

## Background

- Breast cancer survivors, including those with advanced at risk for substantial sleep disturbance, which can negative quality of life
- Sleep disturbance can be exacerbated by co-occurring e concerns such as depressive symptoms and anxiety
- Prior research has focused on linkages between sleep di and emotional concerns among individuals with early sta with limited emphasis among those with advanced disea

## Aims

 The objective of this study was to examine sleep disturbation correlates among breast cancer survivors with and witho metastatic disease

## Methods

- 163 metastatic (MBC) and 439 breast cancer (BC) survivors enrolled in the Cancer Support Community's online Cancer Experience Registry, provided socio-demographic information, and reported cancer-related distress (CancerSupportSource<sup>®</sup>) and levels of pain interference and sleep disturbance (PROMIS-29 subscales)
- Risk for clinically significant anxiety and depression was assessed using validated CancerSupportSource risk screening subscales
- Associations between risk for clinically significant depression and anxiety, pain interference, and worse sleep disturbance, adjusting for metastatic disease, treatment history, and number of comorbidities were explored with multivariate regression

## Participants

	Metastatic		Non-Metastat	
	M/n	<b>SD</b> /%	M/n	SD/
Age (years)	54	10	56	11
Aye (years)	Range: 26 – 79		Range: 18 – 86	
Non-Hispanic White	137	85%	361	839
Time Since Diagnosis				
<5 years	93	57%	309	719
>= 5 years	70	43%	128	299
Treatment History				
Surgery	128	79%	420	969
Chemotherapy (past)	59	36%	293	519
Chemotherapy (current)	79	48%	70	169
Radiation therapy (past)	76	48%	177	419
Radiation therapy (current)	21	13%	48	119
Hormonal (past)	28	18%	57	139
Hormonal (current)	82	52%	161	389
At diagnosis, 8% of Non-Metastatic respondents	were stage 0, 34%	stage I, 40% stag	ge II, and 13% st	age III

t diagnosis, 8% of Non-Metastatic respondents were stage 0, 34% stage I, 40% stage II, and 13% stage III

## Acknowledgments

This work is sponsored by Celgene Corporation (inaugural sponsor), Amgen Oncology, Pfizer Oncology, Genentech, and Novartis.

### References

## Sleep Disturbance and Quality of Life Among Breast Cancer Survivors

## Shauna McManus, BS<sup>1</sup>, Alexandra K. Zaleta, PhD<sup>1</sup>, Melissa F. Miller, MPH, PhD<sup>1</sup>, Julie S. Olson, PhD<sup>1</sup>, M. Claire Saxton, MBA<sup>2</sup>, Kevin Stein, PhD, FAPOS<sup>1</sup>

<sup>1</sup>Cancer Support Community, Research and Training Institute, Philadelphia PA <sup>2</sup>Cancer Support Community, Washington, DC

	Res	sults	
disease, are atively affect		25%	
emotional	Ś	20%	
disturbance age disease,	icipants	15%	
ase	% Parti	10%	
ance and its	0	5%	
out		0%	Γ

Metastatic

**SD**/%

11

83%

71%

29%

96%

51%

16%

41%

11%

13%

38%

ts





■ Metastatic BC ■ Non-Metastatic BC

Comparisons are vs. general U.S. population, except where \* denotes comparison to population group balanced to include more people with chronic illness. Worse quality of life is defined as having a score that is at least 1 standard deviation poorer than the respective comparison group.

- 20% of participants (metastatic and non-metastatic combined) reported a level of sleep disturbance that was significantly worse than the U.S. population average
- 18% of participants (regardless of metastatic status) reported a level of pain interference that was significantly worse than the U.S. population average
- These responses did not significantly differ by metastatic history

## **Risk for Clinically Significant Levels of Anxiety and Depression**



- 48% of participants (metastatic and non-metastatic combined) were identified as at risk for clinically significant levels of anxiety, and 36% at risk for clinically significant levels of depression
- Participants with MBC were more likely to be at risk for clinically significant levels of anxiety ( $\chi^2$ =6.95, p<.01)
- Depression risk did not significantly differ between MBC and BC survivors

1. Ho, S.-Y., et al. (2015). "A Longitudinal Study of Depression, Fatigue, and Sleep Disturbances as a Symptom Cluster in Women With Breast Cancer." J Pain Symptom Manage 49(4): 707-715 2. Tarrasch, R. "The Effect of Reflexology on the Pain-Insomnia-Fatigue Disturbance Cluster of Breast Cancer Patients During Adjuvant Radiation Therapy." The journal of alternative and complementary medicine (New York, N.Y.) **24**(1): 62-68. 3. Koopman, C., et al. (2002). "Sleep Disturbances in Women With Metastatic Breast Cancer." Breast Journal 8(6): 362-370. 4. Dhruva, A., et al. (2012). "A longitudinal study of measures of objective and subjective sleep disturbance in patients with breast cancer before, during, and after radiation therapy." J Pain Symptom Manage **44**(2): 215-228.

# 22% 17%

## **Pain Interference**

CANCER EXPERIENCE **REGISTRY** 

## **Greater Pain Interference and Risk for Clinically Significant Levels of Depression and Anxiety are Associated with Greater Sleep Disturbance**

## Predictor

**Depression risk** 

Anxiety risk

Pain interference

number of comorbidities

## Implications and Conclusions

A PROGRAM of the CANCER SUPPORT COMMUNITY

## **Bivariate Associations with Sleep Disturbance**

	٢	þ
Radiation Therapy	.11	<.01
Number of comorbid conditions	.36	<.001
Depression risk	.37	<.001
Anxiety risk	.34	<.001
Pain interference	.44	<.001

\* Significant associations only displayed

• Greater sleep disturbance was associated with having ever received radiation therapy, greater number of reported comorbidities, greater pain interference, and risk for clinically significant depression and anxiety

t	Semipartial r	Ø
3.23	.12	<.001
2.43	.09	<.05
6.33	.23	<.000

*R*<sup>2</sup>=.26, *F*(4,561)=48.18, *p*<.001

\* Significant associations only displayed; associations controlled for metastatic status, treatment history, and number of comorbid conditions

• In multivariate analysis, risk for clinically significant levels of depression and anxiety, and greater pain interference remained associated with greater sleep disturbance after controlling for treatment history, metastatic status, and

• Being at risk for clinically significant levels of depression and anxiety and experiencing greater pain interference are associated with worse sleep disturbance among breast cancer survivors across the illness trajectory, whether or not their breast cancer has metastasized

• Health care providers are encouraged to discuss with patients how they can address sleep disturbance concerns, including referrals to integrative therapies that address the constellation of affective, pain, and sleep symptoms

The Cancer Experience Registry is an online research initiative that captures the immediate and ongoing or changing social and emotional experiences of cancer survivors and their caregivers. • The Registry is for all cancer survivors and caregivers, but also includes 11 disease-specific surveys.

<sup>•</sup> Findings contribute toward advancing research, health care and policy.

<sup>•</sup> Over 13,000 cancer survivors and caregivers are registered in the Cancer Experience Registry.

Learn more or join the Registry at www.CancerExperienceRegistry.org