Development of a Physical Activity Intervention for Navajo Cancer Survivors

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Overview

- Background: Native Americans and Cancer
- Perceptions of cancer among Navajo cancer survivors
- Intervention Description & Progress Update
- Future Directions
American Indians (AI) and Cancer

- ↓ cancer mortality for White populations, ↑ for AI/AN men and women, 2001 to 2009 (CDC, 2016)
- AI/AN lowest 5-year survival rates of any group (59.0%) and only group w/o reductions in cancer mortality from 2001 to 2010 (Siegel, Ma, Zou, & Jemal, 2014).

- **Most common cancers among AI/AN:**
  - Lung, female breast, colorectal and prostate cancer
  - Death rates for some more common among Native populations (gallbladder, stomach, liver, and kidney cancers) (White et al., 2014).
Cancer is 2nd leading cause of death among Navajo Overall

Crude all-cause mortality rate is 32% higher for males than females. Unintentional Injuries account for nearly 1 in every 5 Navajo deaths. There are nearly 33% more Unintentional Injury deaths than Cancer deaths and 35.5% more than Heart Disease deaths; Foley et al. Navajo Nation Mortality Report, 2006-2009. Navajo Epidemiology Center. 2016.
Project Overview: Two-phased Pilot Study

- **Phase I (year 1-2): Qualitative Study:**
  AIM 1: Assess current **physical activity habits, barriers, and preferences** among Navajo cancer survivors using a combination of focus groups and individual interviews.

- **Phase II (years 2-3): Pilot Physical Activity Intervention**
  AIM 2: Evaluate the feasibility and effectiveness of a culturally and clinically sensitive physical activity intervention among Navajo cancer survivors.
Recruitment

- 5 focus groups (N=4 Rural Chapter, 1 Flagstaff)
- 13 individual interviews (N=11 Flagstaff)
- 32 Navajo cancer survivors
- 8 relatives/ spouses/ close friends
- Adults
- Males and females
- Any prior cancer
Focus groups included Navajo-speaking oncology nurse
Began with Navajo introductions
Study explanation and Q/A
Consent
Discussion guide questions
Gratitude and Closing
### Characteristics of Navajo cancer survivors participating in focus groups and interviews (N=32)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean or N</th>
<th>SD or %</th>
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<tbody>
<tr>
<td><strong>Age, years</strong></td>
<td>56.9</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>41%</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>59%</td>
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<tr>
<td><strong>Primary Language</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>30</td>
<td>94%</td>
</tr>
<tr>
<td>Navajo</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Cancer Site</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>Colon</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>Gynecologic, excl. breast&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>Gastrointestinal, excl. colon&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5</td>
<td>16%</td>
</tr>
<tr>
<td>Other&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Time since diagnosis, years</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td>4.7</td>
<td>4.7</td>
</tr>
</tbody>
</table>

<sup>a</sup>Gynecologic, excluding breast cancer, represents ovarian and cervical cancers;  
<sup>b</sup>Gastrointestinal, excluding colon, represents esophageal, gall bladder, and stomach;  
<sup>c</sup>Prostate, kidney, hematologic cancers;  
<sup>d</sup>Based on year of diagnosis by self-report, not exact date. Missing data: Age: 3; Time since diagnosis: 7;
Project Overview:
Two-phased Pilot Study (3 years)

- **Phase I (year 1): Qualitative Study:**
  AIM 1: Assess current physical activity habits, barriers, and preferences among Navajo cancer survivors using a combination of focus groups and individual interviews.

- **Phase II (years 2-3): Pilot Physical Activity Intervention**
  AIM 2: Evaluate the feasibility and effectiveness of a culturally and clinically sensitive physical activity intervention among Navajo cancer survivors.
Physical Activity (PA) and Cancer

- Up to 30-60% reduction in cancer recurrence and mortality \(^{2,3,4}\)
- Improved fatigue, quality of life, body composition, body image, and physical function among survivors \(^5\)
- How much physical activity to reduce risk for colorectal and breast cancer?
  - Activity at moderate intensity (>4.5 MET)
  - Approx. 3-4 hours per week \(^6\)
- None of these physical activity interventions among Native American Cancer Survivors

Components of Physical Activity
(US PA Guidelines and ACSM Cancer Survivor Guidelines)

• **Aerobic/Endurance Training**
  - 150min Moderate OR 75 min Vigorous per week
  - OR...An equivalent mix of the two

• **Strengthening**
  - 2 days per week (non-consecutive days per muscle)
  - major muscle groups
  - 2 sets, 8-15 reps (depending on age and health)

• **Stretching**
  - 3-5 times on days that other exercises are performed
  - 10 to 30 seconds each

• **Balance Training**
  - 2 sets 8-15 reps for strengthening styles
  - Pure balance—increase time as you progress (i.e. 1 foot stand)

Design Phase II

Restoring Balance

- Culturally relevant incentives for participation.
- Appropriate exercise for the community setting and participants
- Focus on walking and resistance exercise, can be performed without equipment
- Community and peer support
- Cancer-related educational materials.

Figure 1. Physical Activity among Navajo Cancer Survivors Study Design
Repeat assessments include the following: Surveys: demographic/medical survey (baseline only), quality of life, physical activity, program satisfaction (end of PA intervention only). Measurements: aerobic capacity, functional mobility, anthropometry, physical activity (wearable device), metabolic markers.
Restoring Balance Program

RESTORING BALANCE
HOME EXERCISE PROGRAM INSTRUCTIONS

Each week you will do the Day 1 of the exercise program with your trainer. The other days of the week, do your best to follow the exercise program handouts. Your trainer will go over each week’s exercises with you and will show you the resistance exercises to do to build your muscles. If you do aerobic and resistance exercise on the same day, you should do your resistance exercises after you complete your aerobic exercise.

It is important to follow the program, if you don’t do the exercises it will be very hard to keep up with your exercise group. If you want to add additional exercise, you can, but keep the activity easy and fun. If you push yourself too hard, you will not get all the benefits of this program.

The aerobic exercise can be walking, jogging, running, or bicycling. On days when you are supposed to be active for 30 – 60 minutes you can do other activities like herding sheep, or playing basketball. Just be sure you keep moving! If you find that you cannot complete the full exercise session or intervals, start off at an easier pace the next time. It takes some practice to learn to pace yourself. You’ll figure it out soon!

Take a friend or family member with you and make your aerobic exercise more fun. If they don’t want to do the intervals, then you go ahead and do them and come back and rejoins your friend. Pretty soon they’ll be joining you! People who exercise together have more fun, and build bonds that last.

Congratulations!

You are taking the steps to change your life and your health! Remember, we are here to help you and support you. Call your trainer or the study team if you have any questions.

Contact us if you have questions!
Etta Yazzie, RN
(928) 221-4848  etta.yazzie@asonecology.com
The Partnership for Native American Cancer Prevention
(928) 523-8593

EXERCISE WEEK 1: GETTING STARTED

*Day 1 Aerobic and Strength Exercise will be performed with your trainer

<table>
<thead>
<tr>
<th>EXERCISE</th>
<th>3X THIS WEEK</th>
<th>1 DID IT!</th>
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</thead>
<tbody>
<tr>
<td>Day 1 *</td>
<td>10 minute warm up, 1 x 4 minute interval, 5 minutes cool down.</td>
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<tr>
<td>Day 2</td>
<td>20-30 minute walk, jog or bike ride at steady comfortable pace.</td>
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</tr>
<tr>
<td>Day 3</td>
<td>10 minute warm up, 2 x 3 minutes interval w 3 minutes easy walking in between and 5 minutes cool down.</td>
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</tbody>
</table>

You don’t have to do aerobic exercises 3 days in a row.
If you find that you cannot complete the full exercise session or intervals, start off at an easier pace the next time. It takes some practice to learn to pace yourself. You’ll figure it out soon!

STRENGTH (2 SETS EACH, 2X THIS WEEK) 1 DID IT!

- Calf raises: 15 reps; use counter support if needed
- Threshhold pull-aparts or seated back flies: 15 reps
- Single leg balance: 30 seconds each leg
- Dead bug: 5 arm/leg extensions

<table>
<thead>
<tr>
<th>DAY 1</th>
<th>DAY 2</th>
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<tbody>
<tr>
<td>Calf Raises</td>
<td>Pull-aparts</td>
</tr>
<tr>
<td>Set 1</td>
<td>Set 2</td>
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NOTES (including Progression / Regressions):
### Preliminary Baseline Characteristics

- **N=13 Navajo cancer survivors have**
  - 5 breast,
  - 3 colon/gastric,
  - 2 uterine/ovarian,
  - 2 multiple myeloma,
  - 1 other cancer
- **Sex:** 3M/10F
- **Age:** 55.5 years ±10.4

- **BMI:** 31.2kg/m²±4.3
- **Body fat:** 42.7%±10.5
- **Waist Circumference:** 99.3cm±29.1
- **HbA1c:** 6.8±2.0
- **6min walk:** 0.21mi±0.1
- **PROMIS QOL:** 3.0±0.88
- **PROMIS social isolation:** 1.82±0.81

Intervention Status

- Recruitment ongoing in Flagstaff and Leupp
- Working on further expansion
- Measurements ongoing
- Physical activity ongoing
- Final pilot measurements expected this Fall
Intervention Support

- **Native Americans for Community Action**
  - Facilitated by outreach
  - Well positioned to facilitate intervention implementation
  - Dedicated and convenient exercise space
  - Trainers for supervision, goal setting, encouragement
  - Space for NAU/UA researchers to conduct measurements

- **Arizona Oncology Associates**
  - Recruitment
  - Space to screen and consent

- **NCI, NACP, NAU IRB (phase 1), UA IRB (phase 2 and full), Chapter House, Western Agency Council, NNHRRB, NACA board, NDOH,**

- **And Growing...............**
Important Lessons for Tribal Research

- Design research that supports tribal goals
- Engage local partners in the research
- Ensure the research will benefit the community during the research process, not just afterwards
- Expand typical direct dissemination efforts
- Build community relationships
- Build community capacity
- Map out your timeline based on community meetings and approval processes
Acknowledgements

- NACP
  - Training
  - Outreach
  - Evaluation
  - Development

- NAU
  - Dirk de Heer, PhD, MPH
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  - Rachel Sleemans, BS, SPT
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  - Mark Lee
  - Ashlee Irving
  - Ravina Thuraisingam

- Bridges to Baccalaureate
  - Shauntey Cleveland, RN (NPC, IHS)
  - Wyatt Betoney (Dine)
  - Jenille Montelongo-Rodriguez (CCC)

- Navajo Nation HRRB
- Chapter House
- Navajo Nation Western Agency Council
- Arizona Oncology Associates
- Native Americans for Community Action
General Disease Prevention with Exercise

**WHAT IS PHYSICAL ACTIVITY?**

Exercise can include:
- Walking
- Riding a horse
- Cleaning
- Mowing
- Lifting weights
- Lifting heavy objects
- Fishing
- Skiing
- Gardening
- Climbing
- Weeding
- Yoga
- Dancing

If you're moving, you're doing physical activity.

**Normal Feelings During Exercise:**
- Increased heart rate
- Increased breathing
- Increased sweating
- Muscle fatigue

**Abnormal Feelings During Exercise:**
- Dizziness, confusion, nausea, loss of balance, body movements, chest pain, shortness of breath. Call your doctor if you have any of these abnormal feelings.

**REFERENCES**


**WHY EXERCISE?**

Benefits & Overcoming Barriers to a Healthier You

- **Increased Energy**
- **Improved Mood**
- **Strong Muscles**
- **Better Sleep**
- **Reduced Stress**

**RECOMMENDATIONS**

1. Aim for 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic activity each week.
2. Include at least 2 days of muscle-strengthening activities.
3. Incorporate activities that improve balance and coordination.

**COMMON BARRIERS TO EXERCISE**

- No Transportation
- No Time
- Too Busy
- Don't Know How to Exercise
- Not Enough Energy
- Injuries

**HOW TO OVERCOME THESE BARRIERS**

1. Use public transportation or walk to your destination.
2. Schedule time for exercise in your daily routine.
3. Find activities that you enjoy and that fit into your lifestyle.
4. Use online resources to learn about exercise routines and techniques.
5. Seek support from friends or family for motivation and accountability.

**BENEFITS OF EXERCISE**

- **Increased Energy**
- **Improved Mood**
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**CDC EXERCISE RECOMMENDATIONS**

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CANCER & EXERCISE

WHAT IS CANCER?
Cancer is uncontrolled growth of some cells in the body. Cancer cells invade healthy tissues in the same area or other areas of the body. Cancer cells make it difficult for the body to function as it should.

SHOULD I EXERCISE DURING / AFTER CANCER?
- Return to normal activities as soon as possible after surgery
- Work on resistance and flexibility exercises
- Avoid Inactivity!!
- Seek medical advice for individual prescription
- Exercise is safe during and after most treatments.
- Start slowly & listen to your body
- Exercises maintains function, quality of life, and reduce fatigue

North Country Healthcare | Flagstaff (928) 522-9400 | Kingman (928) 718-4500 | Holbrook (928) 524-7200
- Navajo Nation Breast and Cervical Cancer Prevention Program | Window Rock (928) 871-6348
- Cancer Resource Center - Cancer Center of Northern Arizona | Flagstaff (928) 773-2261
- Arizona Oncology Associates | Flagstaff (928) 773-2260
- American Cancer Society | Flagstaff (928) 526-3800
- University of Arizona Cancer Center | Phoenix (602) 406-8222
- Tucson (520) 694-2873

LOCAL RESOURCES
Goal Setting Support

**WHAT IS PHYSICAL ACTIVITY?**
Exercise can include:
- Walking / Riding a horse / Cleaning
- Dancing / Lifting Hay Bales / Yoga
- Also: Running, Lifting Weights, Riding a bike, Gardening, Climbing, Sheep herding
- Any many other activities!

**WHAT IS A S. M. A. R. T. GOAL?**

**S**pecific

What exactly do you want to do? Don't make goals such as "get in shape." Make unique goals such as "Walk 30 minutes without stopping for a rest."

**M**easurable

How can you tell you've reached your goal? Try to make goals that you can give numbers to, like walking 1 mile. You'll know definitively when you've achieved your goal.

**A**ttainable

Can you be expected to reach your goal? Start small. Instead of running a marathon, at first aim to run a mile or another reasonable goal you think you can achieve.

**R**elevant

Is your goal going to get you what you want? If your goal is to lose weight, relevant goals include eating a healthy foods and exercising regularly.

**T**ime Bound

When do you think you can accomplish your goal? Having a timeline can help you realize progress, as well as giving you a deadline for reassessment.

**WHAT DOES A S.M.A.R.T. GOAL LOOK LIKE FOR EXERCISE?**

**EXAM PLES:**

- "In 1 month, I will ride my bike for 10 miles twice a week."
- "Next week, I will go on 3 walks with my friend group for 20 min."
- "In 6 months, I will be able to lend shop for a full day with no 10 minute breaks."

RESTORING BALANCE
Funded by The National Cancer Institute (NCI).
In partnership with The Partnership for a Healthier America / Native American Cancer Partnership, Northern Plains Cancer Partnership, and the University of Wisconsin Cancer Center.

GOAL SETTING
A Way to Measure Your Exercise Progress
Community Relations & Capacity Building

- Training and financial support of Native students in cancer prevention research
- Training non-Native students, faculty, staff in working with Native populations
- Chapter & Western Agency Council
- Navajo Epidemiology Department
- NNHRRB
- NACA
  - Contract
  - Training to expand local, sustainable expertise
- Arizona Oncology Associates
Funding Sources

- NIH/NCI: U54CA143924
- NIH/NCI: P30CA023074
- University of Arizona Faculty Seed Grant
- Undergraduate Biology Research Program HHMI 52006942
- Northern Arizona University BRIDGES to Baccalaureate NIGMS1R25GM102788-01
- UA Medical Student Research Training Grant (NIH #T35HL007479)
Timelines and Planning

- Determine which entities must approve your research, when they meet, and what forms and processes they require

- Stay up to date on tribal requirements
  - Example: Navajo Western Agency council requirement was added 2016
    - WAC Meetings are quarterly (in rotating locations)
    - Understand process to get on agenda; need a sponsor at the meeting

- Determine order of approval:
  - For Navajo, gain university IRB and local entities approval first
  - Other tribes may differ

- Complete tribal IRB forms/paperwork in addition to university forms and submit to appropriate IRB
  - Check submission dates, meeting dates, submission format (ie. hard copy)
  - Travel to IRB meetings for project approval, amendments, annual reports, closure, manuscripts, presentations
  - Plan for revisions and resubmission to both university and tribal IRBs
DG Part I: defining cancer

- How would you define cancer?
- How did you learn about cancer?
- Do you think cancer is a problem for people of Navajo background? Do you think this has changed over the past years? If yes, why do you think this is?
DG Part II: knowledge of causes, contributors to cancer and prevention and treatment

- What do you think are the main causes of cancer?

- How did you find out about these causes?

- What do you think is the most important cause or contributor to cancer? If you were to rank all the factors you mentioned, what would be the most important and least important in your opinion?

- Are there any other contributors to cancer?
Part II: knowledge of causes, contributors to cancer and prevention and treatment

- Do you think cancer can be prevented? If so, how?
- Do you think lifestyle choices such as diet and physical activity impact getting cancer?
- Do you think cancer can be treated well?
- What do you think are important factors in cancer coming back after treatment?
- Do you think physical activity and other lifestyle factors impact cancer coming back?
<table>
<thead>
<tr>
<th>Rigor Category</th>
<th>NACP Pilot Study Phase II</th>
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</thead>
</table>
| Scientific Premise | -Cancer 1st or 2nd cause of death among Native Americans 45-64\(^1\)  
-Disparities in survival rates\(^1,2\)  
-Most common Navajo cancers positively affected by PA in other populations  
-No PA interventions among Navajo cancer survivors to date  
-Feasibility study needed to formulate rigorous full study |
| Scientific Rigor (design) | -Randomized controlled trial w/ repeated measures  
-National cancer exercise guidelines, adapted for cultural factors based on rigorous qualitative study  
-standardized, bilingual intervention delivery and data collection (feasibility, QOL, PA, biomarkers)  
-community capacity building to enhance sustainability, recruitment, retention  
-objective measure of PA, metabolic changes, body habitus  
-gold standard QOL survey (PROMIS) |
| Biological Variables | -Sex, age, wt, & underlying health conditions captured in survey and accounted for in analyses  
-limited to Navajo background  
-Tx & cancer stage by survey, no medical record review; limited power. |
| Authentication | -biomarkers measured B, 6, 12, 18wks; periodicity aligned with detection limits of PA related physiological changes  
-HbA1c valid and reliable marker of change in metabolic function; portability key so not venipuncture  
-anthropometric measures valid and reliable markers of change in body habitus; gold standard imaging not feasible |
Cancer-specific resistance training: Recommendations do not need to be modified for prostate, colon, and hematologic cancers
- Breast: start with a supervised program of at least 16 sessions at a very low resistance; progress resistance at small increments
- Prostate: add pelvic floor exercises for those who undergo radical prostatectomy
- Colon: for patients with a stoma, start with low resistance and progress slowly to avoid herniation at the stoma
- For bone marrow transplant patients, resistance training may be more beneficial than aerobic activity

Cancer-Specific Safety Precautions

- ACSM report identified safety cautions for survivors at risk for lymphedema and skeletal muscle fractures or infections
  - Arm and shoulder problems secondary to breast cancer treatment, ostomy after colon cancer, or swelling/inflammation in the abdomen, groin, or lower extremity following gynecologic cancer

- Risks of participating in physical activity must be balanced against the risks of inactivity
  - PA reduces the incidence and severity of lymphedema

## Intervention Mapping

<table>
<thead>
<tr>
<th>PEN-3 and HBM</th>
<th>Perceptions</th>
<th>Intervention Objectives</th>
<th>Strategies for Weekly Group Sessions</th>
<th>Strategies for Individual Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reinforce accurate beliefs about cancer causes, environmental and behavioral factors.</td>
<td>Provide education about cancer in Navajo and English.</td>
<td>Personalize the education depending on individuals’ beliefs and level of knowledge.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduce inaccurate beliefs about cancer.</td>
<td>Challenge fatalism and stoicism towards treatment and health post-diagnosis.</td>
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<tr>
<td></td>
<td>Improve understanding of quantity and intensity of physical activity during and after cancer treatment.</td>
<td>Promote ethnic pride and alignment of health and balance with cultural beliefs.</td>
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<td></td>
<td></td>
<td>Skill building/health coaching to increase perceived control over health.</td>
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<tr>
<td>Framework</td>
<td>Theor. Construct</td>
<td>Intervention Objectives</td>
<td>Strategies for weekly group sessions</td>
<td>Strategies for individual activities</td>
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</tbody>
</table>
| PEN-3 and HBM   | Enablers (PEN-3)/Perceived Barriers (HBM) | • Decrease structural barriers to seeking treatment where possible (financial, logistic, cultural).  
• Decrease fear about screening and finding out test results.  
• Promote knowledge regarding the US healthcare system, what services are available and where to access services.  
• Reinforce trust of community health representatives.  
• Improve skills to promote communication with healthcare providers and family members about cancer. | • Discuss healthy changes that are possible within structural limitations.  
• Disseminate information about screening recommendations, where to seek treatment and services for translation and patient navigation.  
• Challenge negative beliefs about screening and learning about results.  
• Practice communication with medical providers (role-playing).  
• Practice goal setting and self-monitoring as effective techniques for improving diet and physical activity.  
• Highlight culminating event to facilitate behavioral strategies of (goal-setting/self-monitoring). | • Review individual structural barriers and ways to address them.  
• Engage in personalized goal-setting based on individuals’ activity level.  
• Review home-based program activities based on activity monitors.  
• Practice communication with health provider one-on-one for issues participants are not comfortable discussing in group setting.  
• Reinforce progress towards individual goals and ability to self-monitor. |
### Intervention Mapping Cont.

<table>
<thead>
<tr>
<th>PEN-3</th>
<th>Nurturers</th>
<th>Objectives</th>
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<tbody>
<tr>
<td></td>
<td>Supportive and/or discouraging influences of families and friends including eating tradition, community and events, spirituality and soul, values of friends.</td>
<td>• Reinforce the value of traditional foods and physical activity in cancer, prevention of other chronic disease and overall quality of life.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reinforce cultural beliefs of restoring balance and aerobic physical activity.</td>
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<td>• Emphasize importance of and provide skills needed to seek social support.</td>
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<td></td>
<td></td>
<td>• Reinforce the importance of information about cancer for family members, including appropriate PA recommendations for survivors.</td>
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</tbody>
</table>

|         | Provide social support of fellow participants due to shared experiences and success/learned lessons; draw on prior successes. |
|         | Discuss cultural aspects of balance, health, physical activity and dietary habits.          |
|         | Emphasize importance of gaining knowledge for dissemination to other family members (who are generally at elevated risk for cancer). |
|         | Provide real-life examples of coping strategies.                                             |
|         | Reinforce ability and importance of seeking and providing support.                          |
|         | Provide individualized education based on cultural and clinical knowledge of cancer.        |
|         | Review success in employing coping strategies.                                              |
| HBM | Perceived Susceptibility | • Reinforce accurate beliefs about susceptibility.  
  • Reduce fatalism about diagnosis. | • Provide and discuss culturally and clinically relevant educational materials about susceptibility, screening and physical activity recommendations for cancer survivors. | • Review knowledge of physical activity recommendations during and after treatment (back-teaching)  
  • Review benefits of activity for each individual based on type of cancer. |

**Intervention Mapping Cont.**
## Intervention Mapping Cont.

<table>
<thead>
<tr>
<th>Theoretical Construct</th>
<th>Intervention Objectives</th>
<th>Strategies for weekly group sessions</th>
<th>Strategies for individual activities</th>
<th>Strategies for Social Support</th>
<th>Strategies for Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBM Perceived Severity</td>
<td>• Provide information that although cancer is a serious condition, survival rates of many cancers have improved, particularly with early diagnosis and adequate treatment.</td>
<td>• Develop list of pros/cons of engaging in regular screening, physical activity and healthy/traditional diet, and discuss reasons and consequences of engaging in healthy behaviors.</td>
<td>• Challenge inaccurate beliefs, reinforce accurate beliefs.</td>
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### Intervention Mapping Cont.

<table>
<thead>
<tr>
<th>HBM</th>
<th>Perceived Benefits</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Emphasize the role of physical activity for 13 different cancer types and in recurrence for several cancers.</td>
<td>Provide culturally appropriate education to survivors and family/community members on the importance of activity for cancer prevention and control, fatigue and quality of life.</td>
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<tr>
<td></td>
<td>Emphasize the importance of early detection and following treatment and screening recommendations for patient and family members.</td>
<td>Group discussion on health behaviors currently engaged in/successful changes made in the past.</td>
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<td></td>
<td>Improve knowledge of adequate intensity required to achieve protective benefits.</td>
<td>Reinforce accurate individual beliefs, challenge inaccurate beliefs.</td>
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<tr>
<td></td>
<td>Review individual list of pros and cons and emphasize individual reason for engaging in healthy behaviors and personal control.</td>
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</tbody>
</table>
## Intervention Mapping Cont.

<table>
<thead>
<tr>
<th>HBM</th>
<th>Self-Efficacy</th>
<th>Intervention Objectives</th>
<th>Strategies for weekly group sessions</th>
<th>Strategies for individual activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Promote self-efficacy for secondary cancer prevention.</td>
<td>Provide information on baseline activity status and progress towards goals.</td>
<td>Positive reinforcement of healthy behaviors; draw upon strengths and successes.</td>
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<td></td>
<td></td>
<td>Promote self-efficacy to engage in behavioral strategies of physical activity and other health behaviors.</td>
<td>Empower participants to take control of their own health.</td>
<td>Reduce anxiety or discomfort associated with changes.</td>
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<td>Promote sense of self-control to improve quality of life and cancer fatigue.</td>
<td>Group discussion on successes achieved to overcome health challenges (e.g. treatment side effects) during and post-treatment.</td>
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<td>Promote ability to seek and utilize resources.</td>
<td>Emphasize opportunity for participants to improve experiences of other family/community members.</td>
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<td></td>
<td>Share successes at the group level.</td>
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</tbody>
</table>
Timeline Phase II

May 2016
UA IRB approval
Chapter resolution

June 2016
Western Agency Council approval

July 2016
NNHRRB provisional approval Phase II

Aug. 2016 cont.
revision requests
UA, NNHRRB

Fall 2016
Intervention Cohort I

Spring 2017
Intervention Cohort II

Summer 2017
Dissemination
Phase II

Approvals
Multiple Entities, Revisions, etc.

Recruitment, Intervention,
data collection

Analysis