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Identifying patients whose symptoms are under-recognized during breast radiotherapy:

Comparison of patient and physician reports of toxicity in a multicenter cohort

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BACKGROUND

- Acute toxicity after breast RT varies by race
  - Jagsi et al. *J Clin Oncol* 2020.

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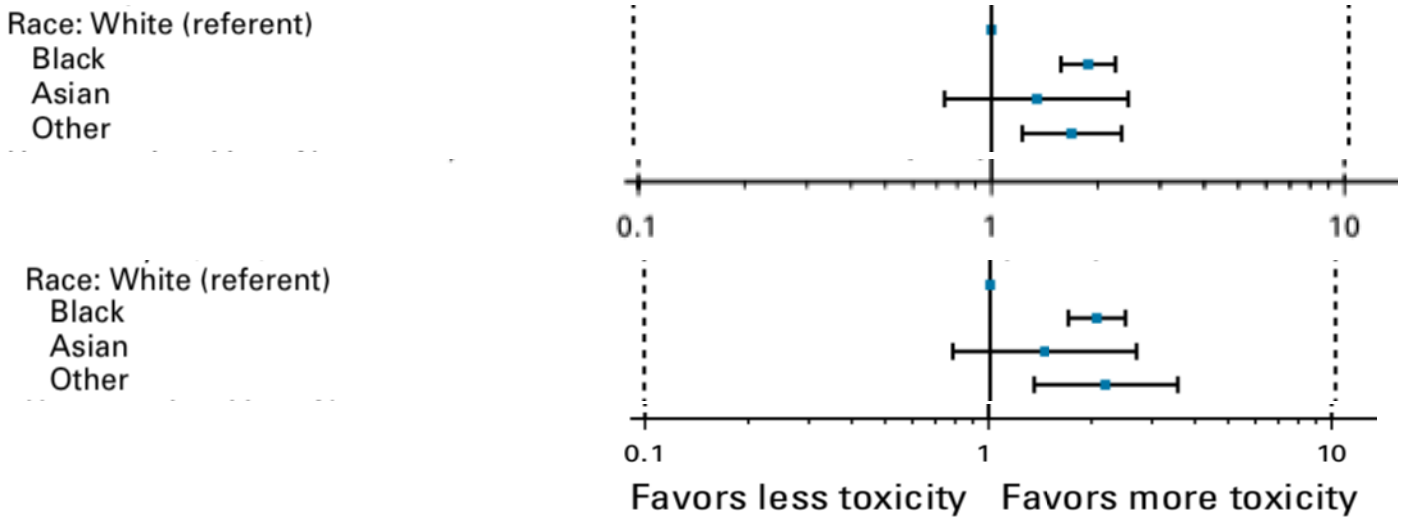

BACKGROUND

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- Even medical trainees harbor misconceptions about African American patients' sensitivity to pain
  - Hoffman et al. *PNAS* 2016.

Table 1. Percentage of white participants endorsing beliefs about biological differences between blacks and whites

Item	Study 1: Online sample (n = 92)	Study 2			
		First years (n = 63)	Second years (n = 72)	Third years (n = 59)	Residents (n = 28)
Blacks' nerve endings are less sensitive than whites'	20	8	14	0	4
Blacks' skin is thicker than whites'	58	40	42	22	25

MOTIVATION

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- Understanding whether physicians detect when their patients are experiencing substantial toxicity is important
  - Recognition of symptoms is necessary for appropriate supportive care
  - Clinical trials often rely on MD assessments using the Common Toxicity Criteria for Adverse Events (CTCAE)

EXAMPLE

- NRG 1203, a trial in patients with cervical or endometrial cancer, compared two RT techniques
- There was a significant reduction in symptoms with IMRT compared with standard RT when assessed by PROs but not by CTCAE grading by clinicians
- Clinicians underreported symptomatic GI AEs compared with patients
  - Yeung et al. *J Clin Oncol* 2020.

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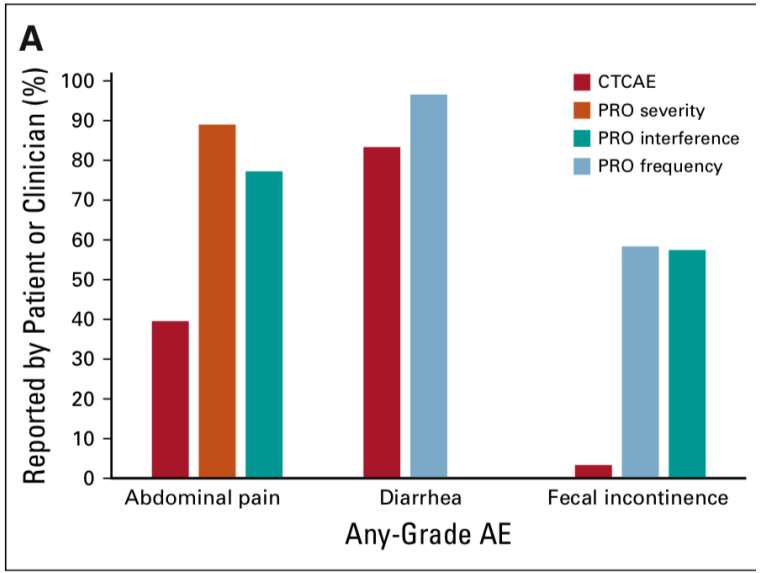

OBJECTIVES

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- To compare physician and patient reports of acute toxicity during breast radiotherapy in a large multicenter consortium that collects detailed weekly assessments from patients and physicians
- To evaluate whether under-recognition of toxicity might be particularly pronounced in racial minority patients

PATIENT POPULATION

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- Breast cancer pts who received RT after lumpectomy at 29 practices were enrolled in a quality initiative, MROQC
- 13,725 pts who completed RT between 1/1/2012 and 3/31/2020
  - Of these, 9,941 completed at least one PRO questionnaire during RT

MEASURES

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- Where MD CTCAE assessments were available within 3 days of PRO evaluation, patient and MD ratings of 4 symptoms were compared
- 1) Pain
  - Patients reported breast pain via an approved modification of the Brief Pain Inventory (rating pain in the last 24 hours at its worst, least, average, and "right now")
  - MDs were deemed to under-recognize pain when pts reported moderate pain (score 4-6) but MDs graded pain as 0 (absent) on the CTCAE, or when pts reported severe pain (score 7-10) but MDs' CTCAE grade was ≤1
- 2) Pruritis and 3) Edema
  - Bother from pruritis and edema were measured by modified scaled measures adapted from the Skindex
  - MDs were deemed to under-recognize pruritus and edema if they graded these as absent (grade 0) when pts reported bother often or all of the time from itching or swelling, respectively
- 4) Fatigue
  - MDs were deemed to under-recognize (4) fatigue if they graded fatigue as absent (grade 0) when pts reported having significant fatigue most of the time or always

ANALYTIC APPROACH

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- We describe the proportion of patients for whom under-recognition of at least 1 of these 4 symptoms occurred at least once during the treatment course
- We use multivariable logistic regression to evaluate predictors of this under-recognition
  - We hypothesized that under-recognition would be more common in racial minorities

RESULTS

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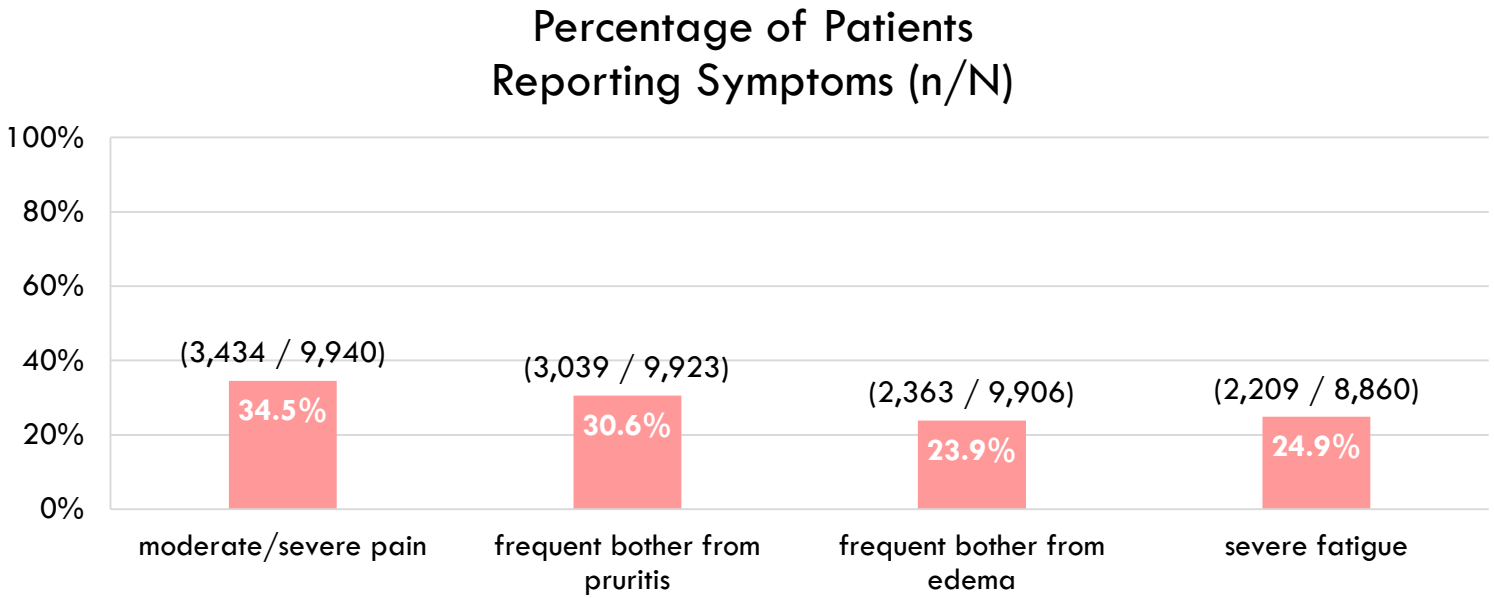

RESULTS

We could evaluate under-recognition in 9,868 pts, with 37,593 independent paired observations of pt and MD reports (35,797 on the same date and 1,796 within 3 days).

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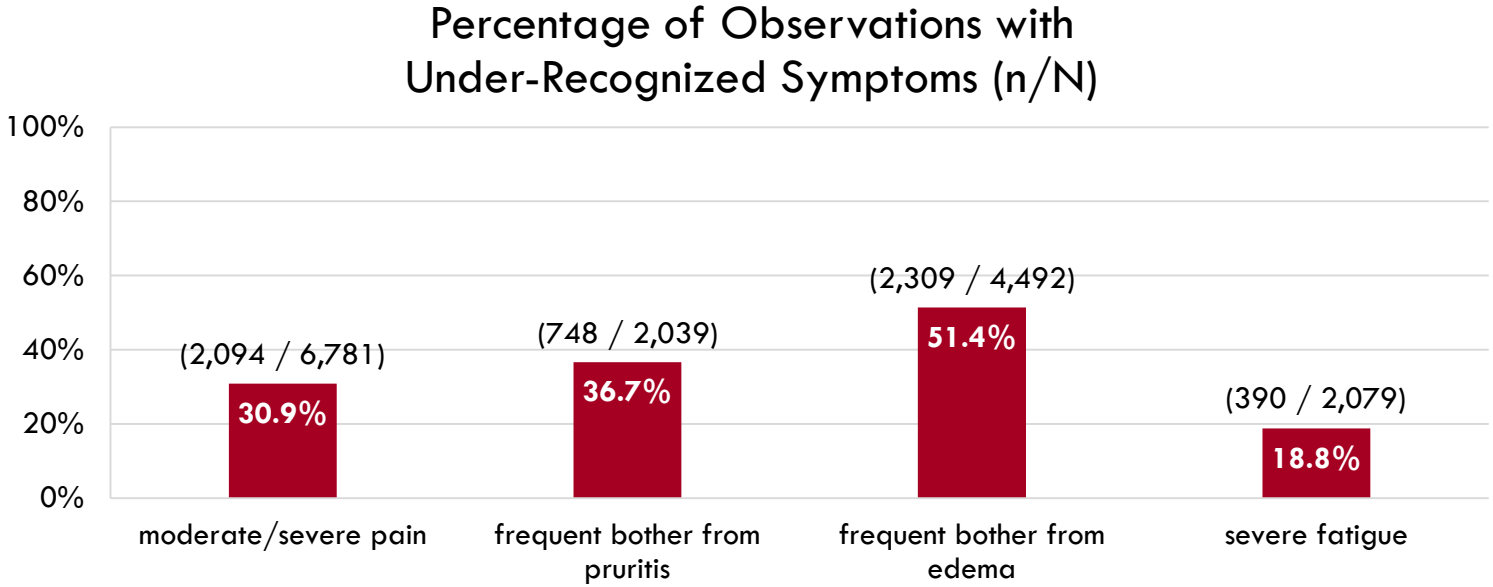

RESULTS

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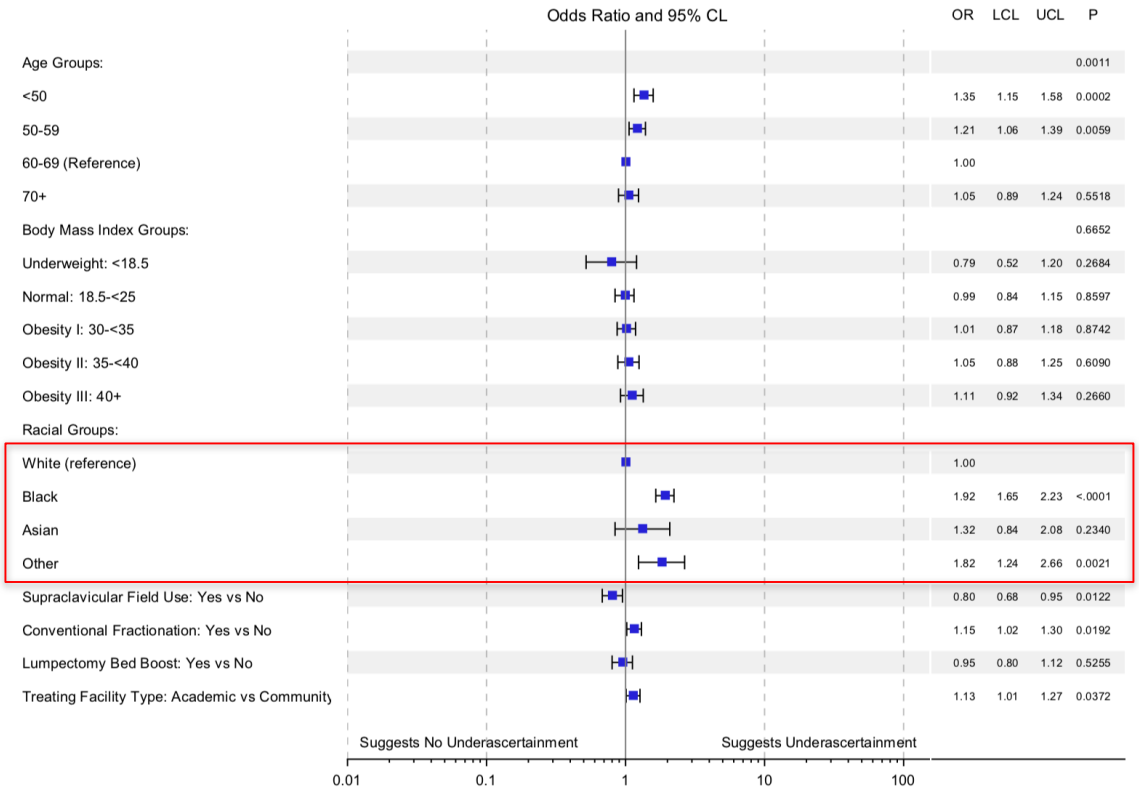
- Under-recognition of at least 1 of these 4 symptoms occurred at least once during the pt's treatment course for 2,933/5,510 (53.2%) of the pts who reported at least 1 substantial symptom during RT
- Factors independently associated with under-recognition
  - younger age (OR=1.4 and 1.2 for <50 and 50-59 vs. 60-69, respectively)
  - black or other race (OR=1.9 and 1.8 vs white, respectively)
  - conventional fractionation (OR=1.2)
  - not having a supraclavicular field (OR=1.3)
  - being treated at an academic center (OR=1.1)

RESULTS



MROQC
Michigan Radiation Oncology Quality Consortium

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RESULTS

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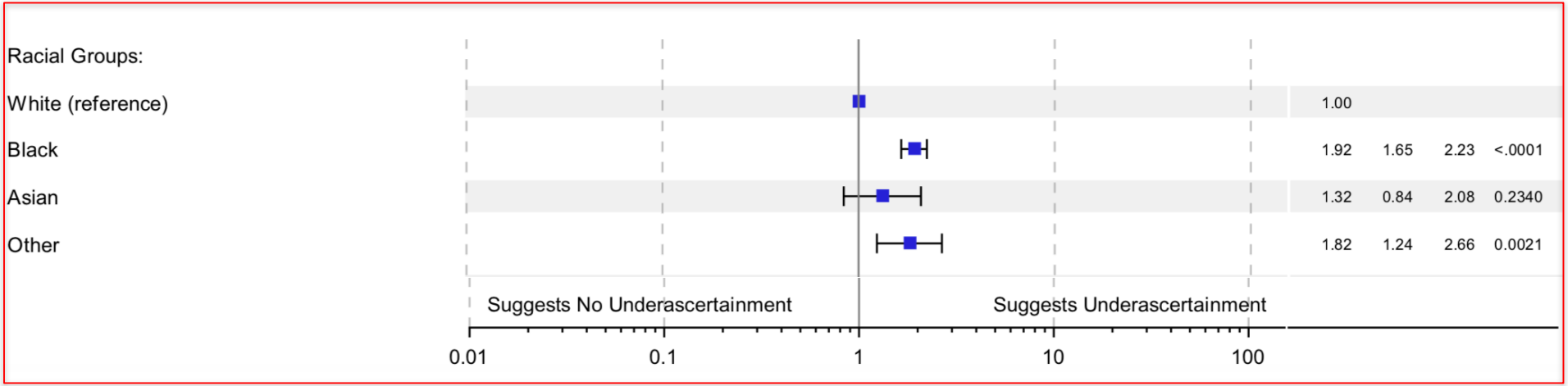

CONCLUSIONS

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- PRO collection appears essential for trials because relying on the CTCAE to detect adverse events misses important symptoms
  - Prior work has suggested this for acute RT-related GI symptoms; this work shows it is also true for acute symptoms associated with breast RT
- Moreover, this work reveals that MDs systematically miss substantial symptoms in certain patients, including pts who are younger or of black or other race
  - Therefore, improving symptom detection may be a targetable mechanism to reduce disparities in RT experiences and outcomes

ACKNOWLEDGEMENTS

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- For more information on MROQC, please visit www.mroqc.org
- The MROQC Twitter handle is @MROQC1
  - Dr. Jagsi is @reshmajagsi and Dr. Pierce is @ASCOPres