options, and education on fibroids as well as ways to prevent implicit bias in medical institutions.

Uterine fibroids & Formation Theory

Figure 1. Fibroids from an abdominal myomectomy that depict the various range of size.
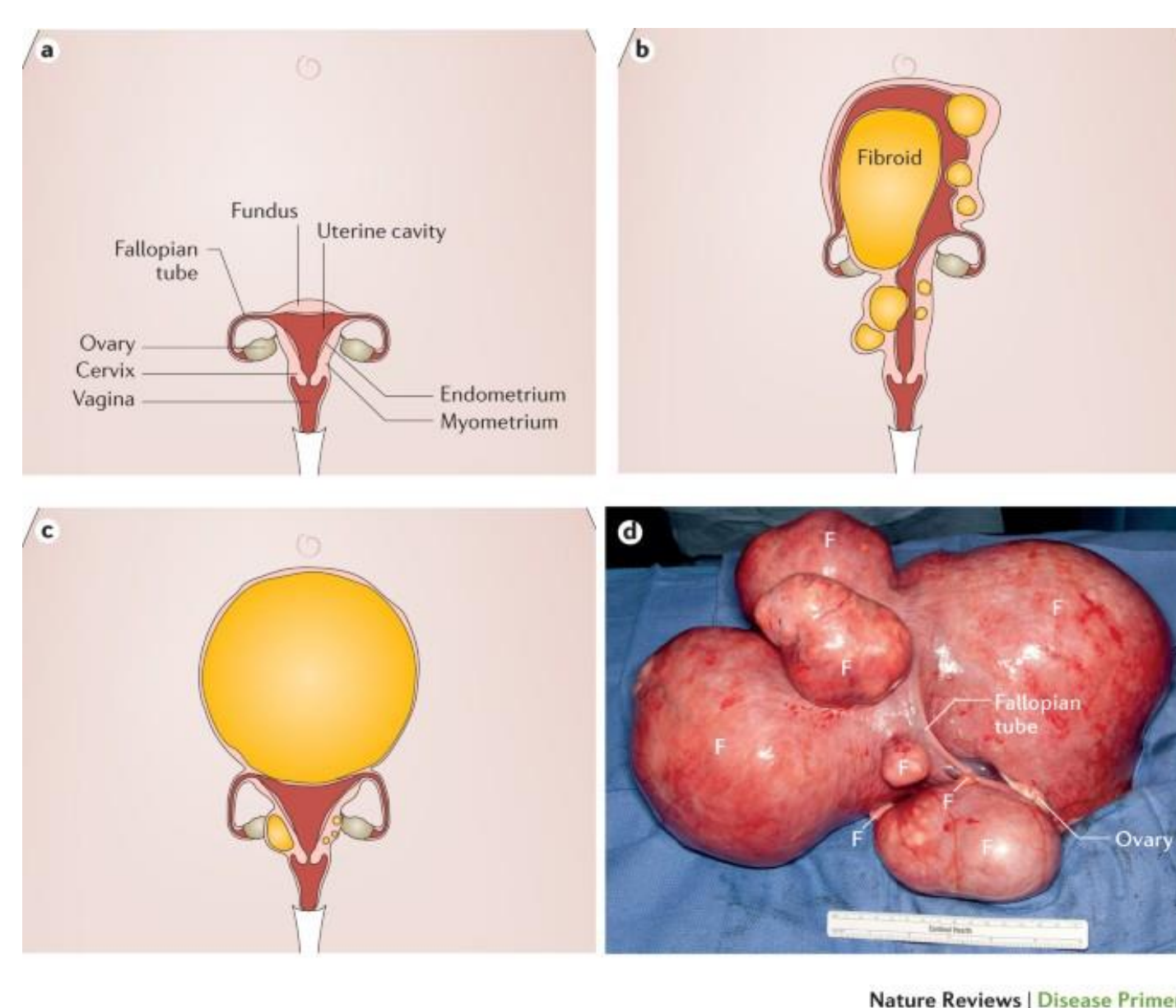

Figure 2. Visual of fibroid effects on uterus a) The typical uterus orientation. B) A uterus a 20 weeks gestation with multiple fibroids. C) A uterus at 20 weeks gestation with a fibroid over 10 cm elongating the uterus. D) A fibroid from an abdominal myomectomy that is over 10 cm.
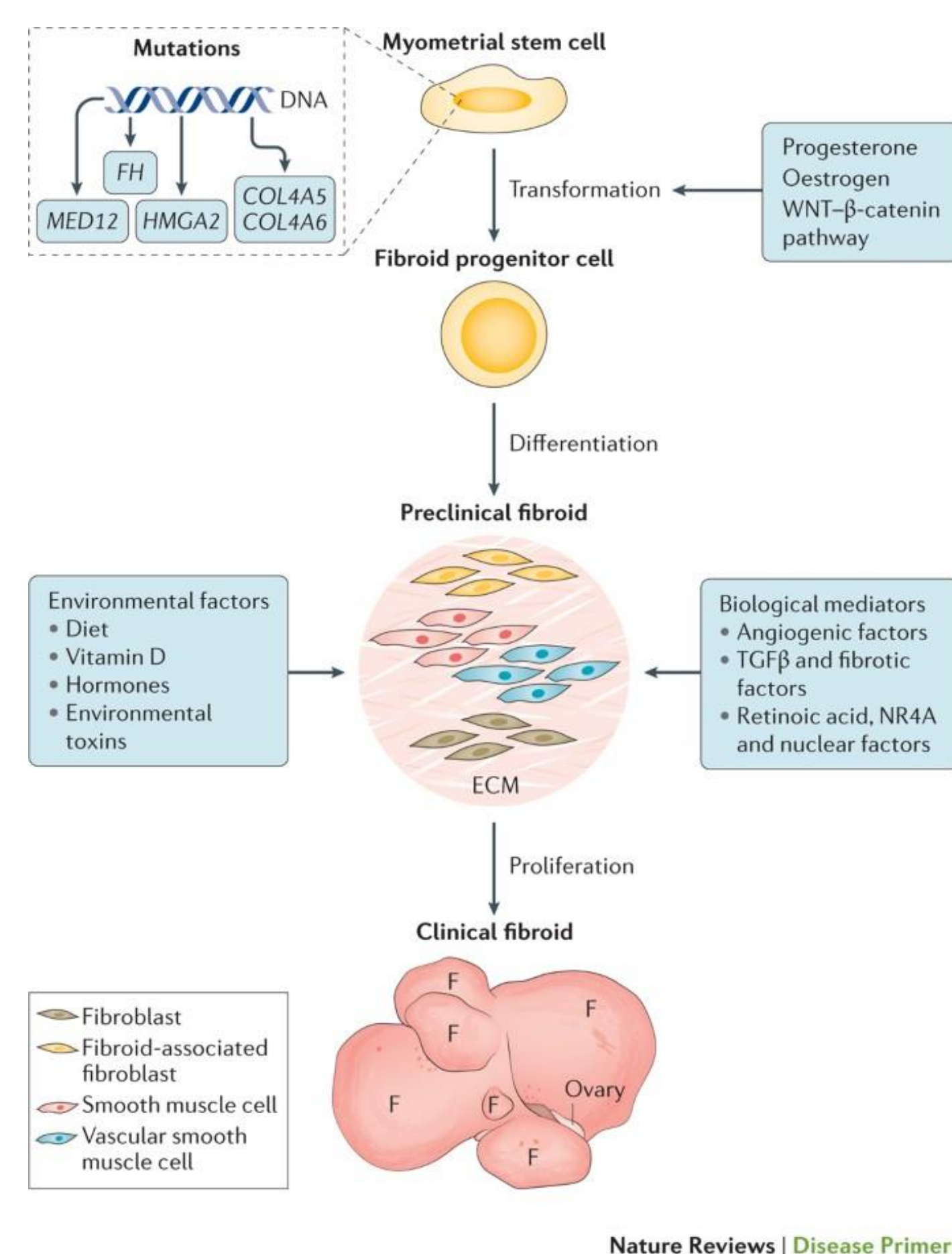

Figure 3. Theory of fibroid growth. Staring with a fibroid stem cell that is influenced by steroidal hormones and other specific driver mutations to allow the fibroid to grow in the myometrium.
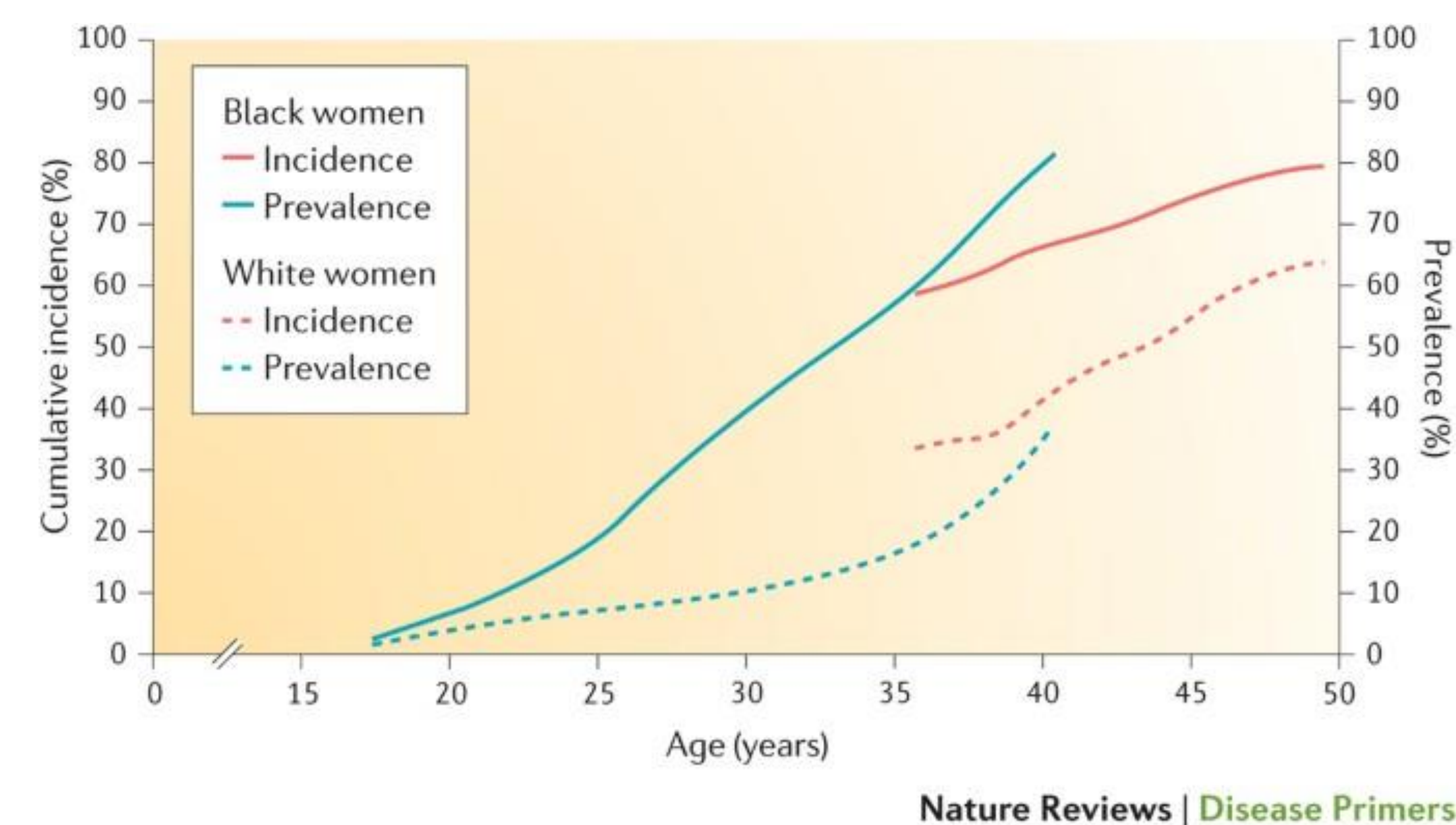
Prevalence in Black women

Figure 4. Blue solid line is the age-specific prevalence of uterine fibroids in black women, while the solid red line is the cumulative incidence in black women. The blue dashed line is the prevalence in white women, while the dashed red line is the cumulative incidence in white women.
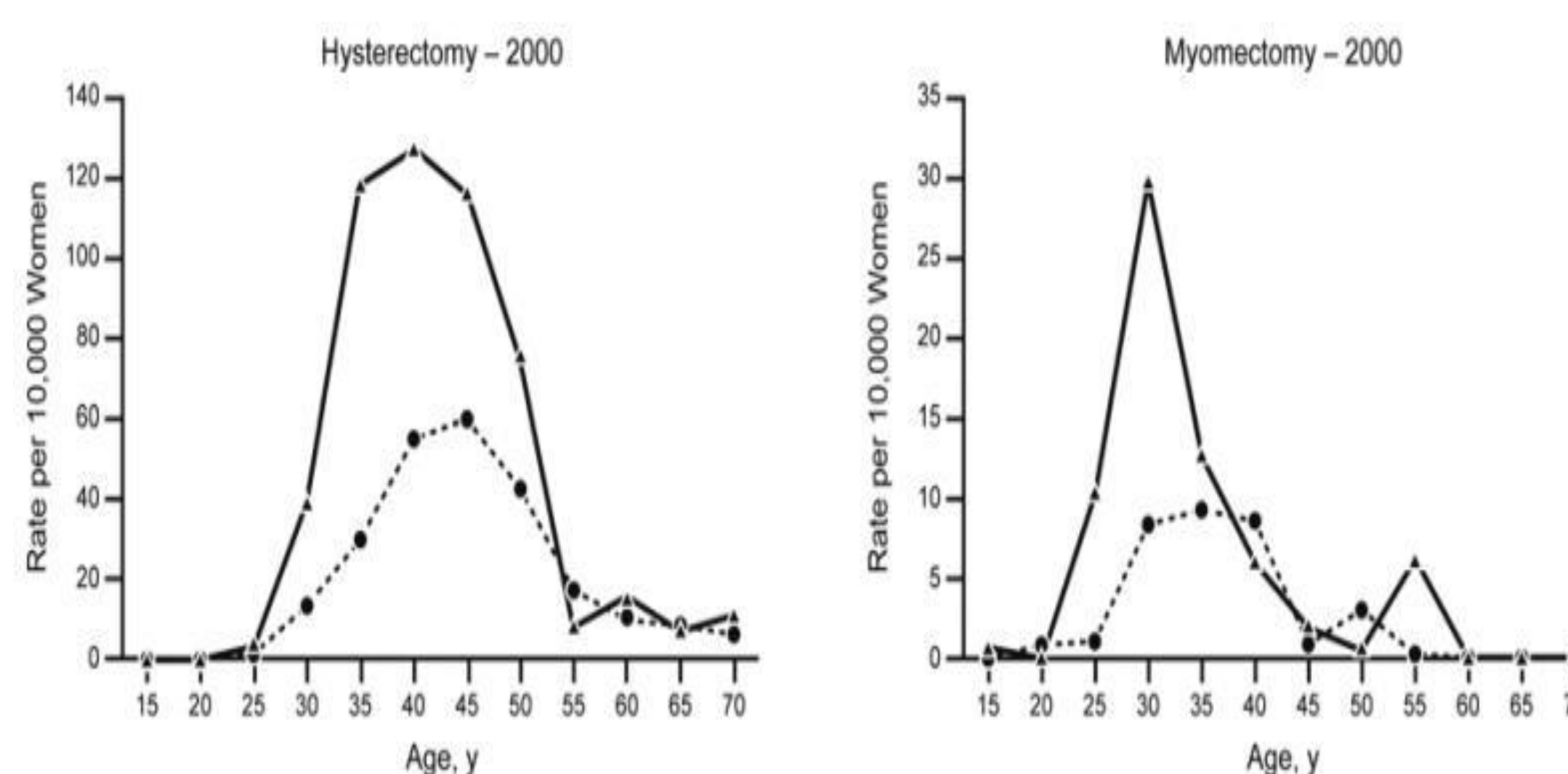

Figure 5. Age-specific graphs on the amount of women that undergo hysterectomy (left) and myomectomies (right). The solid line represents black women and the dashed line represents white women.

TABLE 3—Implicit General Race Bias and Race and Medical Compliance Stereotyping as Predictors of Patient-Clinician Communication by Patient Race: The Race and Relationship-Centered Care Study, Baltimore, MD, January 2002–August 2006

Communication Behavior	Implicit General Race Bias, Black Patients (n = 131)ᵃ Mean Estimateᵇ (95% CI)	P	Implicit General Race Bias, White Patients (n = 48) Mean Estimateᵇ (95% CI)	P	Implicit Race and Medical Compliance Stereotyping, Black Patients (n = 135)ᵃ Mean Estimateᵇ (95% CI)	P	Implicit Race and Medical Compliance Stereotyping, White Patients (n = 48) Mean Estimateᵇ (95% CI)	P
Verbal dominance ratio		.05		.01		.14		.02
No implicit bias	1.47 (1.28, 1.66)		1.27 (1.09, 1.49)		1.48 (1.28, 1.71)		1.56 (1.26, 1.94)	
Implicit bias	9% (0, 19)		11% (2, 21)		10% (-3, 24)		-25% (-42, -4)	
Visit length, minutes		.36		.14		.02		.001
No implicit bias	14.0 (11.7, 16.7)		17.1 (14.6, 19.9)		13.3 (11.2, 15.7)		19.5 (16.0, 23.8)	
Implicit bias	7% (-7, 22)		8% (-17, 3)		20% (3, 40)		-21% (-31, -9)	
Speech speed, statements per minute		.23		.83		.02		.001
No implicit bias	25.5 (24.1, 26.9)		23.7 (21.6, 25.8)		25.8 (24.6, 27.0)		21.6 (19.4, 23.8)	
Implicit bias	-0.76 (-2.02, 0.50)		0.25 (-2.05, 2.59)		-1.75 (-3.25, -0.25)		3.9 (1.6, 6.3)	
Patient centeredness ratio		.63		.37		.06		.02
No implicit bias	1.66 (0.95, 2.37)		0.70 (0.58, 0.82)		1.97 (1.00, 2.94)		0.60 (0.45, 0.74)	
Implicit bias	-0.10 (-0.51, 0.31)		-0.05 (-0.17, 0.07)		-0.93 (-1.91, 0.04)		0.15 (0.02, 0.28)	
Clinician positive affect		.14		.78		.35		.02
No implicit bias	3.63 (3.51, 3.75)		3.38 (3.31, 3.45)		3.60 (3.49, 3.72)		3.30 (3.20, 3.40)	
Implicit bias	-0.10 (-0.23, 0.03)		-0.06 (-0.19, 0.07)		-0.06 (-0.19, 0.07)		0.12 (0.02, 0.21)	
Patient positive affect		.04		.87		.53		.09
No implicit bias	3.39 (3.30, 3.49)		3.31 (3.19, 3.43)		3.36 (3.26, 3.45)		3.24 (3.10, 3.38)	
Implicit bias	-0.10 (-0.19, -0.00)		0.01 (-0.09, 0.10)		-0.04 (-0.16, 0.08)		0.11 (-0.02, 0.24)	

Note. CI = confidence interval. Adjusted for clinician gender and patient age, gender, education, and the mental component of the Medical Outcomes Short Form 12.
ᵃWe excluded 1 observation from speech speed and 1 from patient centeredness because they were extreme outliers.
ᵇWe estimated the means while holding all other covariates at their means. The estimate for "no implicit bias" for verbal dominance and visit length is the geometric mean from the generalized estimating equations (GEE) model for a bias score of zero; the estimate for "implicit bias" is the percentage change in verbal dominance and visit length associated with a 0.5-point increase in the bias score. For all other variables, the estimate for "no implicit bias" is the mean outcome score from the GEE model for a bias score of zero; the estimate for "implicit bias" is the change in the outcome associated with a change in bias score of 0.5 (considered a moderate level of bias).

Figure 6. The Implicit Association Test, IAT, utilized on clinicians and patients, analyzed whether there was implicit bias on black and white patients. This is measure by the verbal dominance of the conversation, the length of visit, speed of speech, If the clinician allowed for the patient to be heard and provided further assistance, clinician friendliness, and patient responsiveness.

Conclusions

- The intersectionality of these societal groupings contribute to the racial inequality and implicit bias that results in misdiagnosing of black women with uterine fibroids and/or being appointed to severe treatment options.
- In order to prevent implicit bias in medical institutions there need to be policies in place to reprimand medical professionals when discrimination is reported and routine bias training.
- There also needs to be legislation that enforces further education and research into uterine fibroids to ensure women get the needed education and care.

Future Directions

- Routine bias training should be mandatory in medical institutions for clinicians. This training should include various forms of verbal communication like perspective taking , and individuation.
- Clinicians should have a basic understanding of patients' culture in-order to understand non-verbal communication that can in some cases save a life. There should also be a reporting system that results in the clinician facing some sort of repercussions for their actions. With furthering the education of uterine fibroids the initial steps are being fulfilled with Vice president Kamala Harris, proposing a bill to further research uterine fibroids and treatment options.

Acknowledgments