Psychosocial Interventions to Improve Patient Reported and Clinical Outcomes to Decrease Cancer Disparities in Diverse Cancer Survivors

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Unprecedented growth in last 40+ yrs.

Early detection & treatment efficacy
- 20M Survivors; >26M in 2040
  - 5% of the US population
  - 64% are 65 or older*
  - 20% are Hispanic/Latinos

Survival benefit comes with challenges
- Provider shortage
- Chronicity of treatment side effects
- Aging and comorbidities (67% 3 or >)
- Care fragmentation
- Limited access to primary care
- Lifestyle factors contribute to disease burden, morbidity and mortality

Multiple Challenges!

*(NCI, 2018; ACS, 2020)
Survivorship Experiences Across the Care Continuum

Challenges are Prevalent, Underdetected and Undertreated

- Uncertainty
- Anxiety
- Depression
- Lifestyle

- Information Overload
- Decision Making

- SX Burden
- Interpersonal Disruptions
- TX Response
- Cost
- Role Strain

- Late Effects
- Surveillance
- Recurrence

Comorbidities
Disease Severity
SDOH, Lifestyle

HRQoL
Clinical Outcomes
Health System Outcomes

(Penedo et al., 2020; Benedict, Walsh & Penedo, 2022; e.g., ASCO, COC, NCCN Guidelines)
Most patients reported moderate to severe:

Fatigue, poor well-being, pain, and drowsiness with no significant differences noted by cancer type and treatment intent.
Prevalence of Moderate or High Severity Emotional Symptom Burden is Common

Anxiety (30-40%)
Irritability (20-30%)
Depression (<20-30%)
High Rates of Unmet Needs are Common

- Over 10K adult survivors
- Breast, prostate, colorectal, melanoma, or hematological cancers

<table>
<thead>
<tr>
<th>Domain</th>
<th>No. of Responses</th>
<th>Concern Reported</th>
<th>Help Sought</th>
<th>Unmet Need Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical concerns</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swelling</td>
<td>10 322</td>
<td>2411 (23)</td>
<td>1499 (64)</td>
<td>958 (40)</td>
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<tr>
<td>Fatigue</td>
<td>10 559</td>
<td>7210 (68)</td>
<td>2573 (65)</td>
<td>14702 (65)</td>
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<td>Hormonal menopause</td>
<td>10 227</td>
<td>2663 (26)</td>
<td>1300 (58)</td>
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<td>Chronic pain</td>
<td>10 375</td>
<td>3573 (34)</td>
<td>2094 (61)</td>
<td>1530 (48)</td>
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<td>Bladder incontinence</td>
<td>10 475</td>
<td>2716 (36)</td>
<td>2050 (58)</td>
<td>1650 (44)</td>
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<td>Gastrointestinal tract problems</td>
<td>10 432</td>
<td>2304 (20)</td>
<td>1521 (40)</td>
<td>1521 (40)</td>
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<td>Nervous system</td>
<td>10 413</td>
<td>1967 (17)</td>
<td>1213 (55)</td>
<td>2123 (55)</td>
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<td>Change in short-term memory</td>
<td>10 426</td>
<td>1016 (9)</td>
<td>3093 (75)</td>
<td>3093 (75)</td>
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<tr>
<td>Emotional concerns</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Depression</td>
<td>9 700</td>
<td>1459 (61)</td>
<td>3010 (67)</td>
<td>3010 (67)</td>
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<td>Anxiety</td>
<td>9 925</td>
<td>1996 (68)</td>
<td>4641 (68)</td>
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<td>Change in relationship with friends</td>
<td>10 577</td>
<td>270 (21)</td>
<td>1851 (88)</td>
<td>1851 (88)</td>
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<tr>
<td>Change in body image</td>
<td>10 594</td>
<td>849 (25)</td>
<td>3152 (75)</td>
<td>3152 (75)</td>
</tr>
<tr>
<td>Change in sexual intimacy</td>
<td>10 551</td>
<td>1282 (30)</td>
<td>3151 (70)</td>
<td>3151 (70)</td>
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<tr>
<td>Practical concerns</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Returning to work or school</td>
<td>10 388</td>
<td>1625 (69)</td>
<td>1625 (69)</td>
<td></td>
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<tr>
<td>Getting to and from appointments</td>
<td>10 521</td>
<td>736 (33)</td>
<td>1229 (55)</td>
<td>1229 (55)</td>
</tr>
<tr>
<td>Taking care of family</td>
<td>10 399</td>
<td>367 (23)</td>
<td>924 (69)</td>
<td>924 (69)</td>
</tr>
<tr>
<td>Difficulty getting health or life insurance</td>
<td>10 364</td>
<td>457 (30)</td>
<td>1192 (53)</td>
<td>1192 (53)</td>
</tr>
<tr>
<td>Paying health care bills</td>
<td>10 469</td>
<td>696 (36)</td>
<td>2173 (65)</td>
<td>2173 (65)</td>
</tr>
</tbody>
</table>

10%-70% endorsed concerns
40%-78% reported as unmet

Fatigue 65%
Cognition 75%
Sexuality 64%
Depression 67%
Anxiety 68%
Family 78%
Work Return 69%
Insurance Payments 73%

(Shakeel et al., 2020)
Hispanic Cancer Survivorship
Hispanics/Latinos

- 60M or 18.5% of the US population
- 100M by 2050 30% of US pop

Cancer is the 2\textsuperscript{nd} leading cause of death among H/Ls (21% of deaths)

4 Million H/L Cancer Survivors in the US

Less likely that non-Hispanic Whites to be dx with the most common cancers (breast, colorectal, lung, prostate)

Have a higher risk for cancers associated with infectious agents, such as liver, stomach, and cervix.

Present with more advanced disease and poorer outcomes across several cancers

(ACS, 2022)
Psychological Morbidity & HRQOL in Hispanics

- Systematic review and meta-analysis
- 21 articles (18 datasets)
- Hispanic disparities:
  - Distress (es 0.37)
  - Depression (es 0.23)
  - Social QOL (es 0.45)
  - General HRQOL (es 0.49)

Luckett et al, Lancet Oncology, 2011
Depression is differentially worse for racial/ethnic minorities cancer survivors

Adult California Health Interview Survey (n=42,879)

Alcalá et al, *BMC Pub Hlth*; 2014
Two most common unmet needs were in the psychological domain:
- Fear of recurrence/spread (32.6%)
- Concern for close others (31.3%)

Greater unmet supportive needs compared to previously published norms in non-Hispanic/Latino white samples

Social roles/strain, familism and fatalistic attitudes may be contributing factors

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Supportive Care Needs Among H/L BC, CRC & PC Survivors

<table>
<thead>
<tr>
<th>Unmet Supportive Care Need Domain</th>
<th>Satisfaction with Cancer Care</th>
<th>Prostate Cancer Symptom Burden</th>
<th>Breast Cancer Symptom Burden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (SE) (95% CI)</td>
<td>B (SE) (95% CI)</td>
<td>B (SE) (95% CI)</td>
</tr>
<tr>
<td>Psychological (PSY)*</td>
<td>-1.66 (1.23) (-4.08 – .75)</td>
<td>-6.01 (2.02)** (-10.03 – 1.98)</td>
<td>-8.30 (1.33)** (-10.95 – 5.66)</td>
</tr>
<tr>
<td>Health System &amp; Information (HSI)*</td>
<td>3.81 (1.18)** (-6.14 – 1.48)</td>
<td>6.75 (2.12)** (-10.96 – 2.54)</td>
<td>-6.36 (1.39)** (-9.12 – 3.60)</td>
</tr>
<tr>
<td>Patient Care &amp; Support (PCS)*</td>
<td>-3.57 (1.47)* (-6.46 – -.68)</td>
<td>-5.80 (3.54) (-12.84 – 1.24)</td>
<td>-4.20 (1.45)** (-7.07 – 1.32)</td>
</tr>
<tr>
<td>Physical &amp; Daily Living (PDL)*</td>
<td>-3.65 (1.46)* (-6.53 – -.77)</td>
<td>-5.80 (3.54) (-12.84 – 1.24)</td>
<td>-4.18 (1.44)** (-1.33 – 7.04)</td>
</tr>
<tr>
<td>Sexuality (SXN)*</td>
<td>-2.05 (1.24)* (-4.49 – .39)</td>
<td>8.13 (1.67)** (-11.44 – 4.81)</td>
<td>-6.24 (1.54)** (-9.29 – 3.20)</td>
</tr>
</tbody>
</table>

(Moreno et al., 2019)
Self-Efficacy/Controllability Mediates Care Satisfaction → HRQOL in H/Ls

- 300 H/L BC, CRC, PC
- Satisfaction associated with self-efficacy & greater HRQoL
- Self-efficacy/confidence in managing:
  - psychological distress
  - support from close others
  - social/activities
  - patient-provider communication

Adjusting for acculturation, language, nativity, and other covariates of HRQoL did not alter findings

(Moreno et al., 2019)
Factors that **May** Impact Psychosocial Adjustment and Health Outcomes in Hispanics/Latinos

- Structural disadvantage well documented ✓
- Practical needs (e.g., transp., child-care) ✓
- Physical and Emotional Symptom Burden ✓
- Sociocultural Factors—Limited Work ~
  - Homogeneous samples
  - Low SES and/or acculturation
  - Provider education

- H/Ls Lowest Coverage Late DX & Poor Adherence
- 3 or >; Obesity, Diabetes & Liver DZ
- Greater Burden Poorer HRQoL & Adherence
- Acculturation & Education
- Lower Self-Efficacy Lower Optimism
- Family Roles, Cohesion, Role Strain

**Structural & Psychosocial Barriers?**

**Resilience: Extended Family & Cohesion, Spirituality, etc.**

(Sgallo & Penedo, 2009; Penedo et al., In Press; Ramirez et al., 2020; Moreno et al., 2019; Yanez et al., 2016)
My Wellness Check

Risk Stratified Care: EHR-Integrated PRO Assessment & Triage
Growing Literature Supports that PROs can promote:

- Individualized patient care
- Enhanced patient-physician communication
- Shared health decision-making
- Patient engagement

Assessment of a patient’s symptoms, function and quality of life are **essential to quality medical care.**

- **Clinician ratings of symptom severity are often lower** than that reported by patients, especially for subjective symptoms (e.g., anxiety, fatigue).

- Promotes **risk-stratified care.**

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(Potential Benefits of Capturing PROs in Ambulatory Oncology)  
(e.g., Di. Maio, M. et al. 2016; Penedo et al., 2017, 2020)
Patient Engagement
Outreach & engage patients

Technology
Optimization
Collect, analyze patient data

Best Outcomes
Best practices

With MyUHealthChart, your medical records are at your fingertips

(Penedo et al., 2022)
**Patient Eligibility**
(e.g., ICD-10, 2nd visit or later, no > once within 30 days, medical appointment)

**Reminders**
(text, email, or call; 72 hours prior to visit)

**My Wellness Check**
(12-20 minutes)

**At Home**
(Patient Portal)

**At Clinic**
(Intake Nurse)

**Real-time Scoring & EMR Coding**
(Real-Time Data, EHR, PRO CATs, Needs, HRQoL, Alerts, Reports)

**Alert**
No Alert

**My Wellness Check Complete**

**Symptom Management & Provider Disposition Coded**
(e.g., Health interventions, telephone counselling, referrals, and medication management)

**Patient Report Outcomes**
Anxiety, Depression, Fatigue, Pain, Physical Function

**Nutrition Needs**
Practical Needs (eg, transp.) Rehabilitation Needs

**Quality of Life** (FACT-G7)

**Social Work**
(PHQ-9, GAD 7)
Nutrition Rehab Med
Medical Team

**Reassess**
(within 30 days, appointment)
## PROMIS® Items & Alert Thresholds

### PROMIS CATs ITEM BANKS USED

<table>
<thead>
<tr>
<th>PROMIS CATs ITEM BANKS USED</th>
<th></th>
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<tbody>
<tr>
<td>PROMIS Bank v1.0 (English + Spanish)</td>
<td>Fatigue</td>
</tr>
<tr>
<td>PROMIS Bank v1.1 (English + Spanish)</td>
<td>Pain Interference</td>
</tr>
<tr>
<td>PROMIS Bank v1.2 (Spanish), v2.0 (English)</td>
<td>Physical Function</td>
</tr>
<tr>
<td>PROMIS Bank v1.0 (English + Spanish)</td>
<td>Anxiety</td>
</tr>
<tr>
<td>PROMIS Bank v1.0 (English + Spanish)</td>
<td>Depression</td>
</tr>
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</table>

### PROMIS Scoring Thresholds

<table>
<thead>
<tr>
<th>PROMIS CAT</th>
<th>SEVERITY CATEGORIES</th>
<th>CLINICIAN ALERT</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>Mild</td>
</tr>
<tr>
<td>Fatigue</td>
<td>&lt; 50</td>
<td>50 - 59</td>
</tr>
<tr>
<td>Pain Interference</td>
<td>&lt; 50</td>
<td>50 - 59</td>
</tr>
<tr>
<td>Physical Function</td>
<td>&gt; 55</td>
<td>55 - 64</td>
</tr>
<tr>
<td>Anxiety</td>
<td>&lt; 55</td>
<td>55 - 64</td>
</tr>
<tr>
<td>Depression</td>
<td>&lt; 55</td>
<td>55 - 64</td>
</tr>
</tbody>
</table>

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*Interpreting PROMIS® T-Scores*
Patient Portal Interface

PROMIS – Anxiety CAT

Emotional Well-being A
For an upcoming appointment with Joseph Pearson, MD on 4/5/2019
In the past 7 days
I found it hard to focus on anything other than my anxiety

- Never
- Rarely
- Sometimes
- Often
- Always

Practical & Psychosocial Needs
For an upcoming appointment with Joseph Pearson, MD on 4/5/2019
- Indicates a required field.
- I would like for a treatment team member to contact me for help with (check all that apply):
- Select all that apply:
  - No needs at this time
  - Transportation resources
  - Support to help me cope with my illness and/or manage stress
  - Advance directives: medical actions to be taken if my health prohibits me from making decisions /living will, power of attorney
  - Financial/Insurance concerns about my health care
  - Oncology (ability to have children)
  - Child Care
  - Housing needs/concerns
  - Work/school concerns
  - Family Problems/Family Health concerns
  - Spiritual/Religious concerns
  - Sexual Health concerns
  - General education about my illness and assistance with treatment decisions
Sample EPIC Functionality...

Best Practice Alerts

Recorded Disposition

Item Level Responses

Provider & Patient Facing Trends
## Patient Demographics

10,637 assessments completed by 6,079 unique patients

<table>
<thead>
<tr>
<th>Patient Demographics</th>
<th>Mean (SD)</th>
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<tbody>
<tr>
<td>Age</td>
<td>62.6 (13.1)</td>
</tr>
<tr>
<td>Charlson Score</td>
<td>6.2 (3.7)</td>
</tr>
<tr>
<td>Sex</td>
<td>N (%)</td>
</tr>
<tr>
<td>Male</td>
<td>2287 (43.7)</td>
</tr>
<tr>
<td>Female</td>
<td>2949 (56.3)</td>
</tr>
<tr>
<td>RACE</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>4618 (88.2)</td>
</tr>
<tr>
<td>Black</td>
<td>380 (7.3)</td>
</tr>
<tr>
<td>Asian</td>
<td>85 (1.6)</td>
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<tr>
<td>Other</td>
<td>19 (0.4)</td>
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<tr>
<td>Refused or Not Reported</td>
<td>134 (2.5)</td>
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<tr>
<td>Ethnicity</td>
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<tr>
<td>Hispanic/Latino</td>
<td>2506 (47.9)</td>
</tr>
<tr>
<td>Non-Hispanic or Latino</td>
<td>2541 (48.5)</td>
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<tr>
<td>Refused or Not Reported</td>
<td>189 (3.6)</td>
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### Cancer Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Count (Percentage)</th>
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<tbody>
<tr>
<td>Breast</td>
<td>969 (18.5)</td>
</tr>
<tr>
<td>Hematology</td>
<td>788 (15.1)</td>
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<tr>
<td>GI</td>
<td>653 (12.5)</td>
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<tr>
<td>Male Genital</td>
<td>571 (10.9)</td>
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<tr>
<td>Head and Neck</td>
<td>415 (7.9)</td>
</tr>
<tr>
<td>Lung</td>
<td>412 (7.9)</td>
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<tr>
<td>GYN</td>
<td>426 (8.1)</td>
</tr>
<tr>
<td>Skin</td>
<td>236 (4.5)</td>
</tr>
<tr>
<td>Uro</td>
<td>203 (3.9)</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>129 (2.5)</td>
</tr>
<tr>
<td>Brain</td>
<td>63 (1.2)</td>
</tr>
<tr>
<td>Other</td>
<td>245 (4.7)</td>
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<tr>
<td>Unknown</td>
<td>113 (2.0)</td>
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### Cancer Stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>Count (Percentage)</th>
</tr>
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<tbody>
<tr>
<td>Stage 0</td>
<td>42 (0.8)</td>
</tr>
<tr>
<td>Stage I</td>
<td>425 (8.1)</td>
</tr>
<tr>
<td>Stage II</td>
<td>317 (6.1)</td>
</tr>
<tr>
<td>Stage III</td>
<td>276 (5.3)</td>
</tr>
<tr>
<td>Stage IV</td>
<td>275 (5.3)</td>
</tr>
<tr>
<td>Unknown</td>
<td>3901 (74.5)</td>
</tr>
</tbody>
</table>
Psychosocial & Practical Needs

- Coping and/or Managing Stress: 21.3%
- General Education and Information: 15.4%
- Financial/Insurance Concerns: 20.1%
- Advance Directives: 9.2%
- Sexual Health Concerns: 7.0%
- Housing Needs/Concerns: 6.7%
- Transportation Resources: 9.3%
- Family Problems/Family Health Concerns: 4.2%
- Work/School Concerns: 3.8%
- Oncofertility (Ability to Have...): 3%
- Spiritual/Religious Concerns: 1.1%
- Child Care: 0.6%
- Promis® CATs (Severe)
  - Depression: 8%
  - Anxiety: 9%
  - Pain: 7%
  - Fatigue: 6%
  - Physical Function: 12%
Non-Responders: Greater likelihood of ER Visits & Hospitalization

Non-Engagement:
- Older age
- Single
- Male
- Hispanic Ethnicity
Unmet practical need associated with greater likelihood of ER visits and Hospitalizations

**Figure 1:** Cumulative incidence of ER visits

**Figure 2:** Cumulative incidence of hospitalizations
Unmet practical needs is an independent risk factor for ER visit/hospitalization after controlling demographics and PROs.

### ER (Univariate vs. Multivariate)

<table>
<thead>
<tr>
<th>ER</th>
<th>Univariate</th>
<th>Multivariate</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>HR (95%CI) P value</td>
<td>HR (95%CI) P value</td>
</tr>
<tr>
<td>Age</td>
<td>0.99 (0.98-0.99) 0.004</td>
<td>0.99 (0.98-0.99) 0.003</td>
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<tr>
<td>Gender</td>
<td></td>
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</tr>
<tr>
<td>Male (vs. Female)</td>
<td>0.97 (0.94-1.12) 0.66</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1.43 (1.13-1.82) 0.003</td>
<td>1.66 (1.27-2.16) 0.0002</td>
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<tr>
<td>Other</td>
<td>0.99 (0.67-1.48) 0.98</td>
<td>1.29 (0.85-1.94) 0.22</td>
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<tr>
<td>Unknown</td>
<td>0.41 (0.15-1.08) 0.07</td>
<td>0.44 (0.14-1.40) 0.16</td>
</tr>
<tr>
<td>Ethnicity</td>
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<td></td>
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<tr>
<td>Non-Hispanic (ref)</td>
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<tr>
<td>Hispanic</td>
<td>0.45 (1.25-1.68) &lt;0.0001</td>
<td>1.46 (1.23-1.74) &lt;0.0001</td>
</tr>
<tr>
<td>Unknown</td>
<td>0.67 (0.39-1.15) 0.15</td>
<td>0.76 (0.44-1.36) 0.40</td>
</tr>
<tr>
<td>Charlson Score</td>
<td>1.17 (1.15-1.20) &lt;0.0001</td>
<td>0.17 (1.14-1.19) &lt;0.0001</td>
</tr>
<tr>
<td>PROs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.19 (1.80-2.66) &lt;0.0001</td>
<td>1.45 (1.11-1.89) 0.007</td>
</tr>
<tr>
<td>Depression</td>
<td>1.98 (1.63-2.41) &lt;0.0001</td>
<td>0.95 (0.72-1.26) 0.71</td>
</tr>
<tr>
<td>Pain</td>
<td>2.78 (2.15-3.60) &lt;0.0001</td>
<td>1.52 (1.08-2.14) 0.02</td>
</tr>
<tr>
<td>Fatigue</td>
<td>2.09 (1.50-2.91) &lt;0.0001</td>
<td>0.86 (0.58-1.28) 0.46</td>
</tr>
<tr>
<td>Physical function</td>
<td>2.55 (2.11-3.09) &lt;0.0001</td>
<td>1.67 (1.30-2.14) &lt;0.0001</td>
</tr>
<tr>
<td>Practical Needs</td>
<td>1.85 (1.58-2.17) &lt;0.0001</td>
<td>1.48 (1.23-1.77) &lt;0.0001</td>
</tr>
</tbody>
</table>

### Hospitalization (Univariate vs. Multivariate)

<table>
<thead>
<tr>
<th>Hospitalization</th>
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<th>Multivariate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR (95%CI) P value</td>
<td>HR (95%CI) P value</td>
</tr>
<tr>
<td>Age</td>
<td>0.99 (0.98-0.99) &lt;0.0001</td>
<td>0.98 (0.97-0.99) &lt;0.0001</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (vs. Female)</td>
<td>1.20 (1.04-1.39) 0.01</td>
<td>1.35 (1.15-1.60) 0.0003</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1.35 (1.06-1.72) 0.01</td>
<td>1.62 (1.24-2.11) 0.0004</td>
</tr>
<tr>
<td>Other</td>
<td>0.98 (0.66-1.46) 0.92</td>
<td>1.49 (1.01-2.20) 0.045</td>
</tr>
<tr>
<td>Unknown</td>
<td>0.40 (0.15-1.07) 0.07</td>
<td>0.70 (0.28-1.73) 0.44</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.17 (1.01-1.36) 0.03</td>
<td>1.25 (1.05-1.49) 0.01</td>
</tr>
<tr>
<td>Unknown</td>
<td>1.19 (0.79-1.78) 0.41</td>
<td>1.12 (0.7-1.79) 0.84</td>
</tr>
<tr>
<td>Charlson Score</td>
<td>1.20 (1.18-1.22) &lt;0.0001</td>
<td>1.20 (1.17-1.22) &lt;0.0001</td>
</tr>
<tr>
<td>PROs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.67 (1.35-2.07) &lt;0.0001</td>
<td>0.78 (0.73-1.32) 0.89</td>
</tr>
<tr>
<td>Depression</td>
<td>1.80 (1.46-2.01) &lt;0.0001</td>
<td>0.94 (0.70-1.27) 0.71</td>
</tr>
<tr>
<td>Pain</td>
<td>2.35 (1.79-3.08) &lt;0.0001</td>
<td>1.13 (0.79-1.63) 0.51</td>
</tr>
<tr>
<td>Fatigue</td>
<td>2.10 (1.51-2.92) &lt;0.0001</td>
<td>1.08 (0.73-1.59) 0.72</td>
</tr>
<tr>
<td>Physical function</td>
<td>2.50 (2.06-3.03) &lt;0.0001</td>
<td>1.84 (1.43-2.37) &lt;0.0001</td>
</tr>
<tr>
<td>Practical Needs</td>
<td>1.73 (1.47-2.05) &lt;0.0001</td>
<td>1.48 (1.23-1.78) &lt;0.0001</td>
</tr>
</tbody>
</table>
## Unmet Needs & HRQoL (FACT-G 7)

### Step 1: Demographics

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.008</td>
<td>0.01</td>
<td>0.002</td>
</tr>
<tr>
<td>Female gender (ref: male)</td>
<td>-0.05**</td>
<td>-0.05**</td>
<td>-0.05**</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (ref)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>-0.003</td>
<td>0.007</td>
<td>0.02</td>
</tr>
<tr>
<td>Other</td>
<td>0.01</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Hispanic (ref: non-Hispanic)</td>
<td>0.03</td>
<td>0.04*</td>
<td>0.04**</td>
</tr>
<tr>
<td>Not insured (ref: insured)</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.02</td>
</tr>
<tr>
<td>No partner (ref: living with a partner)</td>
<td>-0.09***</td>
<td>-0.08***</td>
<td>-0.06***</td>
</tr>
</tbody>
</table>

### Step 2: Clinical factors

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metastatic disease (ref: early stage)</td>
<td>-0.005</td>
<td>-0.008</td>
<td></td>
</tr>
<tr>
<td>Year since cancer diagnosis</td>
<td>0.04*</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Charlson Comorbidity Score</td>
<td>-0.20***</td>
<td>-0.19***</td>
<td></td>
</tr>
<tr>
<td>No active treatment (ref: receiving treatment)</td>
<td>0.11***</td>
<td>0.10***</td>
<td></td>
</tr>
</tbody>
</table>

### Step 3: Cancer Supportive care needs

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cancer supportive care needs</td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>4.99***</td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td>0.01</td>
</tr>
<tr>
<td>ΔR²</td>
<td>--</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01, ***p<0.001

---

Unmet Needs & HRQoL (FACT-G 7)
Cognitive Behavioral Stress Management

eHealth-Delivered Evidence-Based Psychosocial Interventions to Improve PROs in Cancer Survivors
Psychosocial Treatment Targets

- Provide Anxiety Reduction Skills
- Modify Negative Appraisals
- Build Coping Skills & Self-Efficacy
- Facilitate Emotional Expression & Communication Skills
- Reduce Social Isolation
- Reduce Risk Behavior

Emotional & Behavioral Adaptation

- Improved Mood & Social Relations
- Reduced Arousal
- Improved Treatment Compliance
- Improved Health Behaviors

Physiological Adaptation

- Endocrine Regulation
- Immunoregulation
- Other Physiological Mechanisms

Quality of Life & Health Outcomes

- Health-Related Quality of Life
- Cancer-Specific Quality of Life
- Health Outcomes

Disease Related Factors

- Treatment Side Effects
- Disease Severity & Status
- Social Stressors

Treatment Moderators

- SES, Age, Ethnicity & Culture
- Personality, Pre-Morbid Function
- Available Inter- & Intrapersonal Resources

Cancer TX

Stress

In-Person or Tech; Group-based Time-sequenced & Manualized CBT, Relaxation Skills Provision, Support

10 sessions, 1/week, 90 min 6-8 participants

(Benedict, Walsh & Penedo, 2022; Antoni, Moreno & Penedo, 2023; Penedo, Antoni & Schneiderman, 2008; Antoni et al., 2006)
CBSM, Symptom Burden and Health-Related Quality of Life (HRQoL) in Cancer Survivors

Key Findings & Dissemination to Community Audiences

- HRQOL
- Stress management skills
- Coping, Mood
- Benefit finding
- Immunoregulation—Inflammation

Clinically significant improvements in:
- Sexual function
- Emotional well-being (for anxious, socially inhibited & stressed)
  Improved Immunoregulation

- In person
- Via e/mHealth platforms
- English/Spanish

(e.g.; Penedo et al., 2004, 2006, 2008, 2012; Molton et al., 2008; Traeger et al., 2011)
Adapting Evidence-Based Psychosocial Interventions for Hispanic Cancer Survivors.
Four Stages of Cultural Adaptation

- Information Gathering
  - Differences in modifiable risk, outcomes
  - Cultural influences on core intervention components

- Preliminary Adaptation
  - Integrate input of key stakeholders
  - Patients, providers, community
  - Adaptation

- Preliminary Adaptation Test
  - Train facilitators, pilot adapted intervention

- Adaptation Refinement
  - Feedback from pilot to revise the EBT

References:
## Hispanic Sociocultural Influences on Core Intervention Components: Implications for CBT Approaches & CBSM Cultural Adaptations

<table>
<thead>
<tr>
<th>Cultural Factors</th>
<th>Cultural Process</th>
<th>Psychosocial Implication</th>
<th>Culturally Adapted CBT-Based Strategy in C-CBSM Framed by Hispanic Cultural Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Familism</strong></td>
<td>Strong attachment/interdependence with nuclear &amp; extended family</td>
<td>▪ Therapeutic gains must benefit &amp; extend to family network</td>
<td>▪ Identifying efficacious sources of support within the extended family ▪ Importance of self-care to maintain a strong family</td>
</tr>
<tr>
<td><strong>Simpatía &amp; Power Distance</strong></td>
<td>Non-confrontational interactions &amp; conformity / powerful others as authority figures to respect</td>
<td>▪ Authority figures (e.g., health care providers) not questioned ▪ Assertiveness skills, distinction between assertive vs. confrontational styles</td>
<td>▪ Demystifying powerful figures/others</td>
</tr>
<tr>
<td><strong>Fatalism &amp; External Locus of Control</strong></td>
<td>Destiny is beyond one’s control</td>
<td>▪ Very little one can do to change the future ▪ Cognitive restructuring of fatalistic attitudes</td>
<td>▪ How culture can shape fatalistic beliefs ▪ More attention to controllability and modifying outcome expectancies</td>
</tr>
<tr>
<td><strong>Male Gender Roles</strong></td>
<td>Strong masculine pride and identity</td>
<td>▪ Sexual dysfunction as a major threat to identity ▪ Cognitive restructuring to address multiple aspects of a masculine role</td>
<td>▪ Attention to how benefits to self support masculine role</td>
</tr>
</tbody>
</table>
### Cultural Tailoring for Hispanic

- Poorer physical, social & emotional outcomes
- Limited evidence-based programs

---

**Didactic on cultural patterns**

- Reducing cultural stigmas about cancer & emotions
- How adages may influence appraisal and coping processes

---

**Enfoque Cultural**

Objetivo del Facilitador respecto a la Competencia Cultural: Normalizar la expresión emocional y reducir el estigma de la enfermedad.

Los Latinos pueden tener más probabilidades de participar en estrategias de ajuste que no son...

---

**How culture may influence sexuality**

---

**Ejercicio 3.2: Como la cultura puede afectar relaciones íntimas**

¿Cree usted que el (selecione abajo) afecta sus relaciones íntimas?

- Machismo:
- Respeto:
- Simpatía:

En qué manera le afecta el o la:

---

**Nuestro mundo es: Una serie de eventos positivos, neutrales y negativos. Como usted interpreta los eventos con una serie de PENSAMIENTOS que pasen por su mente le llamamos su "diálogo interno". Este diálogo influye en cómo nos sentimos.**

**Dicho: “Ojos que no ven, corazón que no siente”**

**Gustón:** Este dicho implica que si no vemos lo que pasa no podemos ser afectados por el evento. Lo más importante de este dicho es que de una manera u otra habla sobre la relación que existe entre los eventos, nuestra interpretación (el diálogo interior) y como nos sentimos.

**Estado de ánimo:** Sus pensamientos, es decir su diálogo interno, y no los eventos como tal, son los que crean sus sentimientos. Todas las experiencias son procesadas a través de su cerebro y tienen un significado para usted antes de sentir o tener cualquier respuesta emocional.

---

**Actividad en grupo: Vamos a leer la historia de Pedro.**

1. Cree que el diagnóstico de cáncer de próstata es un castigo por algo que hizo mal y entorno algo que se lo merecía.

- Patrón de pensamiento (distorsión / pensamiento negativo):

- Patrón cultural (poner en práctica la cultura):

---

**Peer story as frame of reference**
C-CBSM Intervention Effects in FACT HRQOL (Preliminary)

General Well Being

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>82.35</td>
<td>87.22</td>
</tr>
</tbody>
</table>

$F (3,66) = 27.7, p < .001.$

Emotional Well Being

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.24</td>
<td>19.63</td>
</tr>
</tbody>
</table>

$F (3,67) = 7.3, p < .001^a$
C-CBSM Intervention Effects in HRQOL (Preliminary)

EPIC - Sexual Functioning

FACT - Physical Well Being

$F (2,68) = 69.5, p < .001^a$

$F (4,65) = 8.5, p < .001^a$
Ongoing Work & Next Steps

Hispanic Survivorship Cohort

EHR Integrated Psychosocial Intervention
Ongoing Work: Hispanic/Latino Cancer Survivorship Cohort Study

- UG3/UH3 – 6-year study
- Longitudinal cohort
- N=3,000
- 50% Mex Am/50% Other
- 50% Female
- ~70% Ca Ctr
- ~30% State Registry
- ~30 Rural
- 8 Solid Tumors
- N distribution reflects rates seen in FL and TX
Ongoing Work:
EHR Integrated & Risk Stratified Assessment and Intervention

Patient-Facing Engagement Tools:
Enhanced Visualization

PRO-Guided Pragmatic Trial:
Elevated Depression SXs

Evidence-Based Interventions:
Specific Populations
(PACA, HSCT, HIV+ CA SURV)
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- David Cella, PhD

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University of Utah
- J.D. Smith, PhD

University of Arizona
- Rina Fox, PhD

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