B. 2 Specific Aims

Nearly two thirds of the United States population does not get enough physical activity (PA) for good health and rates of PA participation are particularly low for women aged 45 years or older. Among researchers in the health sciences, there is great interest in increasing PA rates among aging groups in part because PA is associated with numerous health outcomes. One PA related health outcome particularly relevant for middle-aged women is reduced risk for breast cancer. Between the ages 40-60, a women’s risk for breast cancer increases eight-fold. Behind cancers of the skin, breast cancer is the second leading cause of cancer-related death among women and it is estimated that one in eight women will be diagnosed with breast cancer at some point during their lifetimes. Although breast cancer is highly heritable, research has shown that women who regularly engage in moderate-intensity aerobic PA are between 15-80% less likely to develop breast cancer compared to physically inactive women. For this reason, there is great public health incentive to increase PA rates among middle-aged women for the prevention of breast cancer.

Historically, intervention programs have been successful at encouraging individuals to initiate PA; however, maintenance of PA behavior has proven to be a more difficult task and an area of study in need of a more concrete theoretical framework. Among individuals who adopt an exercise program, typically only half stay with it for more than six months. In order to improve rates of PA participation among women on a broad scale and optimize breast cancer prevention efforts, interventions must strive to improve rates of long-term PA maintenance. Reviews concerning the efficacy of behavioral interventions to increase PA behavior have consistently implicated self-monitoring, the purposeful observation and processing of information concerning internal and external states, as an effective strategy. For example, in the context of a PA intervention, participants might be asked to self-monitor some internal (i.e., energy level) or external (i.e., number of miles ran) construct associated with a PA bout by logging scores in a journal.

In terms of what aspects of the PA experience might be most motivating, recent work by Segar and colleagues suggests that when targeting PA adherence among the middle-aged female demographic, it might be most useful to promote the immediate benefits PA holds for everyday life rather than the long-term benefits PA holds for physical health and weight management. Specifically, Segar and colleagues have shown that women who value PA for its health or weight management benefits exercise significantly less (between 15% and 34% less) than those who value PA for its quality of life (QoL) enhancing outcomes (e.g. “feeling good,” and “happiness”). In sum, the literature suggests that interventions designed to increase PA behavior among middle-aged women might consider a focus on associated QoL benefits (e.g., improved affect) over a focus on associated health or weight management benefits.

In order to optimally encourage PA maintenance, the proposed study seeks to integrate the importance of self-monitoring with a test of the content of that monitoring using a design that includes a 1-month PA intervention and a follow-up period extending to 6-months post-baseline. Women aged 40-60 will be randomly assigned to one of three conditions. Common to all conditions, women will be asked to keep an online exercise journal and record type and duration of PA bouts for each day PA is performed. The conditions for the proposed study are: (1) record only the types of activities and durations of PA bouts (CONTROL condition); (2) self-monitor information that is physiological in nature and relevant to health and weight control benefits of the PA bout (PHYSIO, performance self-monitoring condition); or, (3) self-monitor information that is psychological in nature and relevant to aspects of QoL influenced by the PA bout (AFFECT, affective response to PA self-monitoring condition).

With this in mind, the specific aims of this research are to:

1. Test the main effect of self-monitoring on physical activity behavior at 1, 3, and 6 months.

Hypothesis 1: Participants who received the AFFECT or PHYSIO self-monitoring interventions will engage in more PA at 1, 3, and 6 months compared to those who received the CONTROL condition.

2. Test the main effect of self-monitoring content on physical activity behavior at 1, 3, and 6 months.

Hypothesis 2: Participants who received the AFFECT self-monitoring intervention will engage in more PA at 1, 3, and 6 months compared to those who received the PHYSIO self-monitoring condition.

3. Exploratory Aim: Examine the mechanisms by which the interventions influenced behavior change and maintenance through a mediational analysis utilizing constructs from a novel theoretical model of exercise, the theory of Physical Activity Maintenance (PAM).