Boston Roybal Center for Active Lifestyle Interventions (RALI)

Pilot Projects

Grant # P30 AG048785
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Northeastern University & Edith Nourse Rogers Memorial VA Hospital
YEAR 1 ABSTRACTS

Project Title:

Enhancing the Health-Promoting Effects of Older Adults’ Activity Portfolios: The Development, Feasibility and Initial Efficacy of an Ecologically Sensitive Intervention

Investigator:

Christina Matz-Costa (PI), Boston College

Engaged4Life is an innovative multi-component intervention designed to help community dwelling older adults, who are at-risk for adverse cognitive and physical health outcomes due to their sedentary activity levels, to enhance existing or explore new activities that are personally meaningful and that also provide opportunities for physical activity. 15 adults age 65 or older were randomized to receive and 15 to not receive the Engaged4Life intervention, consisting of a 3-hour workshop and individualized peer mentoring via phone (2X/week for 3 weeks). Outcomes were measured using FitBIT® Zips worn daily and daily surveys assessed using iPad® Minis. Linear mixed effects models revealed that daily steps increased from the baseline to T1 (4-week follow-up) and from baseline to T2 (8-week follow-up) for the intervention group (n=12), but decreased for the control (n=13). Also, time spent/day in sedentary activities and daily fatigue levels decreased for the intervention group compared to the control group. Qualitative interviews with study participants, peer mentors, and staff at the partner organizations supported the feasibility and acceptability of the intervention. These findings indicate that the intervention shows initial promise in facilitating active lifestyles through personally meaningful activity engagement. The individualized approach focused on increasing activities that also support cognitive activity, social interaction, and personal meaning may enhance the likelihood that this intervention will have an impact on more distal outcomes like cognitive and functional health in later life and will support long-term adherence to the more active lifestyle. These hypotheses will be explored in future studies.

Publications:


Presentations:


Project Title:

Power V360 – Promoting Optimal Wellness Among Elders through Vitalize 360

Investigators:

Principal Investigator: Elizabeth P Howard, PhD, RN, ACNP, ANP-BC
Co-investigators: Robert Schreiber, MD, John N Morris, PhD
Project Consultant: Lewis Lipsitz, MD

This pilot project expanded COLLAGE/Vitalize 360, comprehensive assessment and wellness coaching program into low-income housing. Initially implemented in a continuing care retirement community (CCRC), one year follow-up analyses, compared to a no coaching control group, demonstrated improved mood state (p=0.035), improved quality of life (p= 0.032) and decreased loneliness and social isolation. For Vitalize 360 low-income sample, there was a 10% increase in average physical activity level after one year but 6 months later, physical activity level decreased to near baseline level. Comparison group not receiving any wellness coaching had consistently lower physical activity levels that remained stable over time. Contrary to CCRC results, other analyses revealed outcomes of mood, health status and quality of life remained unchanged over time. Future exploration of factors impacting disparate outcomes will be pursued to revise the model so as to improve physical activity level and related health outcomes across all older adult populations.

Publications:


Available at: http://oap-journals.org/journals/jarh/view-article.php?art_id=322&jid=38.

Presentations:


Project Title:

Remote Health Coaching Technology to Address Depression Risk Factors in Older Adult Populations with Health Disparities

Investigators:

PI - Holly B. Jimison, PhD, FACMI, RA – Christine, M. Gordon, GRA - Xuan “Sean” Li, Post Doc – Iman Khaghani Far, PhD, Software Developer - Mark Tuomenoksa (ilumivu, Inc)

Project Goals:

The goal of our research was to determine how best to develop a novel and scalable approach to interactive video exercise and coaching in support of depression prevention and management, with a focus on low-income older adults living independently at home. We built upon our existing software platform for semi-automated remote health coaching to explore new options for tailoring our interfaces, messaging, and protocols to low-income minority populations. Our specific aim for this pilot project was to obtain guidance from low-income older adults regarding preferred technologies and interfaces for home-based exercise.

Our method for addressing this aim was to conduct a set of focus groups with low-income minority older adults in Boston Housing Authority (BHA) residences to obtain suggestions for implementing health behavior change interventions and how best to use sensor and communications technology to make the interfaces, messages, and protocols most compelling and meaningful. With the recommendations from the focus groups, our ultimate goal was to develop design specifications and use these to update our interactive exercise systems to prepare for a follow-on clinical trial of interactive physical exercise and health coaching technologies as a component of depression prevention and management in low-income older adults at risk for poor health outcomes.

Study Design: We used a funnel design for the focus groups, starting with general open-ended discussions followed by reactions to stimulus materials, including existing and newly created intervention protocols, displays, and messages. We also asked focus group participants about their preferences and guidance on what would be important aspects to include in the interactive video materials. Using standard qualitative methodologies, we identified and described themes and patterns in preferences and recommendations. Participants reported preferences for protocols and interface designs for in-home exercise systems. We obtained feedback on preferences for instructor’s ethnicity, avatar types (if used), music, and exercise protocols. Participants were recruited from two Boston Housing Authority public housing facilities, Holgate and Bellflower. We intentionally selected locations with a high proportion of African American residents. We recruited a total of 28 participants across the two locations (10 in Holgate, 18 in Bellflower). Focus groups were held in December 2015 in communal spaces within each housing facility. Each group met for approximately one hour. Participants were provided beverages and snacks as well as a $25 grocery gift card.

Results:

Main findings - At both sites, there was a strong preference for video using upbeat gospel, soul or Latin music. Other aspects of the technologies presented resulted in mixed or inconclusive results. Examples include exercising alone vs. with others, acknowledgment vs. anonymity, cultural matching of instructor, and avatar representation. Discussion among participants raised several critical barriers that must be addressed in order to utilize many of the technologies presented.

Secondary findings – Many of our focus group findings were not directly related to our initial research question, but still very informative in preparing for follow-on studies in low-income minority settings. For example, even though BHA residences are considered senior facilities, many residents are less than 65 years old but there due to health frailty. Secondly, we found that requiring the signing of a consent form to participate in a focus group made several people very suspicious about what they were signing. Although, we explained the content of the form a few people asked to participate but refused to sign and we could not use their comments in our analysis. Thirdly, we found that $25 was too great an incentive for this group. In later discussions with the
staff, we determined that it would be better to have the amount go to a group activity or a common area improvement. Fourth, most if not all BHA residences do not have widely available Internet access; a few have a computer room with Internet access, but some have no connectivity at all, let alone access to a wireless network that would facilitate sensor-based interventions. If we were to plan for and incur the cost of installing residence-wide Wi-Fi, we would still need to address the need for training, as participants were often intimidated by unfamiliar technologies.

Publications


Project Title

Development and testing of a web-based training module for peer-coaches to promote exercise adherence in people with neurological conditions

Investigators

Cristina Colón-Semenza¹, Nancy K. Latham², Lisa M. Quintiliani³ ⁴, Terry D. Ellis¹

1. Boston University, School of Health and Rehabilitation Sciences: Sargent College, Department of Physical Therapy and Athletic Training
2. Boston University, School of Public Health, Department of Health Law, Policy and Management
3. Boston University, School of Medicine, Department of Medicine
4. Boston University, School of Public Health, Department of Community Health Sciences

Introduction: The vast majority of individuals with Parkinson disease (PD) are sedentary. Long-term engagement in exercise and physical activity increases quality of life and may mitigate the progression of the disability. There is a critical need for a safe, feasible, and effective method to assist those with PD to engage in active lifestyles. Training peers to be coaches may be a viable approach to help people with PD to engage in exercise successfully over the long-term. The purpose of this study was to develop and evaluate the safety, feasibility and acceptability of a peer mentoring training and walking program in people with PD. We also examined individual level changes in walking activity, self-efficacy and disability.

Methods: A peer coaching training program and a peer mentored walking program was developed and tested in 10 individuals with PD. We matched 5 physically active persons with PD (peer coaches) with a sedentary person with PD (peer mentee) resulting in 5 peer pairs. Using both web-based and in-person delivery methods, we trained the peer coaches in basic knowledge of PD, exercise, active listening and motivational interviewing. Peer coaches and mentees wore FitBit Zip activity trackers and participated in daily walking over 8 weeks. Peer pairs interacted via the FitBit application and weekly telephone calls over the 8-week study period.

Results: There were no adverse events over the course of the study. All participants would recommend this program to others with PD. All peer coaches were “satisfied” or “very satisfied” with the training program and all participants were “satisfied” or “very satisfied” with the peer mentored walking program. Four of the 5 pairs completed the 8 weekly phone conversations; the remaining pair completed 6/8 weekly phone conversations. Increases in average steps/day exceeding the clinically important difference occurred in 4/5 mentees.

Conclusions: Peer coaching is safe, feasible and acceptable for persons with PD. Peer coaching may be an effective method to increase physical activity in PD. Larger, controlled trials are necessary to examine effectiveness of this approach.

Publications:

C. Colón-Semenza, L. Quintiliani, N Latham, T. Ellis. Using peer coaches to increase physical activity in people with Parkinson disease. (Under review)

Presentations:


T. Ellis, American Physical Therapy Association Combined Sections Meeting; Evidence-Based Rehabilitation in Persons with Parkinson Disease: 2-day preconference; Anaheim, CA; February 2016.

N. Latham, T. Ellis, T. DeAngelis, K. Hendron The Use of Mobile Health and Virtual Coach Technology for People with Neurological Conditions. American Congress of Rehabilitation Medicine, Dallas TX, October 2015.
Project Title

Effects of improved physical function on emotion regulation strategies and daily physical activity

Investigators

Carmen Castaneda-Sceppa\(^1\) (PI), Gregory J. Cloutier\(^1\), Molly Sands\(^2\), Derek Isaacowitz\(^2\), Dinesh John\(^1\)

\(^1\)Department of Health Sciences, Northeastern University, Boston, MA
\(^2\)Department of Psychology, Northeastern University, Boston MA

We examined whether improved physical function from engaging in a resistance+balance training (RBT) program favorably influences emotional regulation and free-living physical activity (FLPA) in community-dwelling frail older adults. Twelve frail women and 8 men (72.9±6.8 y; gait speed: 0.67±0.14 m/sec) were randomized to RBT 2x/wk (n=13) or attention-control (n=7). Physical function, emotion regulation, and 7-day-FLPA measured with activPALs were assessed before and after 12 weeks. Exercise improved gait speed (\(\Delta\)45.8%, \(p=0.001\)), balance (\(\Delta\)65.2%, \(p=0.008\)), chair stand (\(\Delta\)24.8%, \(p=0.025\)), and the Short Physical Performance Battery scores (\(\Delta\)37.5%, \(p=0.0001\)), with no increases in FLPA or emotion regulation. Across all participants, positive mood at baseline was significantly correlated with a positive change in gait speed (\(r=.56, p=.03\)). These preliminary findings suggest some novel links between mood and improved health behaviors in frail older adults. Future work must explore the links between function and both mood and emotion regulation strategies in this at-risk population.

Publications:


Presentations:


Results were shared with community partners: East Boston Neighborhood Health Center Elder Service Plan and the Irish Parish Center in Dorchester, MA.

Project presented at the Beth Israel Deaconess Medical Center Division of Gerontology Grand Rounds, Boston, MA (February 7, 2017)”
YEAR 2 ABSTRACTS

Project Title
A Community Pharmacy Exercise and Health Promotion Program (CPEHPP)

Investigators
Nathaniel Rickles (PI), University of Connecticut; Carmen Sceppa & Diane Fitzpatrick, Northeastern University

Objectives:
1. To measure the impact of CPEHPP among older adults on primary outcomes such as number of steps, medication use, and attitudes toward exercise and health.
2. To evaluate the feasibility and acceptability of CPEHPP among older adults.

Methods:
Three Boston community pharmacies began, in January 2016, a 1-year randomized, prospective controlled study engaging older adults in a 3-month CPEHPP. Participants are recruited through flyers and/or profile review. Those eligible are 65 years or older; ≥1 of medications for hypertension, diabetes, and/or hyperlipidemia; understand and read English; self-report not exercising at least 150 minutes per week; and indicate having no dementia. All participants have one face-to-face meeting with the pharmacist to review the value of exercise, receive an activity tracker for daily step monitoring, and obtain 3 monthly logs to record daily steps. Those randomized to the CPEHPP receive a discussion of exercise goals, barriers, motivators, preferences and reinforcement on medication adherence. CPEHPP participants receive follow-up phone calls weekly during month 1, and biweekly calls during months 2 and 3 for further exercise support. All study pharmacists are trained in exercise and health promotion counseling. Descriptive and bivariate analysis will involve comparing several self-reported measures (collected through surveys) related to exercise and medication self-efficacy, health status, daily steps, and attitudes of medication use. End of study assessments will also evaluate pharmacist and patient self-report of program effectiveness.

Results:
Results: To date, 16 females and 7 males (mean 69.1 years, SD 4.6) have been enrolled with 76% being African American and five have completed the program. On average, baseline participants have mostly positive attitudes towards exercise but a third lack confidence in exercise. Initial trends suggest improved step counts associated with CPEHPP.

Presentations:
A Community Pharmacy Exercise and Health Promotion Program (CPEHPP): Stepping Up to Improve Medication Adherence in Older Adults, Poster to be presented at the American Pharmacist Association meeting, March 2017.

A perceived lack of time to exercise is a common barrier, especially among working middle-aged adults with numerous demands. Although scheduling out time to exercise can help, many cannot find the time or place to exercise. Using step-counters is a popular approach to enhancing exercise, however it is not clear if this approach by itself is effective in changing behavior. The present study tested the efficacy of a 5-week intervention to increase walking by incorporating additional steps into daily schedules with customized maps of easily accessible walking routes and comparing it to a control group who was given a step counter without any additional instructions. Multilevel analyses revealed significant condition (intervention vs. non-intervention) X time (Weeks 1 – 5) intervention on steps, $F(4,1814)=8.57, p<.001$. The non-intervention condition showed no increase across the five weeks, while the intervention condition increased their steps by 29.97%. General sense of control, self-efficacy, and cognition do not seem to be influenced by the intervention. However, there was a significant interaction between conditions in pre- and posttest exercise self-efficacy related to time constraints, $p=.027$. Contrasts revealed that the intervention group significantly increased their time-relevant exercise self-efficacy ($p=0.005$) whereas the control condition showed no significant change ($p=.881$). These promising results suggest that this low-cost motivational and informational intervention is a feasible method to enhance walking and increase exercise self-efficacy.

Publications:


Presentations:

Sullivan, A. N., Robinson, S. A., & Lachman, M. E. (2017, May 25 – 28). Walk to a better night of sleep: Examining the relationship between activity and sleep. Accepted for presentation at the annual meetings of the Association for Psychological Science (APS), Boston, MA.


Robinson, S. A., Sullivan, A., Hughes, M., Ebert, J. & Lachman, M. E. (2016, November 16-20). Planning the Next Steps: A Feasibility Study to Enhance Walking in Middle-aged Adults. In M. E. Lachman (Chair), Strategies to Increase Physical Activity: Boston Roybal Center for Active Lifestyle Interventions. Symposium conducted at The Gerontological Society of America's Annual Scientific Meeting, New Orleans, LA.
Increasing physical activity in middle-aged and older adults – a stress framework

Jutta M. Wolf, Principal Investigator; Nicolas Rohleder; Angela Gutchess: Brandeis University

Middle and older age is associated with elevated risk for negative health outcomes, giving rise to health behavior change intentions. Given the health implications, unsuccessful attempts to implement health behavior change may induce stress, which may negatively affect future attempts. The current study aimed to reduce stress in order to facilitate implementation of physical activity change by providing individually tailored and comprehensive informational support (‘scaffolding’).

A total of 104 sedentary middle-aged and older adults were enrolled in a 12-week Fitbit-assisted walking intervention with a comprehensive baseline assessment during week 1 and week 12, as well as 10 weeks of daily diary reports. For weeks 2-11, bi-weekly 15% increases in goal steps were developed based on an individual’s average week 1 step count.

First, we assessed daily walking behavior and exercise motivations. As expected, with increasing age, women walked less. Physical appearance, weight management and health pressures were identified as motivators for physical activity (PA) across all ages, however, only appearance concerns motivated actual behavior (daily steps), while perceiving health pressures was linked to self-reported behavior. Interestingly, at no age were health promotion and ill-health avoidance associated with Fitbit-measured or self-reported PA. Lastly, having weight management being a strong motivator for exercising predicted higher depressive symptoms independently of physical activity.

Next, we assessed changes over the course of the intervention. Most importantly, participants successfully increased their daily steps by 43%. Furthermore, as intended, perceived stress levels significantly decreased, while depressive symptom severity significantly improved. These changes were accompanied by significant increases in exercise self-efficacy levels, which were closely tied to increases in steps from pre to post intervention. Interestingly, although physical ability itself only improved at a trend-level, participants reported significant increases in physical function satisfaction. Of note, all these effects were comparable across the two informational support levels. In contrast, assessing subjective social status revealed that only participants in the high informational support condition reported improvements in perceived status, with higher status ratings post-intervention predicting lower post-intervention depressive symptom severity. Taken together, the current findings are highly encouraging and in support of the study’s general framework.

Manuscripts in Preparation:


Elling, C., Goodman, W., Geiger, A., Vaynberg, Sabik, N., & Wolf, J. M. (in preparation). Are changes in body esteem facets across a 12-week walking intervention linked to changes in daily steps?


Conference Presentations:

Elling, Goodman, Geiger, Vaynberg, Loaiza, Sabik, Wolf. Positive opinion of one’s body functions and perceptions of more positive appearance judgments by others are linked to physical activity in middle-aged women. Poster presented at the American Psychosomatic Society, March 2017, Seville, Spain.


Submitted Conference Abstracts:

Goodman, Geiger, Elling, Wolf. Associations between physical activity motivations and physical activity in middle to older aged women after a 12-week walking intervention. Abstract submitted for presentation at the International Society of Psychoneuroendocrinology, September 2017, Zurich, Switzerland.

Elling, Goodman, Geiger, Vaynberg, Sabik, Wolf. Positive opinions of one’s body functions, but not body image, are linked to physical activity in middle to older-aged women. Abstract submitted for presentation at the International Society of Psychoneuroendocrinology, September 2017, Zurich, Switzerland.
Sedentary older adults with disadvantaged economic or education background are challenging to enroll in exercise intervention programs. Moreover, once recruited, it requires concerted effort to maximize their participation and retention in the program. The NIA-funded Mi-WISH study provides either Tai Chi or Health and Wellness Education interventions to older residents living in subsidized housing facilities. The goal of this Roybal Pilot Project is to determine factors influencing subject recruitment and retention.

To date, 79 participants from 8 sites entered the intervention. The adherence rate for Tai Chi and Health and Wellness Education groups are 66.6±13.6% and 77.7±10.4%, respectively. By the end of the study, 67 participants remained and 12 participants withdrew from the program. We have completed 14 focus groups and recorded reasons for 12 withdrawals: six were unwilling or unable to continue in the study, four moved out of the housing site or a nursing home, one death, and one lost to follow up. The analysis from the focus groups is in progress.

Publications:


Increasing Physical Activity Among Sedentary Older Adults: What, When, Where, and With Whom

Margie E. Lachman (PI), Alycia Sullivan, Stephanie Robinson: Brandeis University

The goal of this project is to increase physical activity (i.e., walking) in sedentary older adults by providing the environmental and behavioral resources to incorporate additional steps into their daily lives. We will use a behavioral approach that fosters a sense of control and facilitates planning by focusing on the what, when, where, and with whom using a smart phone App. During the App development phase showed the App wireframe sketches to 9 older adults to get their feedback and modifications were made accordingly. The App is currently being developed using the Apple Research Kit. In the next phase, participants will be 30 sedentary adults over the age of 60 who own a smart phone. They will be randomly assigned to one of the three conditions using different components of the App. The control group will just have the accelerometer program to count and record steps. One experimental condition will have the schedule and map components. And the second experimental group will have the schedule, map, and social components. The two experimental conditions are expected to increase their steps to a greater extent than the control group. We predict that those in the experimental condition with all components (that is including the social component) will show the greatest increases in their step counts over the course of the 3-month study. We also expect the experimental group will show larger increases in psychological well-being, health quality of life, and social engagement than the control group. The App will also record mood and energy level several times a day. It is expected that on days in which adults are walking they will have more positive affect and greater energy than on inactive days. On average, those who are in the experimental conditions are expected to have a better mood than the control group each week during the intervention and at the 3-month posttest. After the 3-month program is completed the posttest will be administered. Analyses will compare the experimental and control groups to test for differences in walking behavior change. We will examine the effects of the walking program on psychological well-being, sense of control, and social integration and support.

Publication:
http://journal.frontiersin.org/article/10.3389/fpubh.2016.00289/full?&utm_source=Email_to_authors &utm_medium=Email&utm_content=T1_11.5e1_author&utm_campaign=Email_publication&field=&journalName=Frontiers _in_Public_Health&id=222909#
**Project Title:**

A Process Evaluation of an Innovative Approach to Promote Proficiency in Motivational Interviewing for Behavior Change by Nurses for Falls Prevention among Older Adults

**Investigators:**

Lisa Quintiliani, Principal Investigator, Section of General Internal Medicine, Boston University  
Priscilla Gazarian, Brigham and Women’s Hospital, General Medicine  
Siobhan McMahon, School of Nursing, University of Minnesota  
Ali Hall, Independent Contractor in Motivational Interviewing  
Martie Carnie, Participant Advocate, Brigham and Women’s Hospital  
Catherine Hanson, Participant Advocate, University of Michigan

Motivational interviewing is an effective psychologically-based health behavior change counseling method, yet it is difficult to maintain proficiency in delivering motivational interviewing as skills tend to wane over time. This may be particularly true among clinicians who face multiple barriers to delivering motivational interviewing, including lack of time and confidence. Therefore, the objective of the proposed Roybal pilot project is to conduct a process evaluation of an innovative approach to improve proficiency in motivational interviewing skills performed by nurse falls care managers in a large multi-center trial that aims to promote physical activity for falls reduction among older adults. We will use multiple sources of data to meet our objective: both objective and self-reported ratings from the nurse falls care managers, feedback from participants, and feedback regarding the feasibility of our approach from multiple stakeholders (clinicians and health care administrators). Currently, we have interviewed 5 stakeholders; we have finished baseline data collection and will commence follow up data collection in 1-2 months. We will then conduct the participant interviews. This process evaluation will provide key information about the effectiveness and feasibility of our approach to promoting proficiency in motivational interviewing, not only in the current trial, but also in future studies. If deemed feasible and effective, this approach to promoting proficiency in motivational interviewing could be widely applied to trials focusing on behaviors, such as physical activity or healthy eating for an array of chronic conditions, including diabetes, frailty, and cardiovascular disease among older adults.

**Presentation:**

Project Title:

Roybal Center Administrative Supplement: Development of An Exergame for Caregivers of Family Members with Alzheimer’s Disease

Investigators:

Andrea Parker¹ (PI); Margie Lachman²; Carmen Sceppa¹; Elizabeth Stowell¹

¹. Northeastern University
². Brandeis University

The number of caregivers providing informal care for family members with Alzheimer’s Disease (AD) is rising dramatically. Caregivers of AD patients have relatively high levels of stress and depression and limited physical activity and social engagement. There is a vital need for supportive programs and novel interventions to help informal caregivers of family members with AD to take care of their own health and well-being. Technology-driven programs can offer engaging, sustainable, and scalable opportunities to give caregivers critically-needed supports for health and wellbeing. We will conduct a pilot study using cognitive behavioral methods to develop an innovative social exergame to increase physical and social activity among AD caregivers. Leveraging wearable activity monitors, physical activity data collected throughout the day and in varied settings will serve as input to the game experience. Caregivers will assess the suitability of alternative prototypes with an array of features including (1) instructional exercise modules, (2) feedback from activity data, (3) digital rewards for physical activity that can be used to create virtual community gardens and artwork galleries, and (4) opportunities to connect virtually with other caregivers to share and comment on their creative products. Aim one is to develop and build the exergame, with the AD caregivers providing extensive input into the features. Twenty AD caregivers will participate in the design and development phase. The second aim is to evaluate enjoyment of the exergame and its feasibility to increase moderate and vigorous physical activity, virtual social contact, exercise self-efficacy, and well-being. A new group of 20 caregivers will test the program on a computer, tablet, or smart phone for four weeks. The findings will be used to develop larger-scale intervention studies to test the efficacy of the exergame in the future. Tailoring an exergame for caregivers of AD has the potential to increase physical activity and to improve overall health and well-being in this vulnerable population, which in turn can benefit the Alzheimer’s patients for whom they provide care.
Project Title:

Using a habit formation intervention to increase sustainable walking activity in midlife working adults

Investigators:

Jane Ebert (PI), Brandeis University

While people commonly understand that regular physical exercise conveys many health benefits, only 20% of U.S. adults take regular exercise and they have difficulty maintaining new healthy behaviors. In the current research, we use a planning intervention to help establish and maintain a daily step regimen in working midlife adults. We will ask participants to form implementation intentions (by planning when, where, and how to act on a daily walking goal) in conjunction with a habit formation intervention to increase the chances that they will maintain this new regimen. To encourage habit formation, participants in a habit-friendly experiment condition will make plans, each week for 4 weeks, for daily walking in consistent contexts that recur from day to day. We expect that they will take more steps daily more consistently than those participants in a no schedule control group who will not plan a walking schedule, and to maintain this activity for longer than those participants in a habit-unfriendly control group who will plan a walking schedule in inconsistent contexts that vary from day to day. To test these predictions, daily steps and consistency in reaching daily goals will be obtained and compared across groups before and after the intervention period and at a one month follow-up assessment. We will also measure habit formation, and outcome variables such as well-being. Finally, we will examine the moderating role of participants’ home and work schedule routine characteristics (level of routine and busyness) on these intervention effects, predicting stronger effects of the habit formation intervention for individuals with greater existing routine and weaker effects for those with more busyness.
Project Title:

Home-Based Exercise Program for Recovery After Transcatheter Aortic Valve Replacement: A Pilot Randomized Controlled Trial

Investigators:

Dae Kim (PI), Hebrew SeniorLife

With the increasing number of transcatheter aortic valve replacement (TAVR) performed in multi-morbid frail older adults with aortic stenosis, high-quality evidence is needed to improve the postoperative care of high-risk patients after TAVR. Under the current model of care, TAVR patients continue to experience functional decline and worsening disability despite improved cardiac function. Currently, there is no established rehabilitation program targeting both frailty and endurance in older adults treated with TAVR. This proposed research is a pilot randomized controlled trial of home-based exercise with cognitive behavioral interventions, home-based exercise alone, vs. attention control educational intervention to improve functional status and disability over 8 weeks in 60 patients (20 per group) who are discharged home after TAVR from Beth Israel Deaconess Medical Center. The home-based exercise program will consist of individualized exercise guided by a physical therapist targeting balance, flexibility, strength, and endurance. Cognitive behavioral interventions will target beliefs and attitude about exercise. The main hypothesis is that home-based exercise program with cognitive behavioral intervention is more effective than home-based exercise alone; home-based exercise program with and without cognitive behavioral intervention is more effective than attention control educational intervention in preventing decline in physical function and disability after TAVR. The primary outcome is the Late Life Function Disability Instrument, a patient-reported measure of physical function and disability. Secondary outcomes are the Short Physical Performance Battery, 2-minute walking distance, and handgrip strength. Self-efficacy and outcome expectation about exercise, adherence, and adverse events will be measured. The research team will leverage expertise and resources within the Boston Roybal Center and the Boston Older American Independence Center to achieve the following aims: 1) to determine the effect of a home-based rehabilitation program with or without cognitive behavioral interventions vs. educational on physical function and disability; 2) to determine the effect of cognitive behavioral intervention on adherence and the change in physical function and disability among the participants in the exercise program. It is anticipated that the research team will be able to assess the feasibility of conducting a large RCT. Once confirmed, this proposed study can change the standard of care in TAVR patients.
Project Title:

Mobile Intervention to Improve Functional Health and Community Engagement of Post-9/11 Veterans with Chronic Insomnia: Does Enhancing Physical Activity Help?

Investigators:

Karen Quigley1, 2 (PI) & Carmen Sceppa1

1. Northeastern University
2. Edith Nourse Rogers Memorial VA Hospital

Veterans of the most recent wars in Afghanistan and Iraq (collectively, post 9/11 Veterans) have notable sleep problems including both chronic insomnia and, as we recently demonstrated in a small pilot study, higher than expected rates of obstructive sleep apnea (OSA; 47%). In those using a mobile app (with self-management guidance) to provide evidence-based cognitive behavioral therapy for insomnia (CBTI) and an objective sleep monitor for 6 weeks, we saw pre- to post-intervention improvements in subjective sleep (Insomnia Severity Index or ISI) and functional outcomes in those who completed the intervention. The surprisingly high occurrence of OSA in these relatively young (relative to those at greatest risk for apnea), and mostly normal-weight veterans led us to consider the possibility that a shift to a more sedentary lifestyle in these formerly physically fit individuals, may be increasing the likelihood of both insomnia and OSA. Because increasing physical activity (PA) has been shown to reduce insomnia and OSA, we posit that increasing PA in these veterans with chronic insomnia could provide a useful adjunctive intervention to both reduce insomnia and perhaps even the incidence of OSA in this sample of veterans. Here, we plan to compare two groups of veterans with insomnia: (1) one that completes a 6 week self-management-guided use of the mobile CBTI app (CBTI alone) and (2) one that completes a 6 week combined self-management-guided use of the mobile CBTI app in addition to a PA intervention (CBTI + PA). We hypothesize that the group receiving the adjunctive 6-week PA intervention will have better subjective and objective sleep, higher step counts, and better functional health and social and community integration than those receiving CBTI alone. This pilot work will provide evidence to guide the design of a future randomized controlled trial including power estimates for the sleep, physical activity, functional health, and social and community engagement outcomes.