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Cancer Center

Job loss after treatment for breast cancer

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Work has inherent meaning

- Sense of identity
- Engagement in society
- Associated with important psychological benefits in people diagnosed with cancer
 - Work can provide a sense of normalcy, escape, empowerment, and control
 - Applies to patients treated in palliative and curative settings





Work and financial wellbeing

Financial toxicity = *decreased earning +/- increased spending*

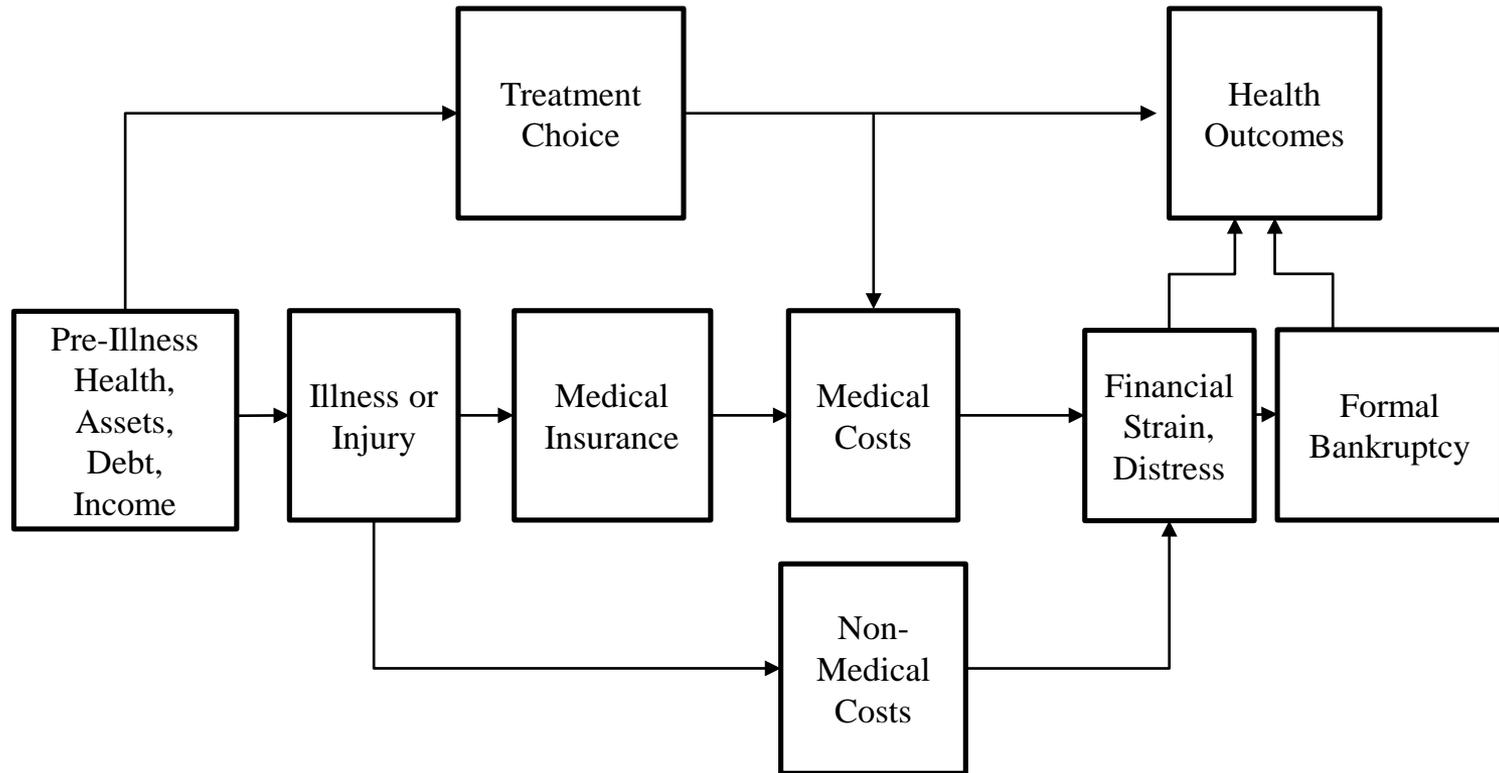


Financial toxicity

- *Decreased earning*
 - Job loss
 - Unpaid leave
 - Reduced pay while on leave
- *Increased spending*
 - Direct out-of-pocket costs
 - E.g. Medications, tests, copays
 - Indirect out-of-pocket costs
 - E.g. Travel, child and/or elder care



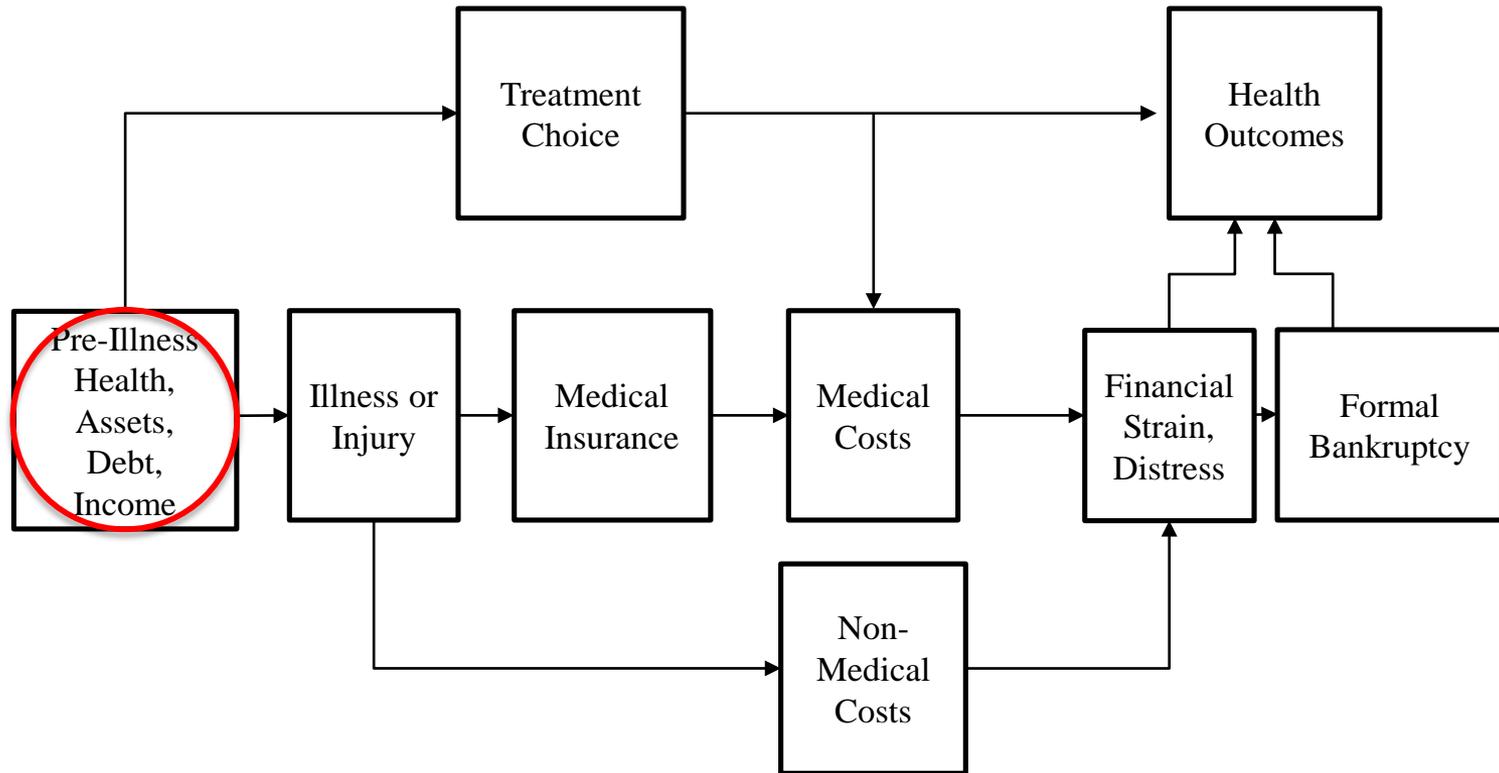
Financial toxicity



Conceptual framework relating severe illness, treatment choice, and health and financial outcomes. Credit: Scott Ramsey, M.D. Ph.D.



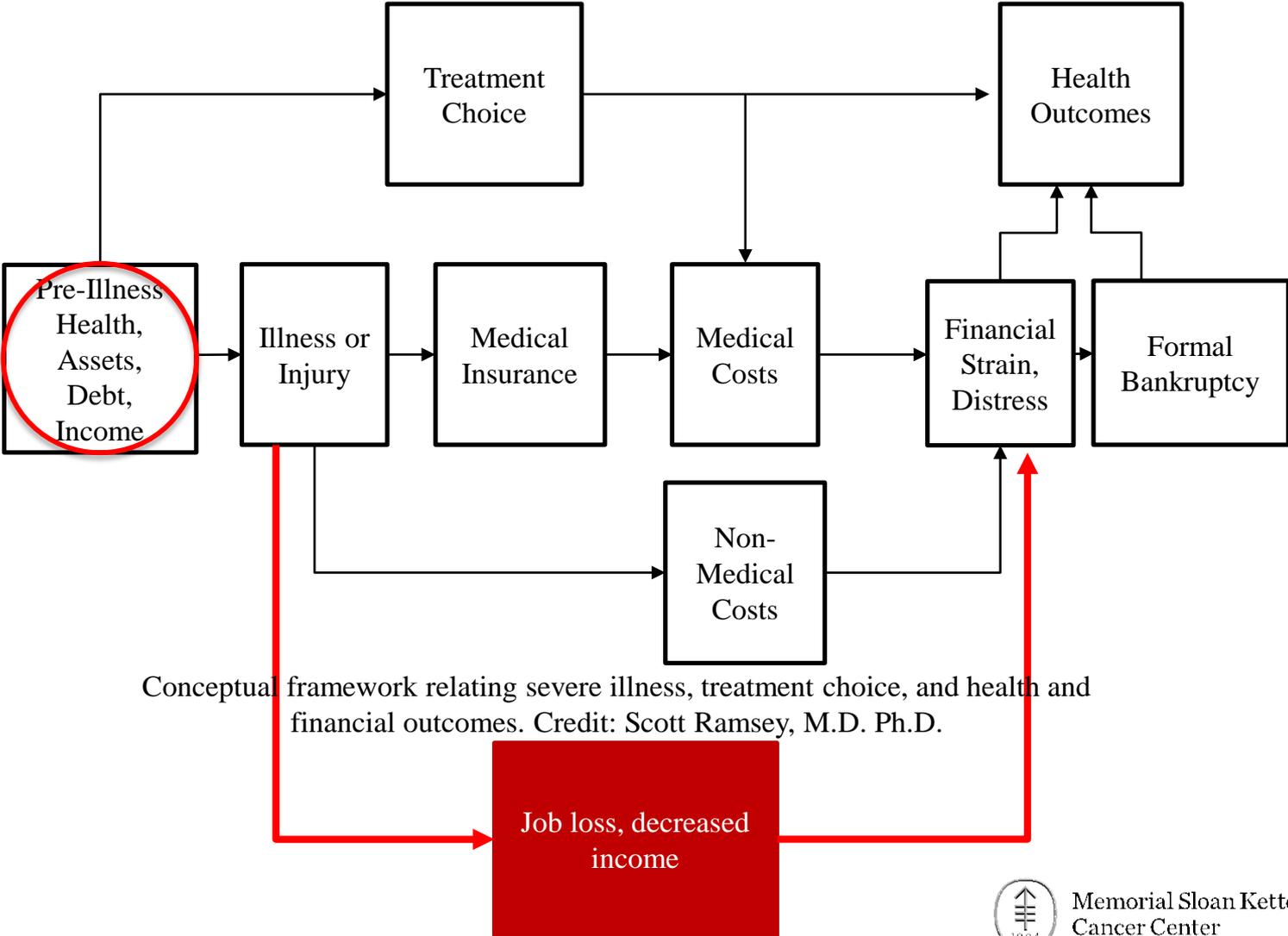
Financial toxicity



Conceptual framework relating severe illness, treatment choice, and health and financial outcomes. Credit: Scott Ramsey, M.D. Ph.D.



Financial toxicity



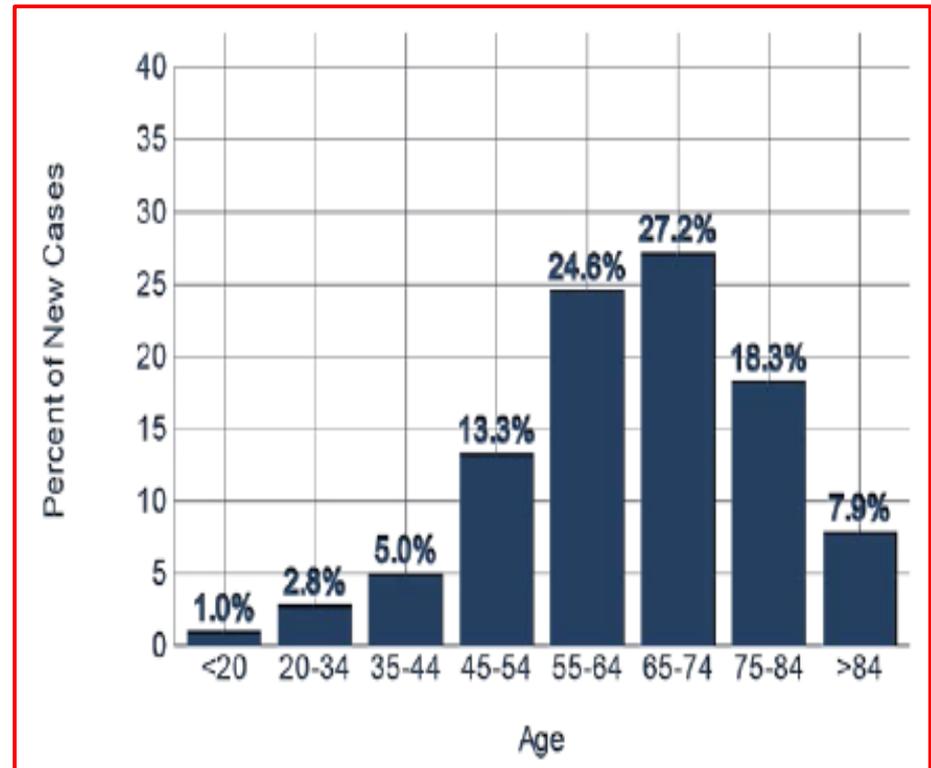
Conceptual framework relating severe illness, treatment choice, and health and financial outcomes. Credit: Scott Ramsey, M.D. Ph.D.

Consequences of job loss

- Among cancer survivors, job loss increases odds of:
 - Incurring debt: 1.28
 - Declaring bankruptcy: 1.74
- Bankruptcy is associated with higher risk of death in cancer survivors
 - HR 1.79 in cancer survivors who file for bankruptcy vs. those who do not
 - Differences may be due to treatment nonadherence in the setting of financial strain

Cancer survivors and work

- 46% of new cancers are diagnosed in people of “working age” (20-64 years)
- Overall, about 54% of working age cancer survivors are working full time.



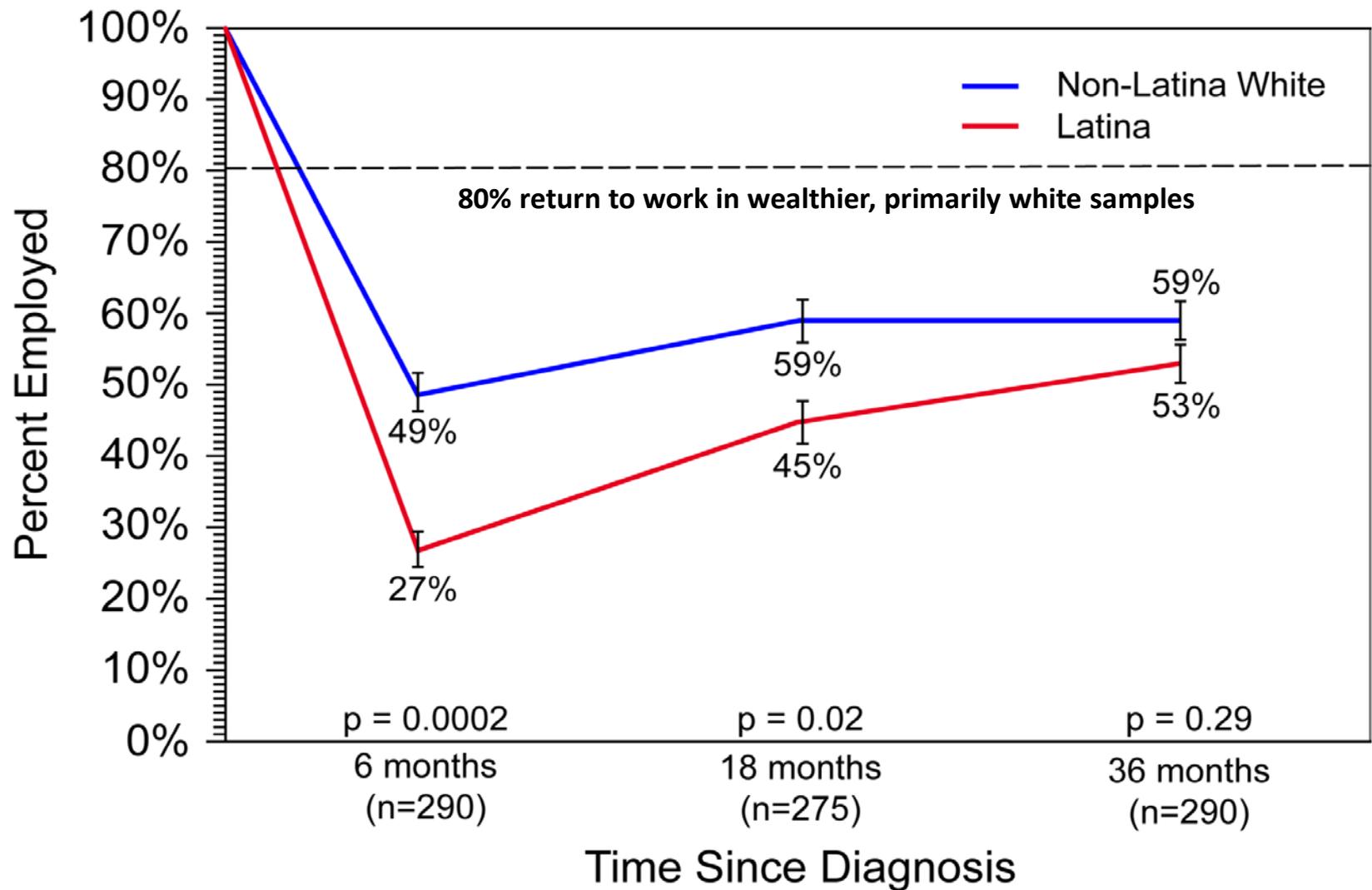


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Job loss in low-income Latina and non-Latina white breast cancer survivors



Low-income breast cancer survivors



Conclusions

- Low-income women take longer to return to work and do so at a lower rate than middle and high-income women
- Low-income **Latinas** take longer to return to work than low-income **non-Latina whites**
 - May be due to differences in job type and access to rehabilitation

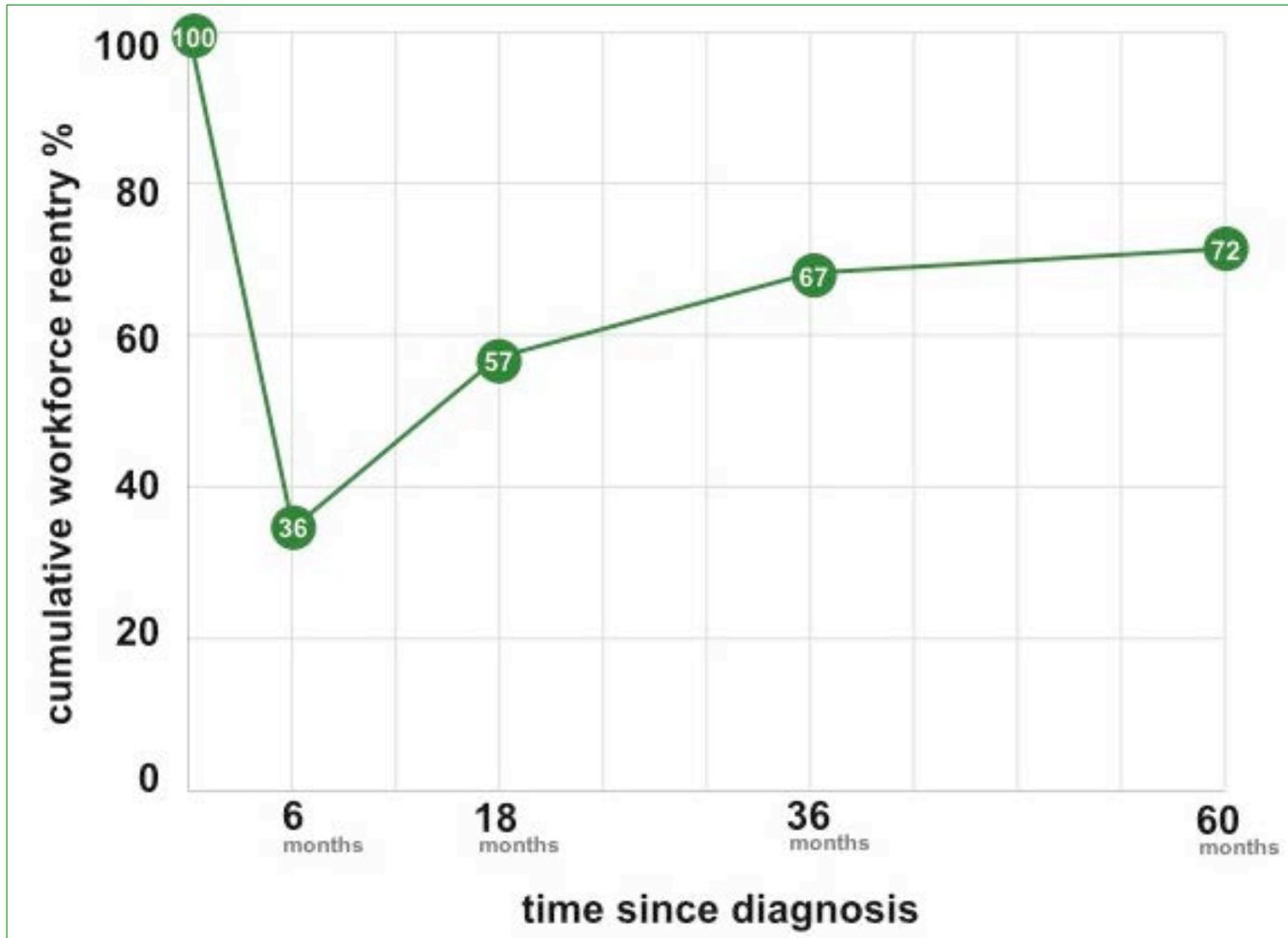


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Early Predictors of Not Returning to Work in Low-Income Breast Cancer Survivors: A 5- Year Longitudinal Study



Cumulative workforce reentry

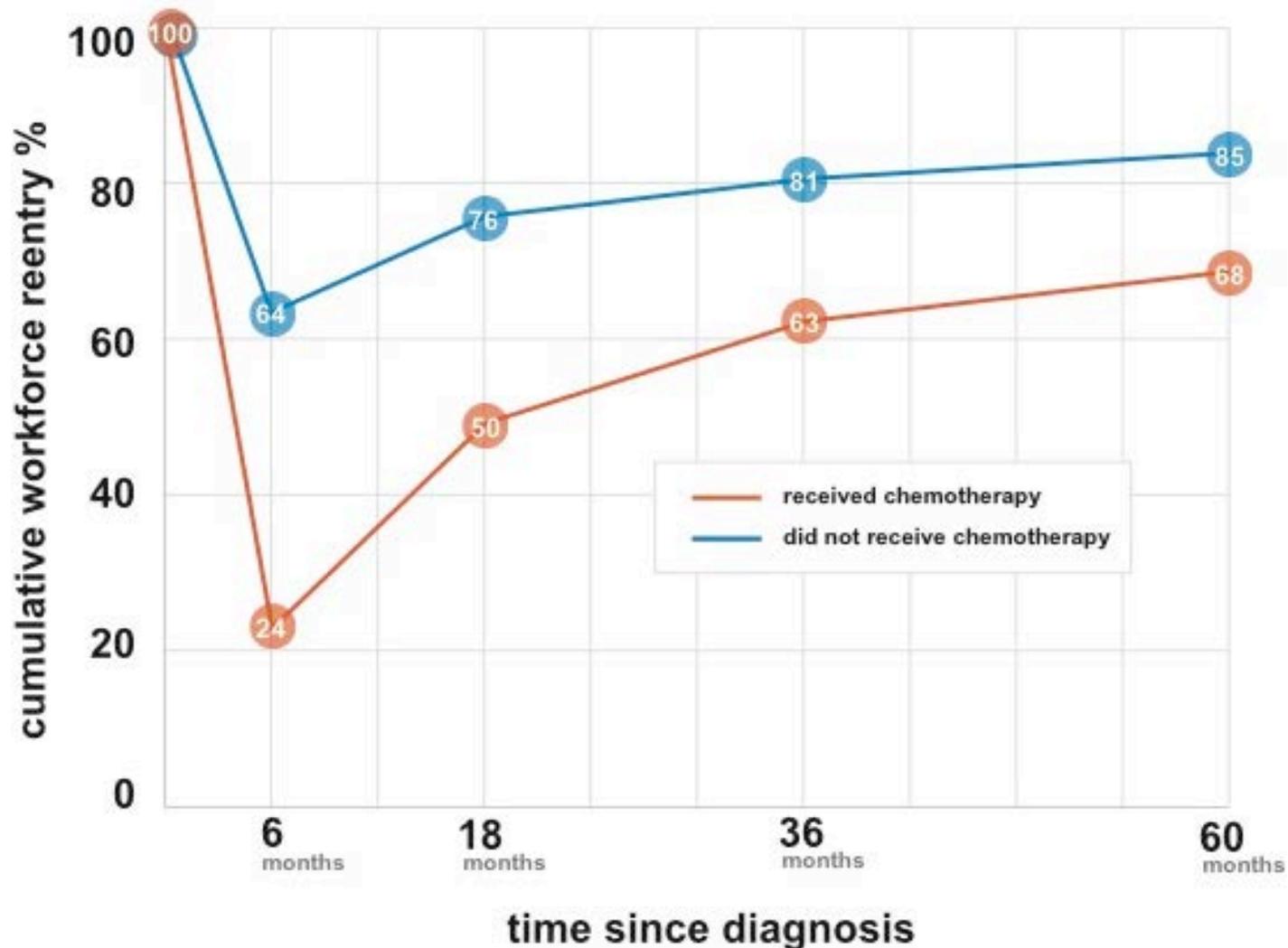


Independent predictors of not returning to work

- Lowest annual income group (<\$10,000)
- ≥ 1 comorbid condition
- Latina ethnicity
- Receipt of chemotherapy
 - Of 174 who were not working at 6 months, 43% never returned to work
 - At 6 months, those still undergoing chemo were more likely to report not working (81% vs. 55%)



Receipt of chemotherapy and cumulative workforce reentry



Conclusions

- Very poor women who take time off from work during chemotherapy may have a difficult time reentering the workforce
- Low income may be proxy for workplace characteristics, such as working in informal sector
 - Associated with decreased accommodation at work, lack of sick leave and disability
 - Chemotherapy may have pronounced effect
 - Women who intend to stop working temporarily may be at risk of exiting the workforce permanently





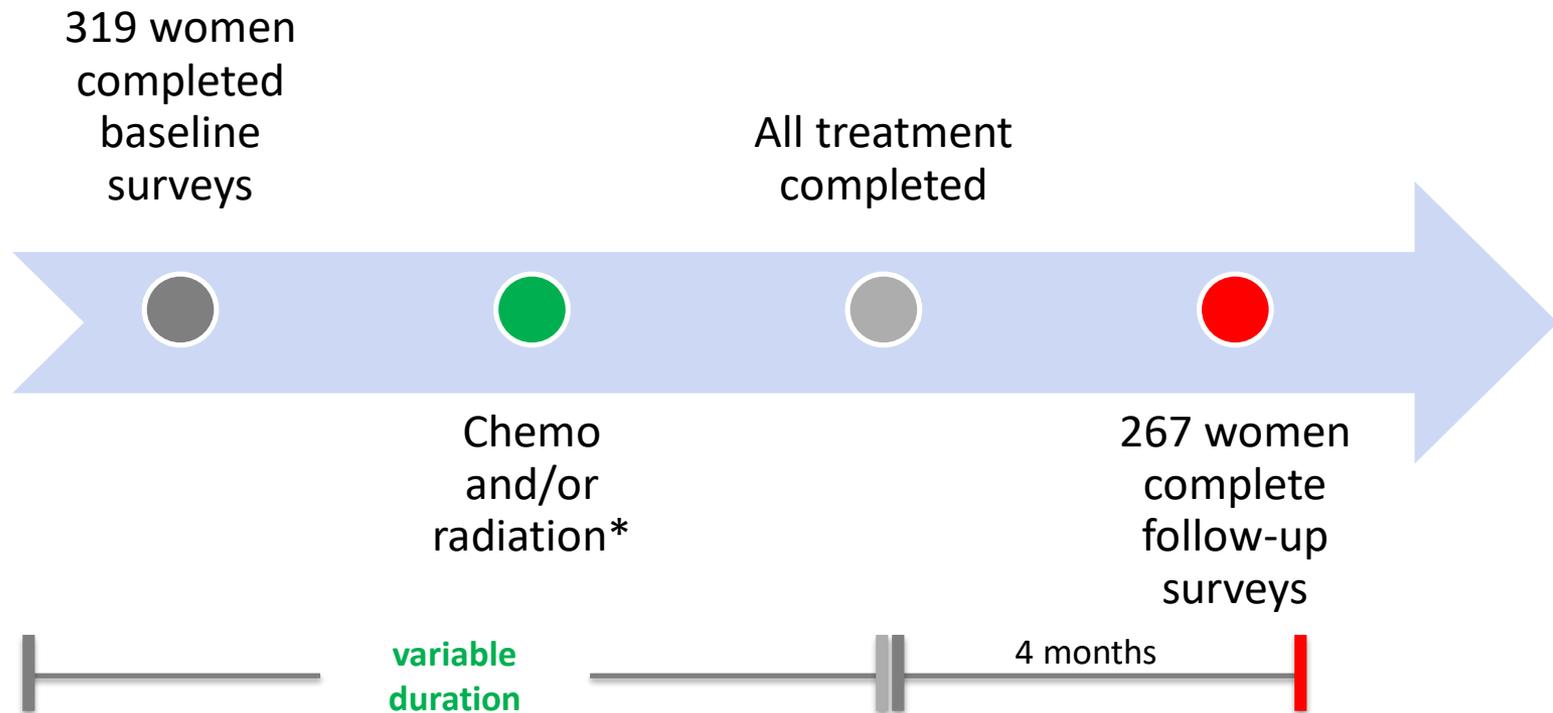
Breast Cancer and the Workforce



Breast Cancer and the Workforce (BCW)

Participants:

- Women aged 18-64
- Newly diagnosed stage I-III (curable) breast cancer
- Employed at diagnosis
- Undergoing chemo, radiation, or <60 days since surgery
- Spoke Chinese, English, Korean, Spanish



BCW Results: job retention

- Four months after treatment completion
81% of women retained their jobs
- Job retention varied by income group
 - 57% low-income women (<200% federal poverty level, FPL)
 - 90% middle-income women (200-400% FPL)
 - 95% high-income women (>400% FPL)

p<0.0001



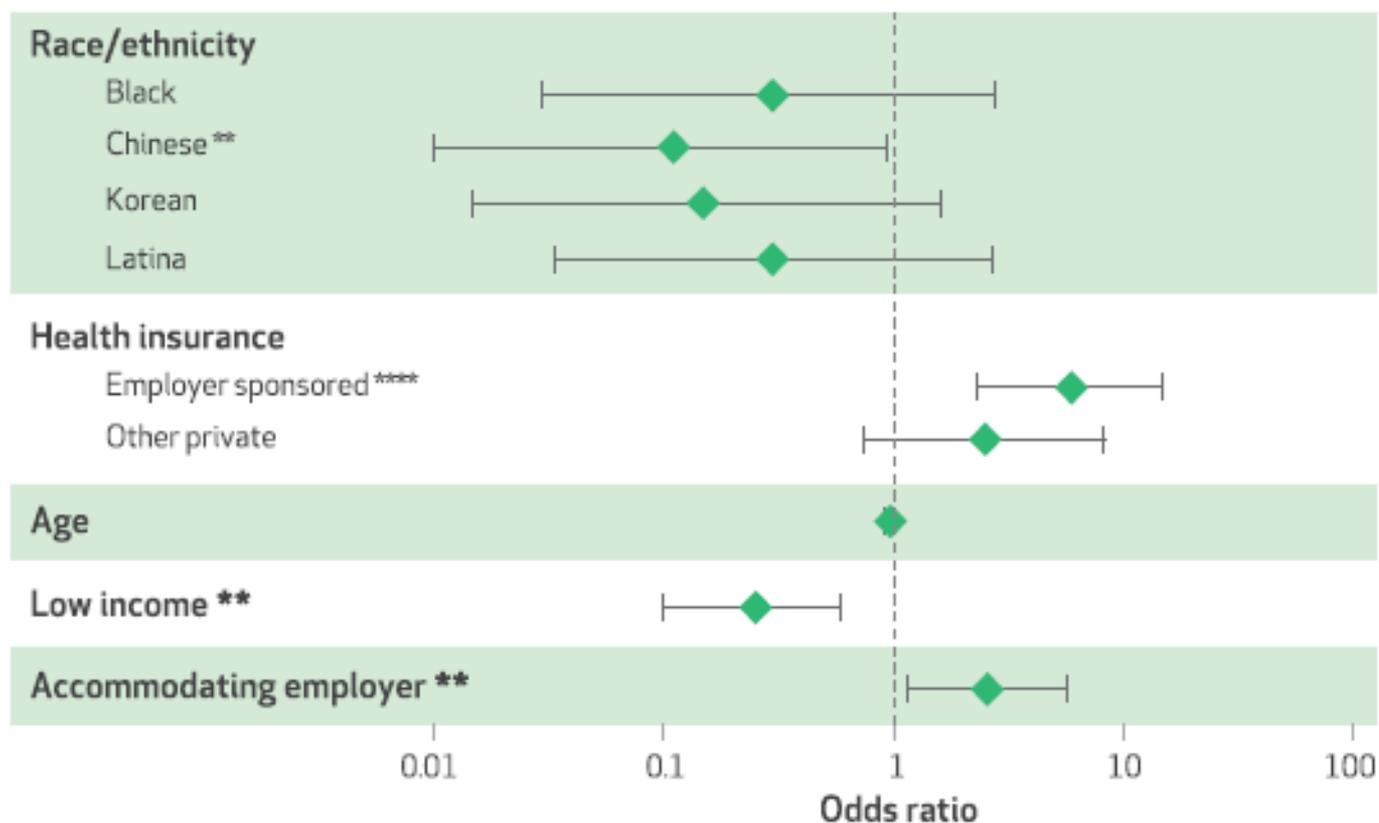
BCW Results: predictors of job retention

- The odds of a participant's retaining her job were independently associated with
 - Income: Low-income OR 0.25 (95% CI 0.10-0.59)
 - Race: Chinese OR 0.11 (0.01-0.93)
 - Employer accommodations: OR 2.54(1.14-5.68) among those who had an accommodating employer
 - Health insurance: Employer-sponsored insurance OR 5.91 (2.31-15.13)

Predictors of job retention

EXHIBIT 4

Odds ratios for independent predictors that women ages 18-64 undergoing treatment for stages I-III breast cancer will retain their job four months after completion of treatment, 2010-16



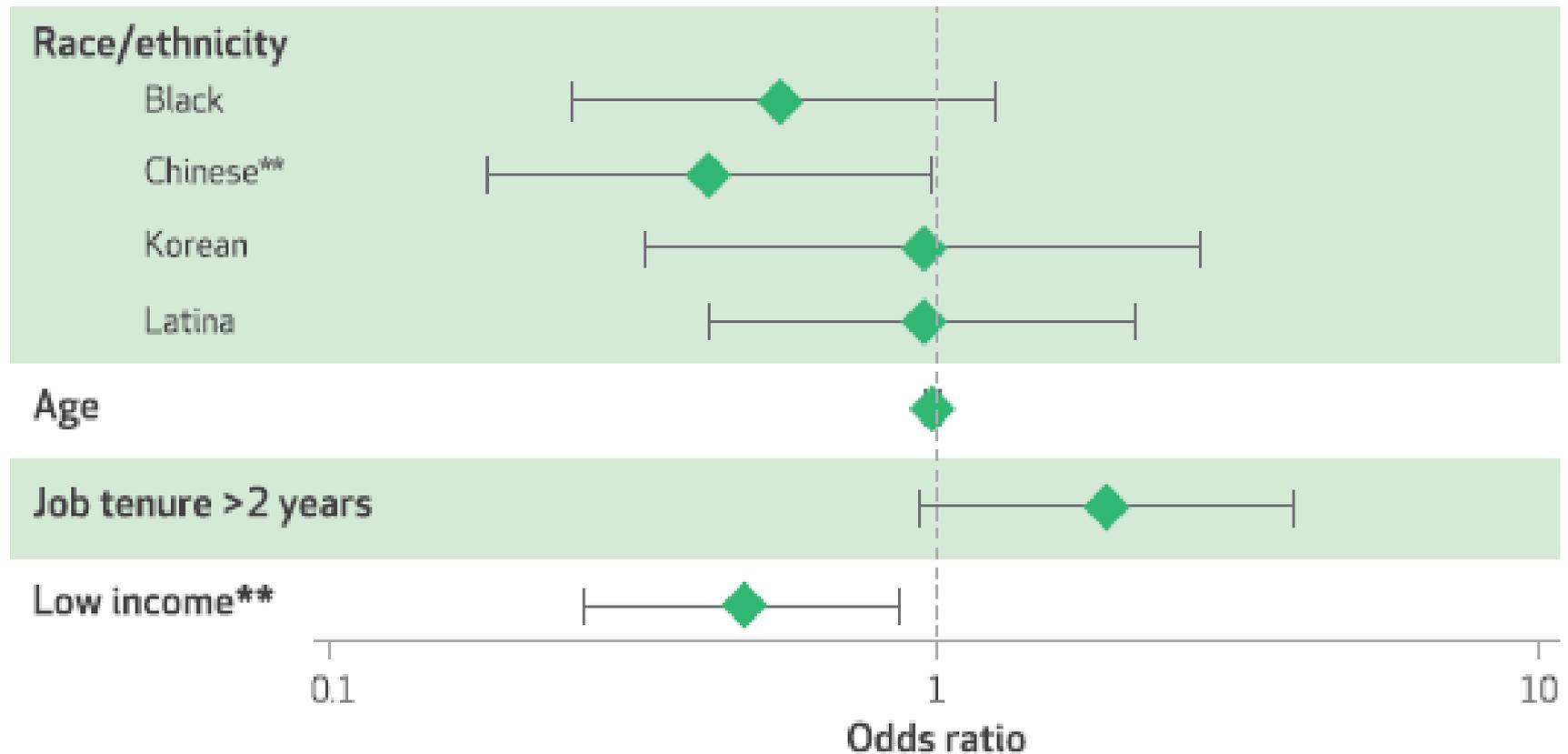
BCW Results: predictors of employer accommodations

- The odds of having an accommodating employer were independently associated with
 - Income: Low-income women had lower odds of having an accommodating employer
 - OR 0.48 (95% CI 0.26-0.88)
 - Race: Chinese women had lower odds of having an accommodating employer
 - OR 0.42 (95% CI 0.18-0.98)

Predictors of employer accommodations

EXHIBIT 3

Odds ratios for independent predictors that women ages 18-64 undergoing treatment for stages I-III breast cancer will have an accommodating employer, 2010-16



Conclusions

- Chinese women and women from low-income households are at high risk of job loss after treatment for breast cancer
 - Regardless of race or income, those with accommodating employers have higher odds of retaining their jobs
- Chinese women and women from low-income households have lower odds of having an accommodating employer



Breast Cancer and the Workforce: methodologic lessons learned



BCW: Methodologic lessons learned

- Comparison arm is needed to control for disparities in secular trends, such as unemployment
 - Exert a disparate impact on immigrant and minority communities
- The adequacy of a control arm depends on
 - a) whether or not the paired sample of patients and controls is large enough for the analyses that are planned
 - b) whether or not the paired sample is representative of the population being studied
 - c) how well-matched controls are to patients



BCW: Methodologic lessons learned

- Active controls
 - Asked patients to nominate 5 peers
 - Goal was to obtain a single baseline and follow-up survey from 1 peer control per patient
 - Matched on race/ethnicity, language, age
 - Working at time of baseline survey
- Passive controls (back-up strategy)
 - In baseline survey, asked patients to give name of a friend who was working and shared race/ethnicity, language, and approximate age with patient
 - In follow-up survey, patients reported on the work status of the same friend



Adequacy of control arm: size

- Number of patient-control pairs available for analysis by control type
 - Active controls: 45/180 (25%) patients had an evaluable active (peer) control
 - ✓ – Passive controls: 151/180 (84%) patients had an evaluable passive control



Adequacy of control arm: representation

- Patients with evaluable active controls differed from those without across a variety of characteristics including:
 - Race/ethnicity
 - % with active controls: 45% of blacks, 28% non-Latina whites, 22% Latinas, 14% of Koreans, 11% of Chinese
 - Immigrant status
 - % with active controls: 35% of US-born vs. 19% foreign-born
 - Acculturation
 - % with active controls: 35% more acculturated vs. 13% less acculturated
 - Job type
 - % with active controls: 14% of workers in manufacturing/service, 31% of office/sales, 32% of manager/professional



Adequacy of control arm: representation

- Differences less pronounced when comparing patients with passive controls to those without
 - Race/ethnicity
 - % with passive controls: 100% of non-Latina whites, 86% of Latinas, 81% of blacks, 81% of Chinese, and 68% of Koreans
 - Immigrant status
 - % with passive controls: 91% of US-born vs. 79% foreign-born
 - No significant differences by acculturation or job type



Adequacy of control arm: matching

Evaluable patient-peer control pairs

US-Born

More acculturated or native English-speaker

Married or Partnered

Income <200% Federal Poverty Level

Education > high school

Job type - Professional (ref: labor/production)

Job type - Sales or admin (ref: labor/production)

Sick leave available

Privately insured

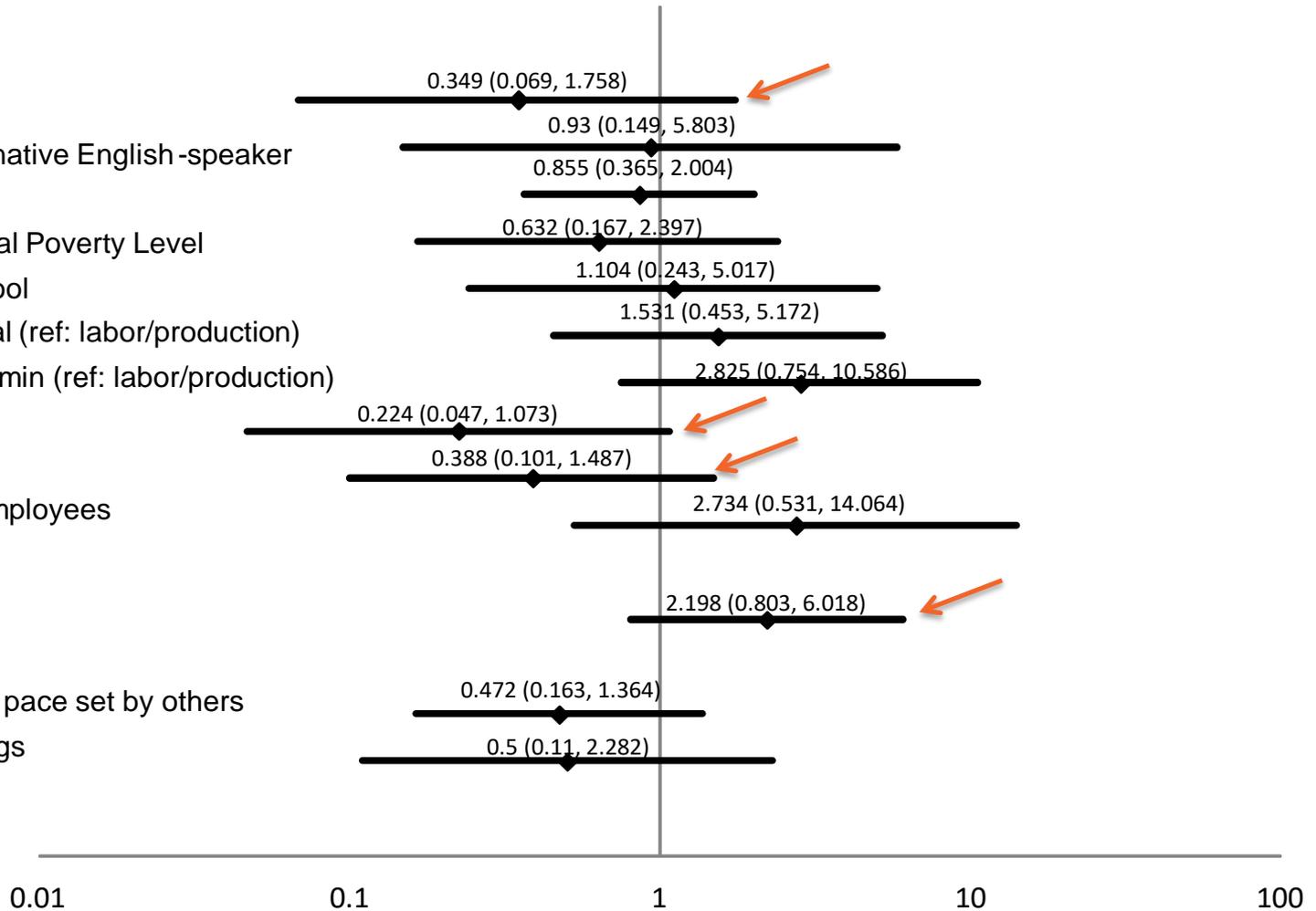
Employer size ≥15 employees

Job tasks

Physical effort

Keep up with a pace set by others

Learn new things



Odds of being a patient (95% CI)



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BCW: Methodologic lessons learned

- Regardless of which control strategy was used, patients had lower odds than controls of working at follow-up
 - Patients vs. active controls: OR 0.08, 95% CI 0.02-0.30
 - Patients vs. passive controls: OR 0.20, 95% CI 0.11-0.39



BCW: Methodologic lessons learned

- 30 patients had active and passive controls who were the same person
- We compared the controls' work status as reported by each method
 - 29 of 30 patients correctly reported on their passive controls' work status
 - 1 patient incorrectly reported that a passive control was not working when, according to the control participant's survey, she *was* working



BCW: Methodologic lessons learned

- Peer nomination is a limited strategy to control for secular trends in longitudinal research of socioeconomically and demographically diverse populations.
 - Its utility is limited by biased and low accrual when studying low-income and/or minority groups.
- Conversely, passive controls are a lower-cost, high-yield option to control for secular trends in racially and ethnically diverse samples.
 - Limited ability to obtain detailed information about work status (e.g. paid vs. unpaid sick leave)





BCW: Chinese breast cancer survivors in NYC



Chinese survivors in NYC

- To better understand the drivers of job loss after breast cancer in the Chinese community we
 - Recruited an additional sample of Chinese patients to BCW (n=105)
 - 59% working 4 months after treatment completion
 - Service/manufacturing: 28%
 - Admin/sales: 69%
 - Manager/professional: 75%
 - Conducted qualitative interviews in a subset of Chinese BCW participants who had completed follow-up surveys



Chinese survivors in NYC

- Targeted sampling based on work outcome and job type
 - Data saturation reached at 12 patients
 - 11/12 interviews conducted in Chinese
- Since diagnosis, 8 of 12 had experienced job loss
 - 6 of 6 in production/manufacturing
 - 1 of 4 sales/administrative
 - 1 of 1 managerial
 - One had been fired, and the other 7 had stopped working “by choice” (5 quit, 2 retired)



Inflexible work schedules

[If] I need to do chemo or surgery, [my employers] have a child to be taken care of, they definitely can't wait for me. The couple also have to go to work... Nobody will wait for me.

Nanny/housekeeper

Reluctance to request accommodations

- In contrast to those who kept their jobs, none who experienced job loss had asked for work accommodations
- Most assumed accommodations would not be granted or thought they were not entitled to any kind of help



Reluctance to request accommodations

If you don't come [to work], they need to find someone to [cover] for you...I didn't want to be troublesome like that often...Because it's like "one radish can have, and only has, one pit, every hole has its turnip" [a Chinese saying that means everyone has his own task and there is no one to spare].

School bus driver

Unfair treatment

People put their own needs first. That's just the way it is... [If] you can't be of much help, of course the boss will [be unhappy with you]...Of course, it's unfair to me. I helped him a lot in the past, look how he's treating me now, right?...[But] people are not going to think back to when you helped them, and [compare that with] how they are treating you now, ok?

Hairstylist



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Fear of cancer recurrence

- Fear that work would cause cancer recurrence due to
 - Stress
 - Toxic exposures (e.g. nail salon)

Because this work is tiring, if I go back to work, then my breast cancer reoccurs, I will lose everything...It's better to just take care of myself and improve my health so that you can live a few more years. With such consideration, I chose to retire early.

Mail carrier



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Language barriers

- Despite the use of interpreters, language barriers hampered many participants' ability to obtain treatment- or work-related information from their providers

I would ask fewer questions. I would just ask the main ones . . . I felt like [the doctor] was also telling me just the main points . . . The communication was . . . not very smooth. After all, it was through interpretation.

Waitress



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Study of Chinese survivors in NYC

- Conclusions

- Cultural factors appear to be an important factor in Chinese immigrants' vulnerability to cancer-associated job loss
 - Decreased access to accommodations
 - Concerns about the effect of work/stress on health
- Additional research is needed to develop a culturally appropriate intervention for this population



Improving access to accommodations: TEAMWork

ADA: Americans with Disabilities Act

- Employers must provide “reasonable accommodations” to employees with a disability (including cancer)
 - Modify schedule to allow for doctors’ appointments
- Important exclusions
 - Accommodation causes employer “undue hardship”
 - Small-businesses (<15 employees)
 - Small businesses disproportionately employ low-wage earners
 - 40% of low-wage workers are employed by small businesses (vs. 20% of all workers)



Improving access to accommodations

- Disparities in work accommodations are a critical barrier to job retention.
 - Improving access to accommodations is a promising “therapeutic target” to prevent job loss.
- Among BCW participants with low baseline self-efficacy to ask for accommodations, improved self-efficacy at follow-up was associated with higher job retention: OR 5.5 (95% CI 1.4-21.7).
 - Analysis controlled for job type, baseline level of accommodations and comfort speaking English.

Improving access to accommodations: TEAMWork

- Talking to Employers And Medical staff about Work
- Mobile health app
 - Spanish/English
 - Promotes job retention in women undergoing adjuvant chemotherapy for breast cancer by
 - **Improving patients' ability to communicate with employer and obtain work accommodations**
 - Optimizing symptom control during chemotherapy

TEAMWork prelim data

- Preliminary qualitative data
 - Telephone interviews with 22 BCW participants who had completed treatment (manuscript in preparation).
 - Overall, 18 endorsed the concept of our TEAMWork app.
 - When prompted to suggest features that could be helpful during treatment, participants listed:
 - Tips on symptom control, a calendar/reminder function, the ability to connect with other patients, and a place to organize notes.

What is included in TEAMWork?

- Workplace information and advice
 - Suggested accommodations tailored to job tasks (based on vocational rehab principles)
 - Information about legal protections
- Symptom self-management strategies
 - Symptom tracker, tips for communicating with clinic team
- Negotiation and communications strategies
 - Sample videos
 - Prompt lists
- Additional features based on participant feedback
 - Calendar
 - Notes
 - Nutrition information





TEAMWork



Learn



Read Helpful Information

Calendar



Add Appts & Meetings

Medications



Keep Track of Your Meds

Sympt. Log



Track Your Symptoms

My Notes



Write Quest. to Ask Later

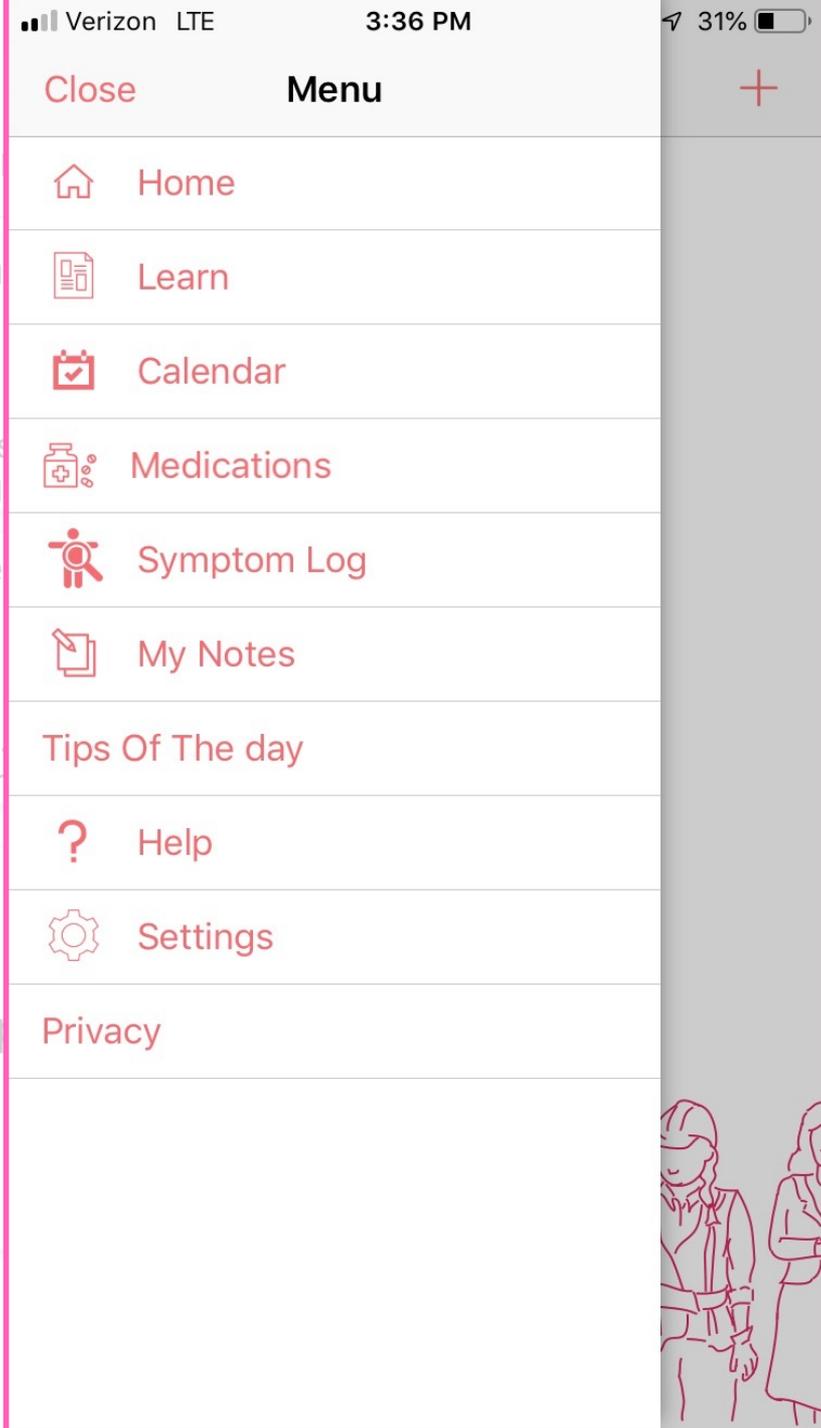
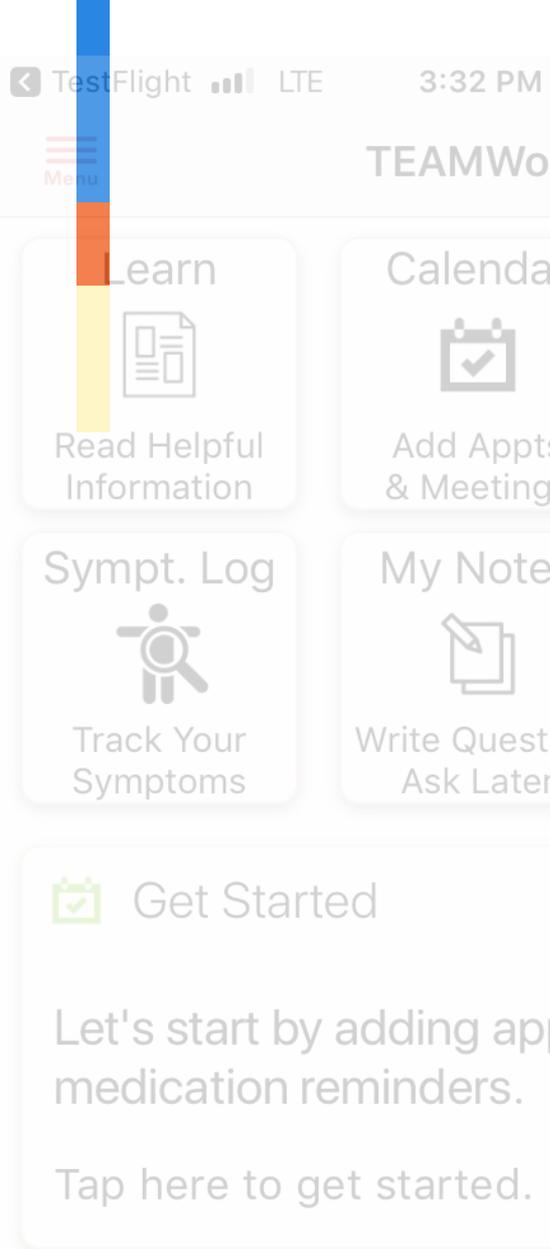
Tips of the Day

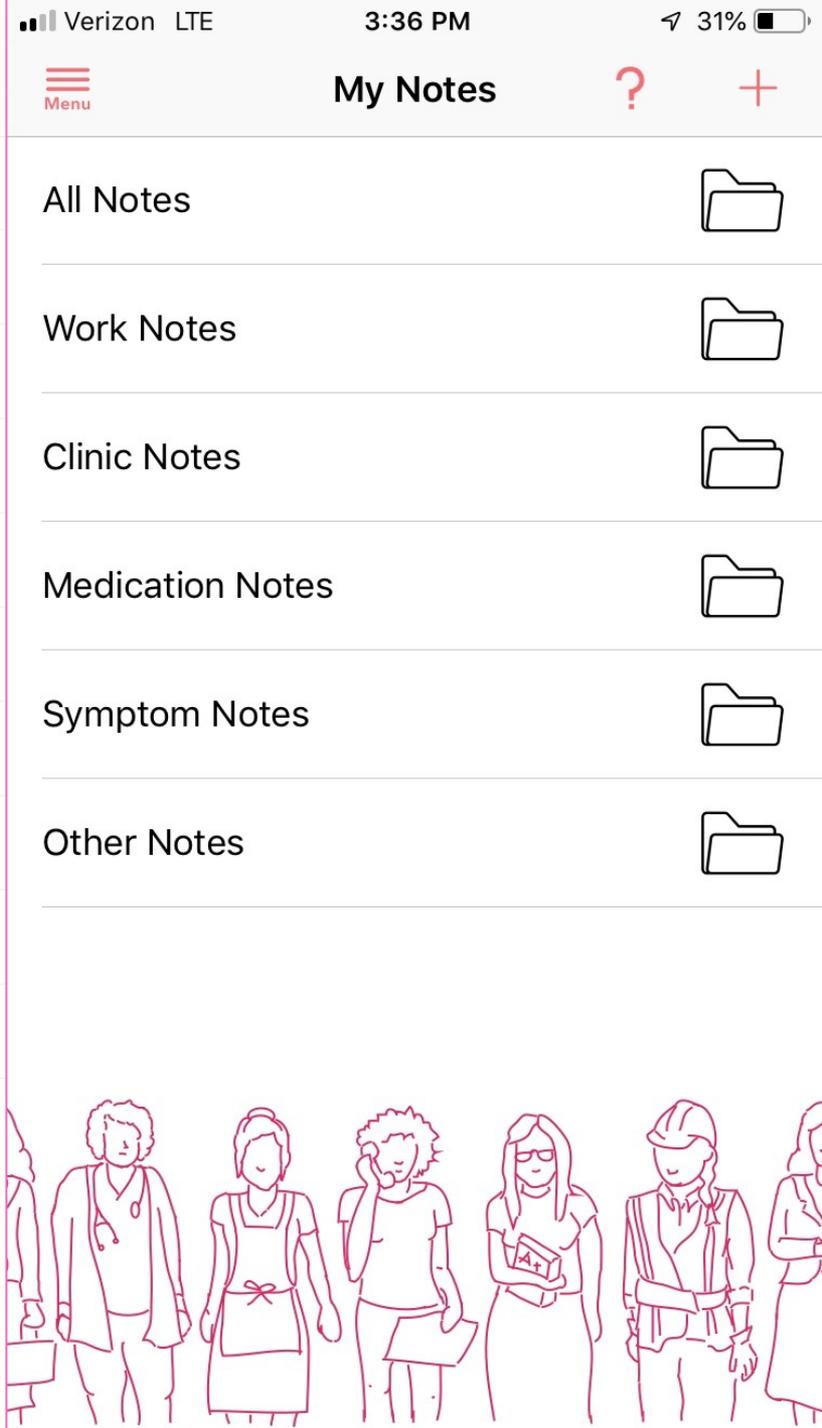
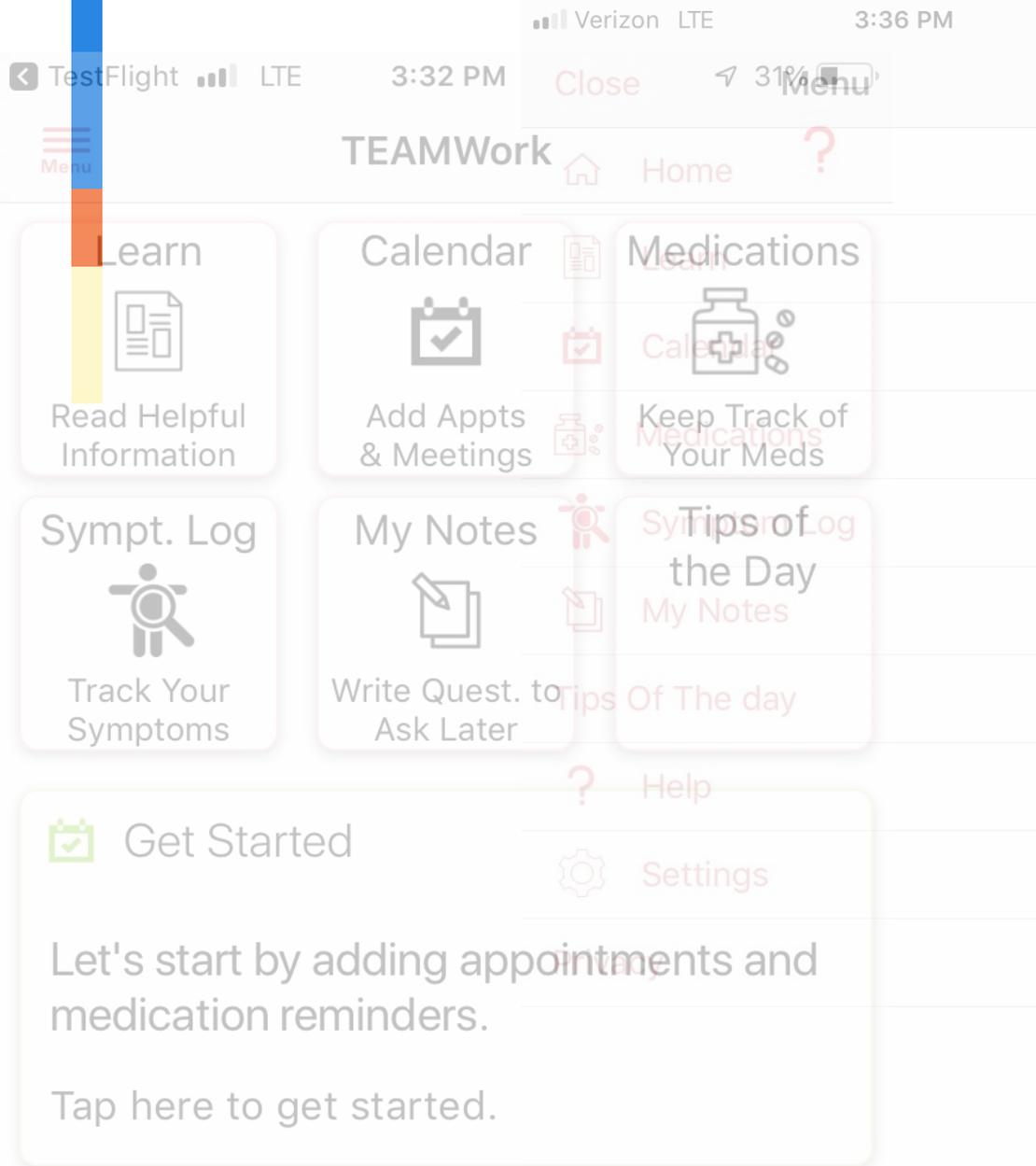
Get Started

Let's start by adding appointments and medication reminders.

Tap here to get started.









Next steps: TEAMWork

- Recruitment is under way
- Test the efficacy of TEAMWork as a job-retention tool in a multi-site RCT (vs. informational brochure)

Thank you!

Study participants



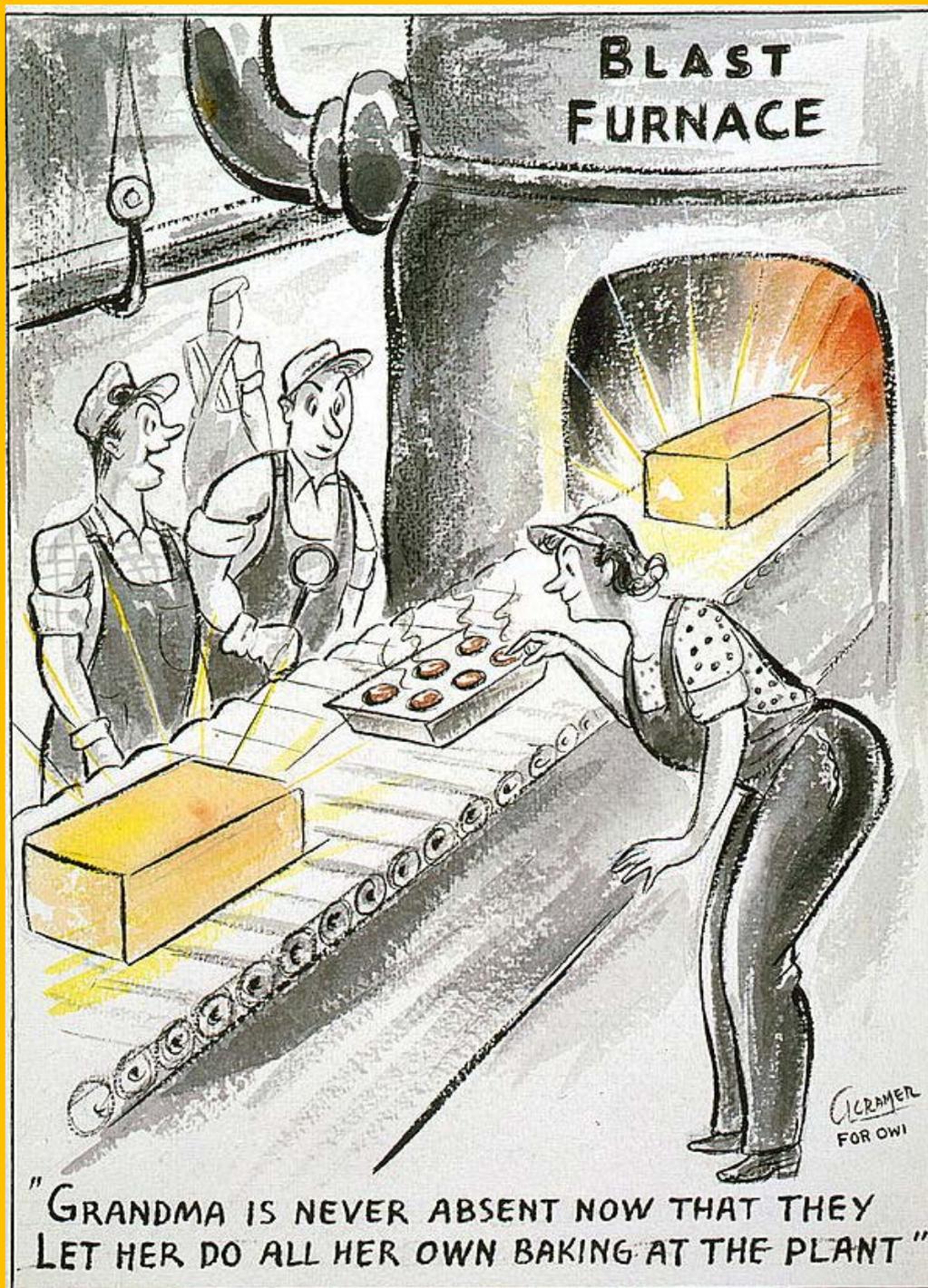
Breast Cancer and the Workforce

Funding sources

- National Cancer Institute
- American Cancer Society
- American Society of Clinical Oncology
- MSKCC Survivorship Initiative



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"GRANDMA IS NEVER ABSENT NOW THAT THEY LET HER DO ALL HER OWN BAKING AT THE PLANT"

Thank you!



Work taxonomy



Taxonomy of work outcomes

- Lack of standardized definitions of work and related outcomes
- Terms such as job retention, job loss, return to work, and unemployment are used in the literature
 - Lack standard definitions
 - Rarely defined in published studies
 - Even when work is the primary study outcome, it is often not defined in the text



Cochrane, Embase, Pubmed, Web of Science
1/1990-10/2017
15,006 Citation(s)

14999 Non-Duplicate
Citations Screened

Did not include cancer survivors/caregivers,
not relevant, non-English,
purely qualitative study,
no primary data,
providers perspective only,
financial toxicity only,
childhood survivors only,
dated prior to 2007

14385 Articles Excluded
After Title/Abstract Screen

614 Articles Retrieved

Not about cancer patients/caregivers,
not primary studies,
described the providers perspective only,
included employment as a covariate only,
other reasons (eg qualitative data only,
published as abstracts only, non-English)

192 Articles Excluded
After Full Text Screen

307 Articles Included

Keywords and MeSH terms included (among others): cancer and employment, return to work, financial hardship, poverty, bankruptcy, work ability, work demands, hours worked.

Taxonomy of work outcomes

- Data abstracted from 422 articles and entered into a Research Electronic Data Capture (REDCap) database.
- 307 articles specifically addressed employment status
 - 90 were based on US-data (87 US only and 3 US and non-US combined)



Taxonomy of work outcomes

- 79 of 90 studies had observational design
 - 47 based on primary data collected through surveys
 - 10 based on registry/administrative data only
 - 22 based on a combination of survey and registry/administrative data



Additional work-related outcomes

- Hours worked (n=38 studies)
- Access to paid time off (n=13) or unpaid time off (n=8)
- Employee productivity (n=11)
- Work ability (n=4)
- Cognitive outcomes (n=5)
- Job satisfaction (n=4)
- Relationship with coworkers and/or management (n=10) and/or having an “accommodating” employer (n=4)



Additional work-related outcomes

- Access to specific accommodations accommodations (n=28)
 - Extra time off (n=23)
 - Flexible schedule or reduction in work hours (n=8)
 - Modification of job tasks/responsibilities (n=4)
 - Voluntary change to a different position (n=3)
 - Access to additional breaks (n=2)
 - Change of physical work environment, time off donated by other employees, or the ability to work from home (n=1 each)



Use of validated instruments

- Validated instruments were used to measure
 - Work limitations
 - Productivity
 - Work ability
 - Job satisfaction
- No validated metric for work status, but several instruments have been developed to measure related outcomes.





Next steps

- Identify and classify appropriate metrics for work and related outcomes
- Categorize different work outcomes and delineate the relationships between categories
- Obtain stakeholder input
 - Researchers, employers, payers, patients advocates, clinicians, policymakers

