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Association of Frailty with Emotional Health of Older Patients with Advanced Cancer: A University of Rochester NCI Community Oncology Research Program (NCORP) Geriatric Assessment Trial

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MASCC/ISOO

Annual Meeting on Supportive Care in Cancer

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Conflict of Interest Disclosure

Nikeshia Gilmore, PhD

Has no real or apparent
conflicts of interest to report.



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Background

- Emotional health is an important factor in overall health
- Psychological stress is prevalent in older patients
 - 12% to 20% experience significant depressive symptoms
 - 1.2% to 15% have generalized anxiety disorder
- Psychological stress associated with cancer and its treatments can negatively impact:
 - Quality of Life
 - Social functioning
- Depression is associated with increased mortality



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Background

- Frailty is prevalent in older adults-
 - 4.0% to 59.1% community dwelling older adults
 - 42% in older patients with cancer
- Frailty is an age-related syndrome
 - Characterized by weakness and fatigue
- Frail older adults with cancer are susceptible to increased morbidity, mortality, and decreased quality of life



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Background

- In community dwelling older adults
 - Combination of depression and frailty increases risks of negative outcomes including cognitive impairment and mortality
- The effect of the combination of psychological stress with frailty in older patients with advanced cancer is not completely understood



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Lee et al. 2018



Objectives

- To estimate the prevalence of frailty, anxiety, depression, and distress in older adults with advanced cancer.
- To examine to relationships between frailty and emotional health in older adults with advanced cancer.

Hypothesis: Patients with advanced cancer with the greatest degree of frailty will have highest odds of depression, anxiety, and distress.



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Study Design

Cross-sectional analysis of baseline data from a University of Rochester NCI Community Oncology Research Program (NCORP) Geriatric Assessment Trial (URCC 13070; PI Dr. Mohile; presented at ASCO 2018)



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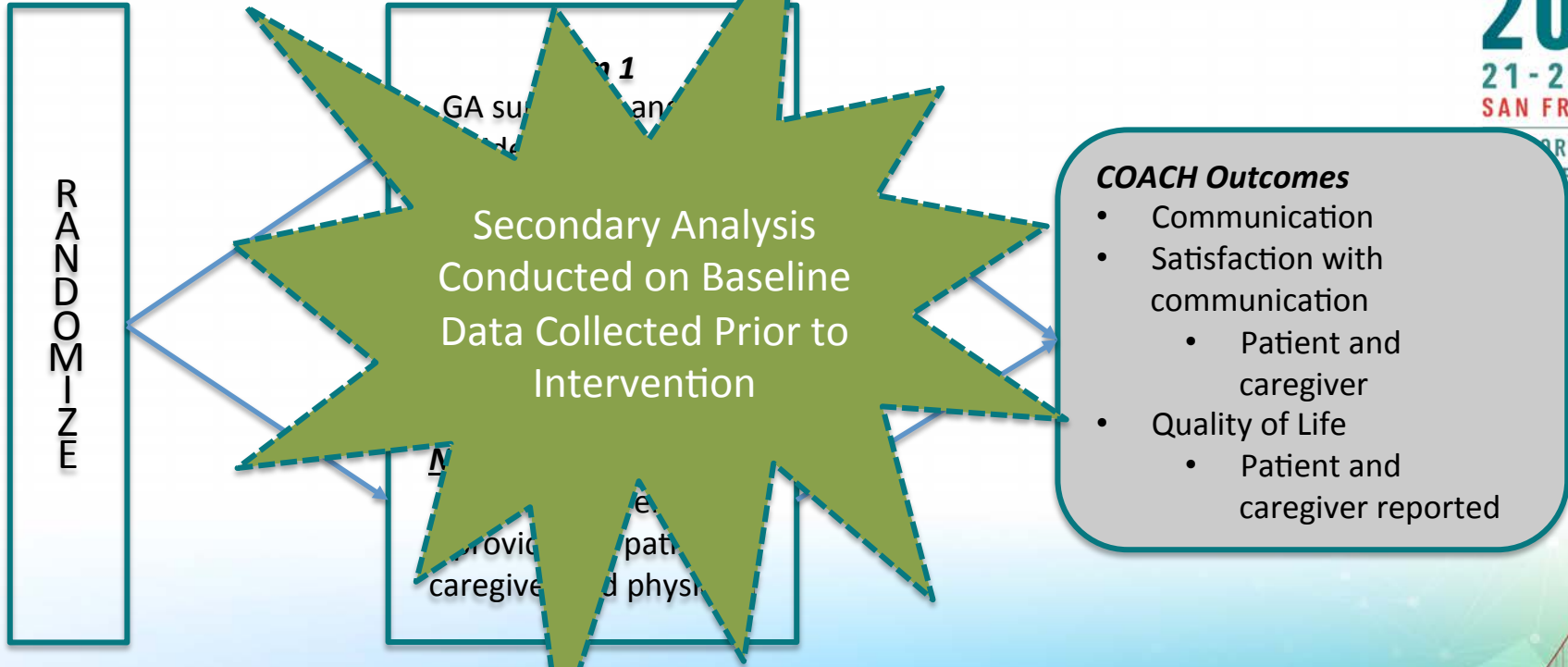


Study Design for the COACH Trial



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Study Participants

- Aged ≥ 70 years
- Had a diagnosis of incurable stage III/IV solid tumor or lymphoma
- Were considering or receiving any kind of cancer treatment (any line)
- Had ≥ 1 impaired domain on geriatric assessment



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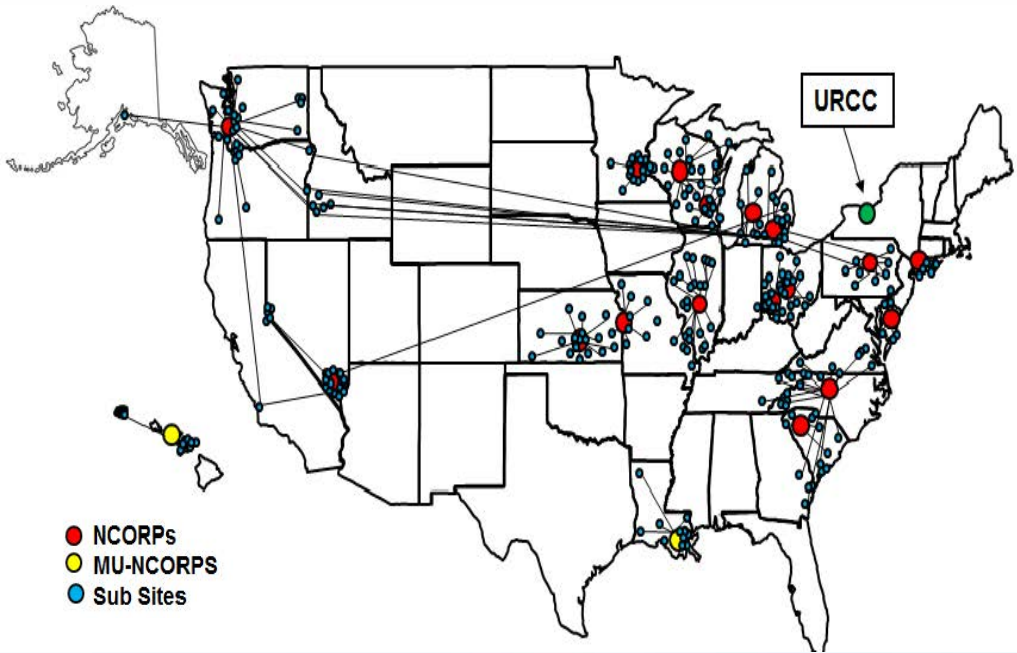
NCI Community Oncology Research Program (NCORP)



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- NCORPs
- MU-NCORPs
- Sub Sites

- Aurora
- Cancer Research Consortium of West Michigan
- Columbus
- Dayton Clinical Oncology Program
- Delaware/Christiana Care
- Geisinger Cancer Institute
- Greenville
- Gulf South MU
- Hawaii MU
- Heartland Cancer Research
- Kansas City
- Metro Minnesota
- Michigan Cancer Research Consortium
- Nevada Cancer Research Foundation
- Northwell
- Pacific Cancer Research Consortium
- SCOR
- Wichita
- Wisconsin

• Recruited from 31 community oncology practices from October 2014 to April 2017



Outcome Variables

- **Depression:** Geriatric Depression Scale (GDS)
 - Self-reported 15-item screening tool for depression in older adults
 - Cutoff for impairment ≥ 5
- **Anxiety:** Generalized Anxiety Disorder-7 (GAD-7)
 - Self-reported 15-item measure used to screen for and determine the severity of generalized anxiety disorder.
 - Cutoff for impairment ≥ 10
- **Distress:** Distress Thermometer
 - A self-reported measure to screen for psychological distress in patients with cancer.
 - Cutoff for impairment ≥ 4



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Independent Variable

Deficit Accumulation Frailty Index (DAFI) based on Geriatric Assessment

	No Frailty (+0)	Frailty (+1)	Frailty (+2)	Number of Items
Marital Status	X	X		1
IADL	X	X	X	7
ADL	X	X		6
Patient KPS	X	X	X	1
Fall History	X	X		1
Meds	X	X		1
Comorbidity	X	X	X	15
Weight loss	X	X		1
Depression	X	X		1
Anxiety	X	X		1
Social Activities	X	X		3
Medical Social Support	X	X	X	4
Physician KPS	X	X	X	1
TUG	X	X		1
Cognition/Memory	X	X		1
BMI	X	X		1
Creatinine Clearance	X	X	X	1
Hemoglobin	X	X		1
Albumin	X	X		1
Liver Function	X	X	X	1

- Items with binary answers were coded as “0” if adverse event was absent and “1” if present
- Items with graded response “0” absence of condition, “1” intermediate, “2” most adverse.
- Total 50 Items

$$\text{DAFI} = \frac{\text{Actual Deficit Score}}{\text{Potential Deficit Score}}$$

Modified DAFI-Removal of psychological variables

Jones and Rockwood 2004; Searle *et al.* 2008; Cohen *et al.* 2017



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Covariates

Demographics

- Age
- Gender
- Race
- Education
- Marital Status
- Income
- Caregiver (enrolled with participant)

Clinical Variables

- Cancer Type
- Cancer Stage
- Cancer Treatment



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Statistical Analyses

- Bivariate analyses:
 - to examine the associations with frailty and emotional health outcomes (depression, anxiety, and distress)
- All variables in the bivariate analyses with a p-value ≤ 0.16 were entered into a multivariate logistic regression



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Results: Sample Characteristics; N=541

Age, mean (SD)		76.6 (5.2)
Gender	Female	264 (48.8)
Race/Ethnicity	Non-Hispanic white	482 (89.1)
Education	Some college or above	279 (51.6)
Income	≤\$50,000	265 (49.0)
Cancer type	Gastrointestinal	138 (25.5)
	Lung	140 (25.9)
	GU	79 (14.6)
	Breast	69 (12.8)
	Other	114(21.1)
Cancer stage	Stage III	47 (8.7)
	Stage IV	480 (88.7)
	Others	13 (2.4)
Cancer treatment	Chemotherapy	369(68.2)
	Other	172 (31.8)



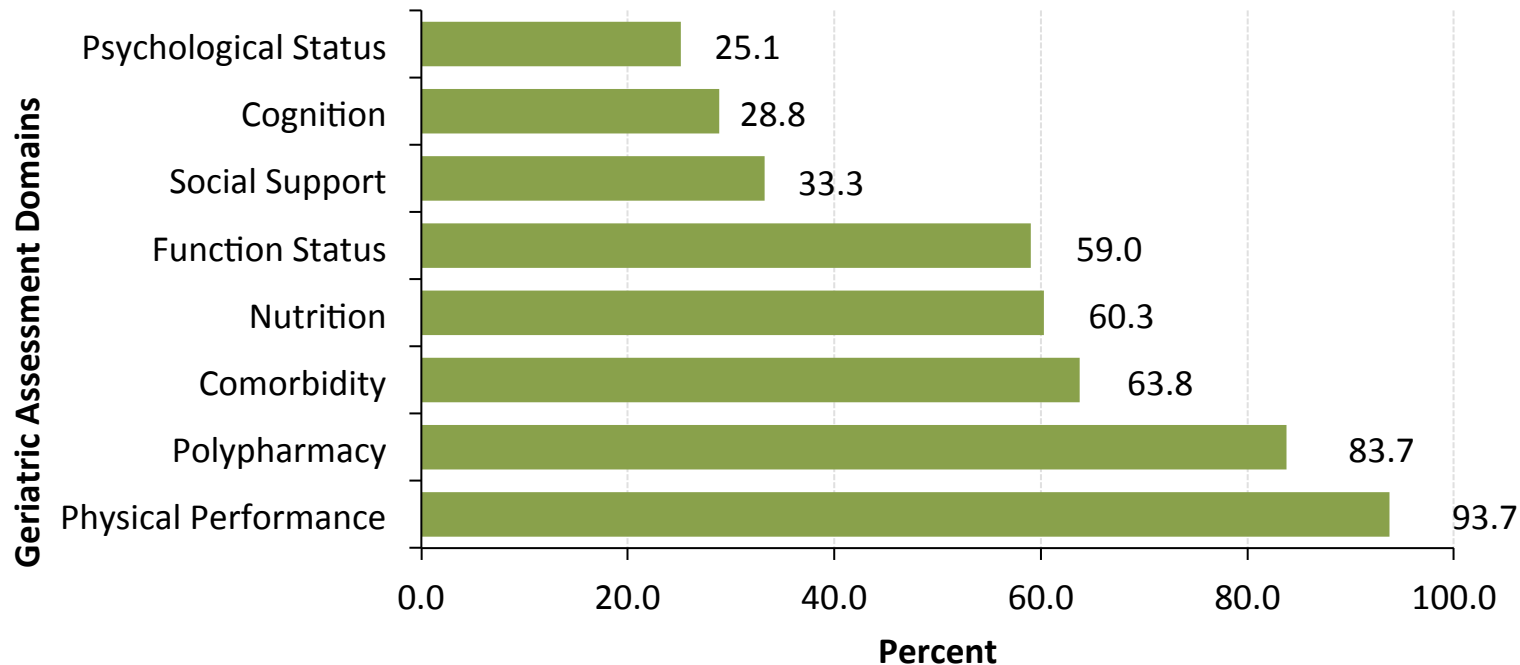
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Results: Geriatric Assessment Domain Impairments



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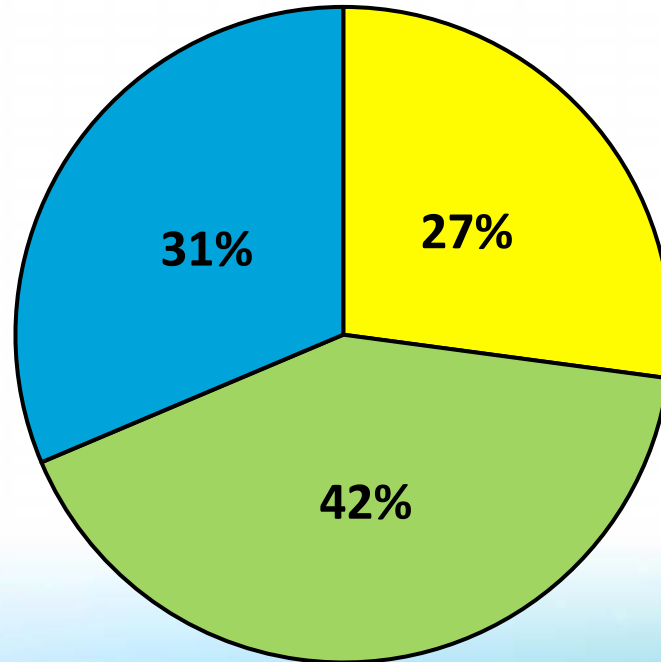
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Results: Prevalence of Frailty (DAFI) at Baseline

DAFI Cut Offs

- Robust/Fit = 0 to <0.2
- Pre-Frail = 0.2 to <0.35
- Frail ≥ 0.35



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Results: Prevalence of Depression, Anxiety, and Distress



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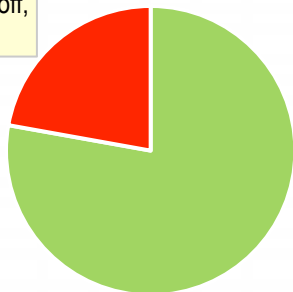
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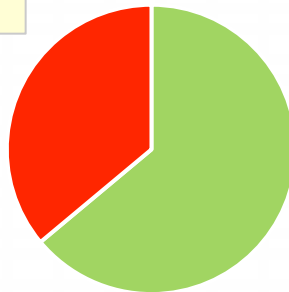
Prevalence of Depression

Meets cutoff,
22%



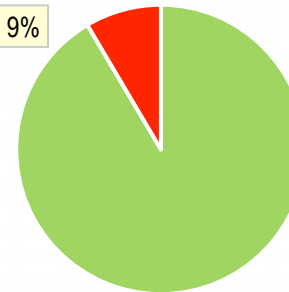
Prevalence of Anxiety

Meets cutoff
36%



Prevalence of Distress

Meets cutoff, 9%



■ Does not meet cutoff ■ Meets cutoff

≥5 GDS

■ Does not meet cutoff ■ Meets cutoff

≥10 GAD-7

■ Does not meet cutoff ■ Meets cutoff

≥4 Distress
Thermometer



Association of Frailty with Anxiety (GAD7)

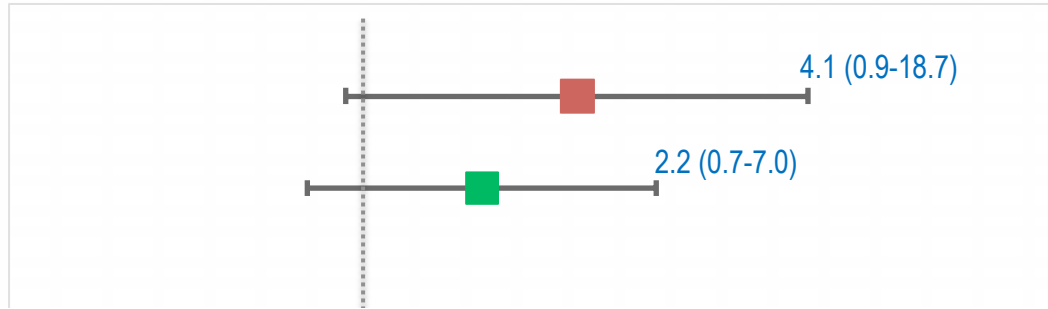


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Pre-Frail vs Robust

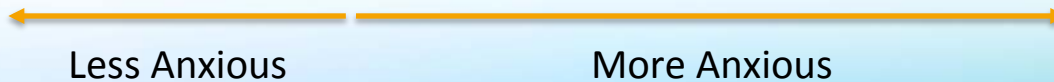


DAFI



Adjusted DAFI

(removal of GAD-7 and GDS)



**All models included age, gender race and cancer type as covariates. In addition, we implemented step wise procedure to select additional covariates with $p < 0.16$*



Association of Frailty with Depression (GDS)

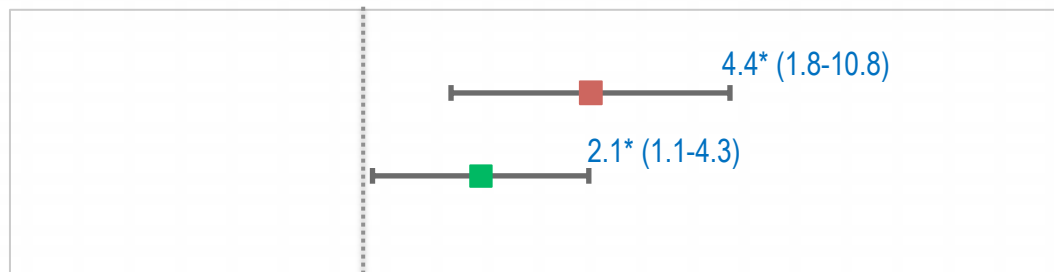


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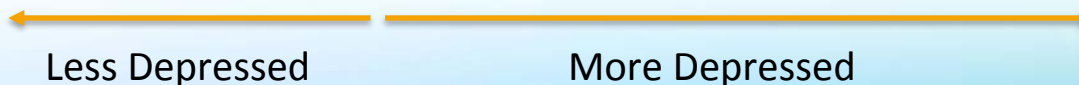
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Pre-Frail vs Robust



- DAFI
- Adjusted DAFI
(removal of GAD-7 and GDS)

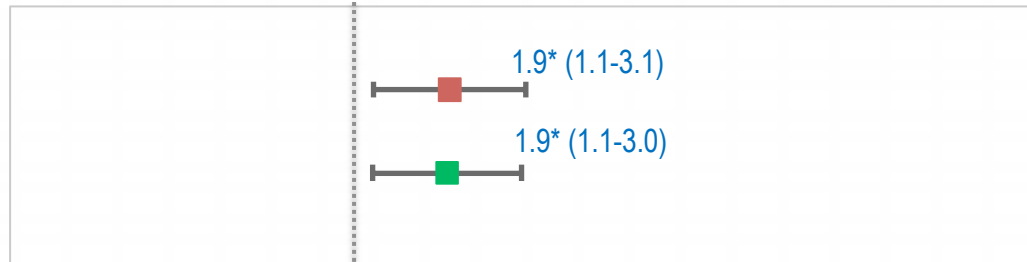


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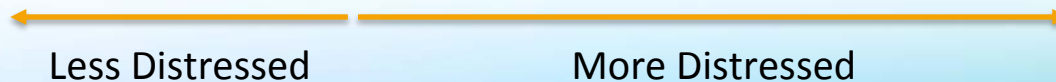


Association of Frailty with Distress (Distress Thermometer)

Pre-Frail vs Robust



- DAFI
- Adjusted DAFI
(removal of GAD-7 and GDS)



**All models included age, gender race and cancer type as covariates. In addition, we implemented step wise procedure to select additional covariates with $p < 0.16$*



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Strengths

- To our knowledge this is the first study to demonstrate the odds of distress and anxiety in frail older adults with cancer
- A large sample of **older adults** with cancer receiving cancer treatment in the community oncology practices



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Limitations

- Cross sectional study
 - We are unable to demonstrate causality
- Included a small percentage of non-white patients (10%)
- Did not assess patients for history of depression, anxiety, and distress



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Conclusions

- Our results demonstrate that in older patients with advanced cancer, frailty is associated with poorer emotional health
- Strong link between frailty and emotional health
 - Provides additional support for formal assessment of frailty in older adults with cancer
- Interventions aimed at improving frailty might also improve emotional health
 - Older adults are more reluctant to disclose psychological issues



Acknowledgements

- Participants
- NCORP Community Affiliate and Research Base staff and investigators
- Co-authors
 - Huiwen Xu, Eva Culakova, Marie Flannery, Ronak Amir Sardari, Megan Wells, Valerie Arne Grossman, Mark A. O'Rourke, Nicholas J Vogelzang, Elie G. Dib, William Dale, **Supriya Mohile**
- Funders
 - PCORI
 - NCI

All statements in this report, including its findings and conclusions, are solely those of the authors, do not necessarily represent the official views of the funding agencies, and do not necessarily represent the views of the Patient-Centered Outcomes Research Institute (PCORI), its Board of Governors, or Methodology Committee



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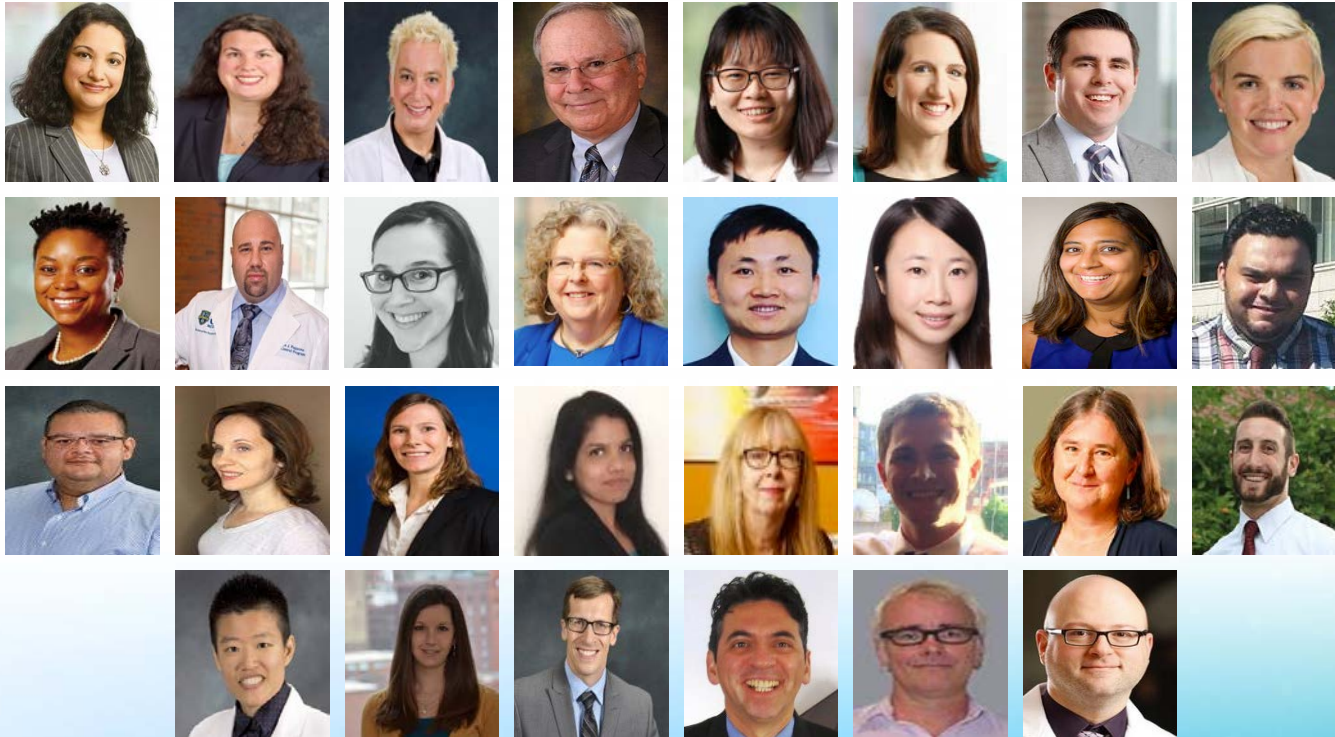
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Acknowledgements

University of Rochester Geriatric Oncology and Cancer Control Team



Questions?



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