

# The Associations of Cancer's Financial Stress on the Patient-Caregiver Dyad's Sleep and Psychological Well-Being

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## Background

- Patients with metastatic breast cancer (74.7%) and their romantic partners (61.9%) exhibit elevated financial stress<sup>1</sup>
- Financial stress is the subjective component of financial toxicity and the confidence in one's ability to sufficiently cope with financial stressors<sup>2</sup>
- Increased psychological stress contributes to increased cancer incidence and progression<sup>3</sup>
- The consequences of financial toxicity [psychological stress] have yet to be explored in the context of the patient-caregiver dyad

## Purpose

- Highlight significance of investigating the psychological component of cancer treatment examine psychological well-being during cancer treatments



(Altice 2016)

## Methods

- Participants completed online self-report assessments through RedCAP individually to evaluate financial stress (COST<sup>5</sup>, ENRICH<sup>1</sup>), workplace interference (WPAI<sup>6</sup>), health-related quality of life (SF-12<sup>7</sup>), sleep quality (PSQI<sup>8,9</sup>), insomnia (ISI<sup>10</sup>), depression (CES-D<sup>11</sup>), and anxiety (GAD-7<sup>12</sup>)

## Participants

- Patients diagnosed with Stage III or IV metastatic breast cancer in the last year and their romantic partner (cohabitating >6 mo)
- Participants were ≥18 years old and able to read and speak English

## Results

- In the sample (n=200), 52% with two same sex couples, mean age = 50.16 years, 65% non-Hispanic white, 73.1% college educated, and 72.6% ≥\$75,001 income
- Patients and caregivers reported high levels of financial stress (COST:P: M=23.1(10.7), 52% ≥23; C:M=25.4(10.3), 63% ≥23), (ENRICH: P:M=3.6(2.4), 75% ≥2.1; C:M=3.2(2.2), 62% >2.1) indicating elevated scores (Table 2)
- Patients and caregivers reported high levels of insomnia (ISI: P: M=10(6), 54% ≥7.4, C: M=8.7(6.2), 64% >7.4), and depression (CES-D: P:M=15.6(11.9), 42% ≥16; C:M=14.6(11.5), 39% >16) (Table 2)
- Financial stress significantly correlates with insomnia**
- Financial stress was associated with increased insomnia (ENRICH and ISI: P:r=.33, p<.01 C:r=.32, p<.01) and worse sleep quality (PSQI: C:r=.38, p<.01) (Table 1)
- Financial stress significantly correlates with depression and anxiety**
- Financial stress was associated with increased depression (COST and CES-D: P:r=-.55, p<.001 C:r=-.52, p<.01) and anxiety on (COST and GAD-7: P:r=-.46, p<.001 C:r=-.49, p<.01) (Table 1)

Table 1. Correlations among financial stress, sleep and psychological well-being

	Financial Stress			Psychological Well-Being		HR Quality of Life		Sleep	
	COST	ENRICH	WPAI	GAD-7	CES-D	SF-12 M	SF-12 P	ISI	PSQI
COST	.46***	-.66**	-.27*	-.49**	-.52**	.35**	-.07	-.25*	-.20
ENRICH	-.75**	.47***	.48**	.54**	.56**	-.20	-.03	.32**	.38**
WPAI	-.37*	.39**	.47*	.34**	.33**	-.17	-.14	.42**	.37**
GAD-7	-.46**	.30**	.51**	.13	.86**	-.30**	-.09	.60**	.52**
CES-D	-.55**	.37**	.52**	.80**	.31**	-.23*	-.08	.59**	.53**
SF-12 M	.54**	-.33**	-.37*	-.64*	-.71**	.02	-.03	-.12	-.09
SF-12 P	.18	-.29**	-.53**	-.14	-.22*	-.03	.26	-.09	-.17
ISI	-.40**	.33**	.54**	.45**	.47**	-.47**	-.33**	.22**	.73**

Note. Patient correlations are presented below the diagonal (white), spousal caregiver correlations are presented above the diagonal (pink). Partial correlations between members of the couple, controlling for couple membership on the diagonal in grey. SF-12 Mental (SF-12 M) and SF-12 Physical (SF-12 P), and Health-Related Quality of Life (HR Quality of Life).

Table 2. Participant Characteristics

	Patients		Spousal Caregivers	
	Mean (SD)	Min-Max	Mean (SD)	Min-Max
<b>Emotional Distress</b>				
GAD-7 Anxiety (0-21)	4.7 (4.9)	0-21	5.9 (5.1)	0-21
Moderate Symptoms (10-14), %	12, 11.1		11, 10.7	
Severe Symptoms (15-21), %	4, 4		6, 5.9	
CES-D Depression (0-60)	15.6 (11.9)	0-56	14.6 (11.5)	0-56
CES-D Cases ≥16, %	43, 41.7%		40, 38.8%	
SF-12 Mental Score	36.9 (10.5)	15.4-57.1	52.2 (8.3)	28.2-52.2
SF-12 Physical Score	45.1 (9.9)	25.1-62.5	44.0 (9.3)	19.6-58.7
<b>Sleep</b>				
ISI Total (0-21)	10.0 (6.0)	0-21	8.7 (6.2)	0-28
ISI Severe, %	0, 0		4, 3.9	
ISI Moderate, %	25, 24.3		12, 11.7	
ISI Subthreshold, %	39, 37.9		35, 34	
PSQI Total	--		7.4 (3.6)	1-18
PSQI Sleep Duration	--		0.2 (0.9)	0-3
PSQI Disturbance	--		1.3 (0.6)	0-3
PSQI Sleep Latency	--		1.6 (0.9)	0-3
PSQI Day Dysfunction	--		2.1 (0.7)	0-3
PSQI Sleep Quality	--		0.6 (1.1)	0-3
PSQI Efficiency	--		0.6 (0.9)	0-3
<b>Sleep Medications n, %</b>				
Over the Counter	10, 9.3		3, 2.8	
Prescribed	15, 14		3, 2.8	
<b>Financial Stress</b>				
COST	23.1 (10.7)	2-44	25.4 (10.3)	2-44
% ≥23	57.1		62.8	
ENRICH	3.6 (2.4)	0-10	3.2 (2.2)	0-9.1
% ≥2.1	74.7		61.9	
<b>Work Productivity</b>				
n, % of sample working	45, 43.7		79, 76.7	
WPAI % Time Missed	31.2 (34.9)	0-100	14.0 (21.1)	0-100
WPAI % Work Impairment	39.1 (33.8)	0-100	27.0 (26.9)	0-80
WPAI % Activity Impairment	44.1 (31.1)	0-100	24.6 (26.0)	0-100
WPAI % Total Impairment	50.0 (34.8)	0-100	34.9 (31.5)	0-100

## Conclusions

- Patient-caregiver dyads suffer from increased insomnia that associates with financial stress, anxiety, and depression, warranting supportive services to help improve their health-related quality of life
- These variables should be routinely screened in cancer patient-caregiver dyads.
- The majority of patients and caregivers scored above the global mean on both COST and ENRICH, exemplifying the increased financial stress imposed on patients and their families after diagnosis,
- Further longitudinal studies and analyses necessary to extend findings

## Responsible Conduct of Research

- All procedures involving human subjects were conducted in accordance with ethical standards of the MDACC IRB.
- All participants provided written and informed consent.
- Completions of questionnaires and study participation was voluntary.
- In order to minimize participant burden, questionnaires were completed at their convenience and patients only completed necessary measures.
- Study PI (Kathrin Milbury, PhD) was responsible for maintaining documents and approvals for all modifications in the protocol.
- All data was deidentified prior to analyses.
- If patients endorsed high levels of emotional distress, their oncologist was contacted within 24 hours for follow-up. Caregivers endorsing emotional distress were provided community resources.

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