Health Literacy, Language & Cancer-Related Needs: Diagnosis to 6 months

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October 22, 2018

Background

○ Advances in cancer biology, targeted therapies and personalized medicine have improved cancer outcomes.

○ These advances require patients to be involved in complex treatment choices.

○ If patients lack the skills to meet high informational demands, they may be vulnerable to poor clinical and psychosocial outcomes.

Background

- ○ People with low health literacy & non-English speakers participate less in cancer screening and prevention behaviors.[1,2]

- ○ Less is known about how each of these factors affect patient experience and psychosocial outcomes during cancer treatment.

Research Aim

To explore the relationship between health literacy, language, and psychosocial measures (cancer-related needs and self efficacy) in the first six months after a cancer diagnosis
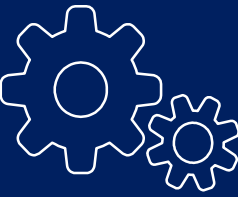
Methods

- ○ Data collected on patients enrolled in a Patient Navigation randomized controlled trial at an urban safety net hospital

- ○ Eligibility
  - Newly diagnosed with breast cancer (30 days) and not yet initiated treatment
  - Spoke English, Spanish, or Haitian Creole
  - No prior cancer within 5 years
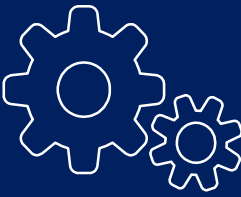
Data Collection

Patient Navigation Intervention
(standard vs. enhanced by Medical-Legal Partnership)

| | BL | 6M | 12M |

Cancer Needs Distress Inventory (CaNDI)[5] ✓ ✓

- o Validated, 38 items, scaled 1-5
- o Sub-scores used: anxiety, depression, health care needs, practical needs
- o Reported as average score

Communication and Attitudinal Self-Efficacy (CASE)[6] ✓ ✓

- o Validated, 12 items, scaled 1-4
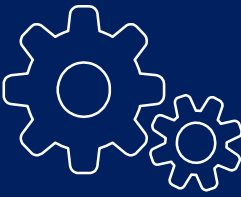- o Subscores used: information seeking, understanding

- o Validated (English & Spanish)
- o 4 items summed for total score
- o < 12 = inadequate, 12-16 = marginal, 17-20 = adequate
- o Cronbach's α = 0.77

Health Literacy: BRIEF [3,4] ✓

Demographics ✓

Includes: language, age, race, cancer stage at diagnosis, employment

Data Analysis

Basic Descriptive Statistics

Unadjusted Bivariate Associations by Literacy and Language

Multivariable Linear Models adjusted for demographics

Model Outcomes:
Total CaNDI Score (BL)
Total CASE- Cancer Score (BL)

Results

Variable		Inadequate HL (n=75)	Marginal HL (n=85)	Adequate HL (n=99)	TOTAL (N=262)	p-value
	Age	57.7 (12.6)	55 (11.8)	54.9 (11)	55.6 (11.8)	0.22
Race	White	12%	18%	37%	24%	**<0.001**
	Black	57%	40%	51%	49%	
	Hispanic	29%	39%	6%	24%	
	Other	1%	4%	6%	4%	
Language	English	55%	46%	94%	67%	**<0.001**
	Spanish	29%	37%	4%	22%	
	Haitian Creole	16%	18%	2%	11%	
Insurance	Public	85%	84%	60%	75%	**<0.001**
	Private	15%	17%	40%	25%	
Stage at Diagnosis	Early (0/1)	55%	60%	62%	59%	0.22
	Late (2+)	32%	37%	29%	32%	
Employment	Employed	32%	47%	56%	46%	**0.03**
	Out of work	23%	17%	17%	19%	
	Non-working/unk	17%	18%	15%	17%	
	Unable to work	29%	19%	12%	19%	

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Relationship between CaNDI and Literacy

	BASELINE			6 MONTHS		
	Inadequate HL	Marginal HL	Adequate HL	Inadequate HL	Marginal HL	Adequate HL
Total CaNDI Score*	1.9	1.9	1.6	1.7	1.7	1.6
Anxiety	2.3	2.2	2.0	1.8	1.9	1.7
Depression*	2.1	1.9	1.6	1.8	1.8	1.7
Health Care Distress*	1.7	1.6	1.2	1.4	1.3	1.3
Practical Distress*	2.0	1.8	1.6	1.7	1.7	1.4

* Outcomes significantly different across literacy groups at $p < 0.01$

Relationship between CaNDI and Language

	BASELINE			6 MONTHS		
	English	**Spanish**	**Haitian Creole**	**English**	**Spanish**	**Haitian Creole**
Total CaNDI Score*	1.8	1.9	1.5	1.6	1.7	1.7
Anxiety	2.2	2.1	1.9	1.8	1.9	1.8
Depression	1.8	1.9	1.7	1.8	1.8	1.9
Health Care Distress*	1.4	1.7	1.6	1.3	1.3	1.5
Practical Distress*	1.7	2.0	1.6	1.6	1.6	1.6

* Outcomes significantly different across language groups at $p \leq 0.03$

Results: CaNDI Adjusted Model at Baseline

	R²=0.19
Inadequate HL	0.27 ± 0.1**
Marginal HL	0.28 ± 0.10**
Haitian Creole	-0.42 ± 0.13**
Spanish	0.00 ± 0.10
Age	-0.16 ± 0.04**
Public Insurance	0.19 ± 0.1
Later Stage	-0.04 ± 0.08
Missing Stage	0.24 ± 0.14
Out of work	0.07 ± 0.12
Non-working	0.11 ± 0.13
Unable to work	0.21 ± 0.12

** $p < 0.05$

Relationship between CASE & Literacy

	BASELINE			6 MONTHS		
	Inadequate HL	**Marginal HL**	**Adequate HL**	**Inadequate HL**	**Marginal HL**	**Adequate HL**
Total CASE*	41.9	42.6	44.5	43.4	42.4	44.9
Information Seeking*	14.3	14.8	15.6	14.8	14.6	15.4
Understanding Patient Care*	13.5	13.9	14.8	14.2	13.8	14.9
Maintaining a Positive Attitude	14.1	14.1	14.2	14.5	14.0	14.6

* Outcomes significantly different across literacy groups at $p \leq 0.01$

Relationship between CASE and Language

	BASELINE			6 MONTHS		
	English	**Spanish**	**Haitian Creole**	**English**	**Spanish**	**Haitian Creole**
Total CASE	43.2	42.6	43.3	44.1	42.8	41.8
Information Seeking*	15.2	14.3	14.7	15.4	14.2	13.8
Understanding Patient Care*	14.1	14.5	13.8	14.4	14.3	13.7
Maintaining a Positive Attitude	14.0	14.1	14.9	14.4	14.2	14.3

* Outcomes significantly different across language groups at $p < 0.03$

Results: CASE Adjusted Model at Baseline

	$R^2=0.08$
Inadequate HL	-2.39 ± 0.93**
Marginal HL	-1.90 ± 0.92
Haitian Creole	0.88 ± 1.22
Spanish	0.67 ± 0.91
Age	0.46 ± 0.34
Public Insurance	-0.45 ± 0.95
Later Stage	0.11 ± 0.75
Missing Stage	-0.31 ± 1.29
Out of work	-0.09 ± 1.09
Non-working	-2.10 ± 1.19
Unable to work	-2.19 ± 1.07**

** $p<0.05$

Summary

- ○ There are significant differences in dimensions of cancer-related needs and self efficacy for those with inadequate health literacy immediately after a cancer diagnosis

- ○ Most effects do not persist: no differences in distress were seen at 6 months post-diagnosis

- ○ Primary language contributes to distress and self-efficacy, although the direction of association varies based on language

Limitations

- Secondary data source, could be confounded by the presence of patient navigation during data collection

- Not representative of language groups beyond these three and does not capture diverse cultural beliefs

- Subjective, brief measure of health literacy not validated in all languages

- Little data on the sensitivity of these distress measures

Future Directions

- There is a need to address the needs of patients with low health literacy in the immediate aftermath of a cancer diagnosis.

- Cultural beliefs about cancer may buffer some effects of distress, but these relationships require further investigation.

- Validated measures of health literacy across languages may improve our ability to detect differences across these dimensions.

THANKS!

Any questions?

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