Article

Fitting Fitness into Women's Lives: Effects of a Gender-tailored Physical Activity Intervention

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Abstract Although regular exercise has important health benefits, women's physical activity participation remains low. Addressing the gender- and generation-specific barriers in an intervention may help women become more physically active. Fifty women (mean age = 45 years) participated in a six-session cognitive-behavioral intervention. Baseline, post-intervention, and follow-up data were collected. Total physical activity levels increased from baseline to post-intervention and were maintained at long-term follow-up. This research suggests that participation in a comprehensive, cognitive-behavioral, and empowerment-based physical activity intervention, tailored to address women's distinct constraints and pressures due to sociopsychological experiences, can facilitate increased physical activity among white, middle-aged women.

INTRODUCTION

Regular physical activity has important health benefits for women. Sedentary women have increased risks for cardiovascular disease, diabetes, hypertension, colon cancer, and depression.[1] A recent large clinical trial has shown that increasing physical activity, along with dietary changes, can dramatically decrease the risk of developing type 2

Published by Elsevier Science Inc.
1049-3867/02/$22.00
PII S1049-3867(02)00156-1

diabetes.[2] Physical inactivity is more prevalent among women than men,[1] and participation in physical activity decreases as women age.[3]

Women's exercise participation has been studied less extensively than men's.[4,5] Several studies have shown that women have different psychological and social mediators of physical activity participation than do men. Women are more likely than men to report barriers to exercise and reduced control over their decision to exercise.[6] Normative female gender role responsibilities such as child care and housework can lead to decreased participation in physical activity.[7] Female gender roles may also make it difficult for women to make their own health a priority. Even women living with a chronic illness have difficulty taking care of their own health and self-care needs because of the demands and needs of others.[8] Widespread opportunities for girls to participate in school sports before Title IX did not exist, due to sex discrimination and cultural biases.[5] Title IX was an educational amendment that prohibited discrimination on the basis of sex in institutions receiving federal aid and helped to create greater access to sports for women. Women who were socialized before the passage of Title IX in 1972 may have had less opportunity to develop comfort with and skills for being physically active. Therefore, sociopsychological constraints due to female gender roles and socialization may constitute significant and complex barriers to physical activity for these women.

Researchers have studied a wide variety of physical activity interventions. In a review of 127 such trials, researchers found that interventions that used behavioral techniques, targeted specific populations, and emphasized low-intensity activity were more effective than other interventions.[9] However, relatively few physical activity intervention studies specifically target women[10,11] or have addressed women's specific barriers to physical activity such as caretaking roles[7] and objectification.[12] While behavioral techniques including self-monitoring, goal setting, decisional balance analysis, relapse prevention, and increasing social support are common components of physical activity interventions,[13] consciousness-raising including discussions of gender-specific barriers to physical activity is not.

The intervention evaluated here, Fitting in Fitness for Life! (FIF), takes a novel approach toward increasing physical activity levels among middle-aged women. In a series of six moderated group sessions, consciousness-raising methods are used, and FIF participants discuss barriers to physical activity with particular attention to those that are specific to women. The curriculum focuses on the importance of making time for self-care behavior, being active in ways that are pleasurable or enjoyable, and fitting convenient lifestyle physical activities into daily life. We hypothesized that women who participated in FIF would increase their physical activity and maintain higher levels of physical activity after the intervention ended. We also predicted that FIF would increase participants taking a pleasure-based approach to physical activity and prioritizing self-care behaviors.

METHODS

Theoretical Framework

FIF addresses increasing physical activity from both an individual cognitive-behavioral and a broader, sociopsychological perspective. Given that physical activity intervention studies using cognitive-behavioral approaches have had increased physical activity levels in the short term but a relative lack of success with long-term maintenance,[9] we also decided to implement empowerment techniques.[14] The theoretical framework used was developed by integrating traditional behavior change theories with theories that address sociopsycho-

logical constraints unique to women. Theoretical constructs used to develop FIF came from Social Cognitive Theory,[15] Empowerment Theory techniques,[14] Objectification Theory,[12] and Self-in-Relation Theory.[16] Social Cognitive Theory explains behavior through a model in which behavior, personal factors, and environmental influences all interact. It posits that a person's behavior and cognitions affect future behavior.[15] Empowerment Theory aims to enable people to engage as agents of change by challenging internalized negative self-evaluations, developing support networks and a collective identity, building on strengths, and taking planned action.[14] It encourages participants of a group to assume responsibility for their educational process, define their own barriers and problems, develop their own programs and strategies, and challenge existing structures. Objectification Theory posits that women are socialized in our society to have an observer's perspective as a primary view of their physical selves. This experience socializes females to consider themselves as objects that are evaluated on the basis of their appearance.[12] Self-in-Relation Theory suggests a new model of development that accounts for the centrality and continuity of relationships throughout women's lives, one that positions the "relational self" as the core self-structure in women.

Intervention

The FIF intervention is a small group program consisting of 8 to 12 women and a facilitator. The program is conducted like a workshop, and the group meets over 6 weeks in six, 2-h sessions. FIF is held at medical centers, community centers, and other public venues. The main objective of FIF is to help participants learn how to increase and maintain regular physical activity once the program is over. FIF uses a combination of consciousness-raising activities, group discussions, written exercises, planning/strategizing, and weekly evaluation.[15] Program activities, combined with vicarious learning through role modeling, have been shown to produce enhanced self-management attitudes, skills, and self-efficacy.[15]

The main objective of FIF is to increase regular physical activity

FIF participants exercise outside of sessions so that they may discover what barriers exist to their physical activity. They develop strategies to be used after the program ends. FIF addresses exercise and physical activity from a sociopsychological perspective. The program curriculum examines how being female is related to the development of particular attitudes toward and expectations for exercise. In addition, it asks participants to explore what constraints exist to being physically active due to female gender role expectations (theirs and others). It uses consciousness-raising methods[14] to increase participants' awareness of how they have been socialized to feel about and approach physical activity. By addressing sociopsychological constraints related to gender, this intervention focuses on hurdles faced by middle-aged women to becoming and remaining physically active.

Evaluation Design and Procedure

We used a longitudinal study design with no control group. A self-administered questionnaire was given to participants at three times: at the beginning of the first session (baseline); before the start of Session 6 (post-intervention); and at the follow-up. Follow-up surveys were mailed to all intervention participants on the same date. Because the intervention had been offered at different times, the time between the intervention completion and follow-up data collection ranged from 5 to 13 months. However, for 78% of respondents there were at least 9 months between the post-intervention and follow-up data collection. Past FIF participants (n = 80) received a postcard informing them about the upcoming questionnaire and the incentive for participating in our

study follow-up (a gift certificate). Follow-up questionnaires were mailed 2 weeks after the postcard. We attempted to contact participants who did not return their questionnaires by phone two times over a 3-week period before classifying them as nonresponders.

Qualitative data were collected on a subset of participants at the study follow-up. We used focus groups as our method of qualitative data collection because they permitted us to gain a more in-depth understanding of participants' experience in the program.[17] Focus groups were helpful in learning about the specific ways in which they viewed having their behavior and attitudes changed as a result of participating in FIF. We conducted two focus groups with 13 randomly selected participants. Groups were moderated by a white, middle-aged, female professional facilitator. The focus groups each lasted for 2 h, and discussions focused on the FIF intervention content and the effects of the program on participants' physical activity and lives. This study was approved by The University of Michigan Institutional Review Board.

Study Participants

Our study was conducted in a Midwestern university town using a convenience sample of mostly white, highly educated, middle-class women. Participants learned about the intervention from flyers, advertising, and E-mail. The promotion materials included a description stating that the program was designed to address women's unique roadblocks to being physically active. The women who participated should be considered highly motivated because they voluntarily called to get more information in addition to paying to participate in FIF ($148).

Because demographic data were collected at the study follow-up and not at the baseline data collection, we are unable to examine differences between follow-up responders and nonresponders on demographic variables. There is a difference between responders and nonresponders on one measure that will be discussed in the "Results" and "Discussion" sections.

Measures

The questionnaire consisted of 70 items, including items on physical activity levels; attitudes about, approaches to, and strategies for being physically active; and attitudes about self-care prioritization. The measures described below were asked at all three data collections. Our survey items were designed to measure constructs unique to our theoretical model and intervention. Because there were no existing validated instruments in the literature to measure prioritization of self-care and taking a pleasure-based approach to physical activity, we developed our own items. The items were given to experienced survey researchers to review for ambiguity, wording problems, and face validity. In addition, they were used in pilot intervention research.

Physical Activity Levels

Physical activity level was assessed with the Godin Leisure-Time Exercise Questionnaire (GLTQ),[18] which has been used successfully across diverse populations.[19] The GLTQ is a 1-week recall instrument. It assesses the amount of light, moderate, and vigorous physical activity that individuals engage in. Each question asks study participants to estimate how many times in a typical week they participate in each level of physical activity for more than 15 minutes. Each intensity level can be evaluated independently or a total score can be created. For a total summary score, the three intensity levels can be added together. Also, an intensity-weighted total physical activity score can be

created by weighing the light, moderate, and vigorous intensity levels by 3, 5, and 9 respectively. Higher scores indicate higher levels of physical activity.[19] Reliabilities for this measure in adults have been reported to be 0.74 and 0.62.[18,20]

Prioritization of Self-care Behavior

We assessed "prioritization of self-care behavior" (PSC) with a two-item index. Participants responded from one to four (1 = never, 4 = always) to the following two statements: 1) "Time for my self-care and well being is a high priority for me"; and 2) "I am able to set personal boundaries so that I am able to practice self-care." The mean of the responses to these two items was used to create a prioritization of self-care index.

Taking a Pleasure-based Approach to Physical Activity

Taking "a pleasure-based" approach (PBA) to being physically active was measured by two items: 1) "How many times during a normal week do you reward yourself for something with a gift of physical activity (of any length of time)"; and 2) "I participate in physical activities that give me pleasure." For item number one, participants wrote in the number of times during a normal week that they rewarded themselves. The majority of scores ranged from zero to four with a few responses as high as seven. For the second item, participants responded from one to four (1 = never, 4 = always). The mean of responses to these two items was used to create an index of pleasure-based approach, with higher index scores indicating a more pleasure-based approach to being physically active.

Data Analyses

Quantitative

Our primary outcome was change in physical activity level from baseline to post-intervention evaluation and from baseline to the long-term follow-up. We excluded those individuals who did not complete the baseline survey ($n = 12$), and we also excluded those who did not return the follow-up survey ($n = 19$). To evaluate participant changes in physical activity, we compared number of sessions of light, moderate, and vigorous physical activity independently as well as total physical activity sessions and total physical activity sessions weighted by intensity. Because distributions of scores on the GLTQ were skewed, we used Wilcoxon signed-rank tests to compare the paired data.

We used Wilcoxon signed-rank tests also to look for changes from baseline to post-intervention and from baseline to long-term follow-up for two behavioral approaches targeted by the intervention: the prioritization of self-care behavior and taking a pleasure-based approach to physical activity. We reported the mean, medians, and interquartile range scores for each measure at the three time points. The statistical software used for all quantitative analyses was Stata 7.0.[21]

Qualitative

The focus groups' questions were both descriptive (e.g., "Did your approach to being physically active change as a result of participating in FIF, and if so how?" "What attitudes towards physical activity changed as a result of participating in FIF?") and reflective (e.g., "Did you have any attitudes towards exercise that prevented you from being active before participating that were

changed as a result of participating, and if so, what were they and how did they change?"). Focus group discussions were tape-recorded and transcribed. Qualitative analyses procedures were performed using grounded theory techniques.[22]

RESULTS

Quantitative

Of the 80 FIF women who participated in the 6-week intervention, 61 returned the follow-up surveys (76% response rate). Since 11 of the participants who mailed back the follow-up survey had missed the first session and had no baseline data, they were dropped from the study, yielding a total sample of 50 participants with data from the baseline and study follow-up. The sample was comprised of mostly white (94%), well-educated women. Sixteen percent had attended some college, 24% had a college degree, and 58% had graduate degrees. The average study participant was 45 years old (SD = 10), and 82% of the sample was between 30 and 59 years old. Total household income spanned from <$39,000 to >$70,000, with 86% of participants reporting total household income of greater than $40,000 per year. The vast majority of this sample did not have regular caretaking responsibilities for dependent others, with only 30% having children living at home and 8% caring for elderly family members.

Results of paired comparisons for physical activity at the three intensity levels, for total physical activity sessions and total physical activity weighted by intensity, are presented in Table 1. Both total physical activity sessions and total physical activity score weighted by intensity showed significant increases from baseline to post-intervention evaluation. They continued to increase from post-intervention to the follow-up, and were significantly higher at the follow-up than at baseline. Light, moderate, and vigorous activity sessions also significantly increased from baseline to follow-up.

We also assessed changes in the following two behavioral approaches that our intervention focused on: PSC and PBA. From baseline to the follow-up data collection, PSC and PBA significantly increased ($p < 0.01$) 29% and 54%, respectively.

Qualitative

The focus group discussions gave us a better understanding of how the program affected participants and their approaches to being physically active. One theme reflected an increased awareness and acceptance of the idea that all physical movement "counts," rather than only vigorous exercise. As a result, participants told us that they became more flexible in their exercise practices. One woman observed, "Before the class I wouldn't go (to the gym) unless I had a good hour . . . because by the time you shower and do all that . . . and after FIF I would go, even if I could only take a 30- or 15-minute walk around the track."

. . . an acceptance of the idea that all physical movement counts . . .

A second theme related to participants experiencing decreased guilt because of their inability to achieve perceived cultural norms regarding exercise intensity and duration. One woman expressed feeling legitimized and free from guilt because participating in the program had "given her permission" to exercise at the level she was able to (rather than at one more intense).

The third theme reflected that participants became more proactive and searched out convenient opportunities for exercise throughout the day. For example, one participant reported being proactive by taking walks during lunch breaks. Another participant discussed parking further away from her destination in order to walk farther.

Table 1. CHANGES IN PHYSICAL ACTIVITY LEVELS

Mean (25th centile, Median, 75th centile)	*Baseline*	*Post-intervention*	*Follow-up*
Light physical activity sessions	4.2 (2, 4, 7)	4.8 (3, 4, 6)	6.7† (3, 5.5, 7.3)
Moderate physical activity sessions	2.4 (0, 2, 4)	3.5* (2, 3, 5)	3.7* (2, 3, 5)
Vigorous physical activity sessions	0.4 (0, 0, 0.25)	1.0 (0, 0, 1.5)	0.9* (0, 0, 1)
Total physical activity sessions	7.0 (4, 7, 10)	9.2† (5.5, 9, 11.5)	11.3† (6, 9.5, 15)
Total physical activity: intensity-weighted	28.2 (15, 25.5, 46)	40.6† (22, 37, 51.5)	46.6† (24, 34.5, 66.3)

*Indicates significant change from baseline using Wilcoxon sign-rank tests with $p < 0.05$.
†Indicates significant change from baseline with $p < 0.01$.

The fourth theme suggested that physical activity changed from a chore participants felt that they should accomplish to an enjoyable activity that one chooses to do for oneself. One participant stated that she now expected to feel good "during the process" of exercising rather than just when it was over, and as a result chose to participate in different types of exercise classes offered in the community. Another woman said that instead of thinking that she "had to" take a walk, she thought about it as something "to enjoy rather than one more thing on my list."

Nonresponder Bias

Responders had baseline scores significantly lower on the PBA scale than nonresponders, $p < 0.05$. Other baseline scores did not differ between responders and nonresponders.

DISCUSSION

The study participants significantly increased light, moderate, and vigorous physical activity levels, as well as total physical activity sessions and total physical activity level weighted by intensity. While many exercise intervention studies have shown increases in physical activity over the course of the intervention, a meta-analysis reported that the few studies that examined adherence during the months following the intervention generally reported small effects.[9] In addition, almost 50% of Americans discontinue exercise programs before 6 months. In contrast, our results show that on average FIF participants maintained or even increased their physical activity participation in the period after the intervention ended. This suggests that FIF participants acquired new and helpful methods of remaining active and that these methods continued to be effective even after the actual intervention had ended.

These methods continued to be effective after the intervention had ended

That these results show significant intervention effects may be due to a curriculum that was specifically tailored to address barriers faced by middle-aged women. Results of the present study support previous research showing that physical activity interventions are more likely to be effective if they address the needs and interests of the target group.[23] Tailoring intervention content to the sociopsychological barriers relevant to women may help middle-aged women increase and maintain higher levels of physical activity. Tailoring interventions by gender may be useful because gender differences exist for key psychological variables associated with physical activity behav-

ior.[11] It is important for people to understand the constraints on their behavior in a broader social context before they can develop strategies for changing it.[14] To facilitate participants' increased awareness about the tacit but powerful pressures women face due to gender role expectations and beauty norms, the FIF intervention employed empowerment techniques such as consciousness-raising.

Studies that have examined women's participation in exercise emphasize the importance of addressing life context (social roles, family and job responsibilities, etc.) when promoting increased physical activity levels.[7] In FIF, constraints related to gender, including multiple roles and responsibilities, were discussed explicitly, and the group worked together to construct effective strategies for overcoming these types of barriers to being physically active. Helping women address their conflicts related to gender roles and gain tools for feeling comfortable with claiming time for their self-care may facilitate greater maintenance of a self-care activity like physical activity.

In addition, FIF participants discussed how normative pressures to be thin[24] might detrimentally impact their approach to being physically active. A woman who has extrinsic goals such as body sculpting may be very dependent upon perceived positive outcomes and not continue to exercise if immediate gains in appearance are not achieved.[25] Our quantitative data showed significant increases in taking a PBA to physical activity and in the PSC, suggesting that the discussions surrounding these gendered issues were effective. Furthermore, qualitative data showed that participants were selecting different goals for exercising and approaching being physically active in a different mindset after their participation in the intervention.

. . . significant increases in taking a pleasure-based approach to physical activity

There are several significant limitations to this evaluation of FIF. Retrospective recall of behavior and social desirability bias are possible limiting factors, because our data were obtained through self-report. Although we had an adequate response rate, an additional limitation is that our data showed that the responders at the study follow-up had lower baseline levels than the nonresponders in taking a pleasure-based approach to physical activity (PBA). It may indicate that the participants who had more negative feelings towards being active before the program received greater benefits from the intervention's focus on pleasure-based physical activity. It may be especially beneficial to help women who have negative feelings about exercise find enjoyable physical activities.

An important limitation is that we did not have a control group and cannot rule out alternative hypotheses. However, by having participants pay to attend the sessions, we more accurately simulated the way such a program might actually be implemented, although this did interfere with our ability to include a meaningful comparison group. Despite the limitations in this study, this research has some important strengths. We did collect long-term follow-up data on participants. Follow-up data are important because long-term physical activity is the ultimate goal of intervention research. However, most physical activity intervention studies do not report it, and those that do, report findings that are not encouraging regarding long-term maintenance.[9] In contrast, our finding of higher activity at follow-up is notable because 78% of our participants had concluded the intervention at least 9 months before this data collection. Furthermore, we avoided some limitations common to mono-method research by using both quantitative and qualitative assessment in our evaluation.[17]

Caution in generalizing our findings is warranted owing to the nonprobability sample and to the homogeneity of our study participants. Not only were the majority of participants in FIF very educated, but they should also be considered highly motivated because they paid to participate. Women of different ethnic groups and socioeconomic status levels have barriers at both

individual and social levels distinct from those identified in this sample. It is important to recognize that this study did not address the barriers to being physically active encountered by economically disadvantaged and marginalized women. Although this research is encouraging, an important next step is to conduct a rigorous, randomized controlled experiment in order to remove the potential alternative explanations that currently exist for the changes seen in our study's outcomes.

The six-week FIF program format is a realistic commitment for many women. Additionally, the cost may make it appealing to managed care organizations that could provide the program to their members. Furthermore, the behavioral model and approach described here can be tailored to different populations (those with chronic illnesses, differing ethnic groups, etc.) in addition to being adapted as a course offered on the Internet, a workbook, or a self-directed video educational program.

CONCLUSION

This research suggests that participation in a comprehensive, cognitive-behavioral, and empowerment-based physical activity intervention, tailored to address women's distinct constraints and pressures due to sociopsychological experiences, can facilitate increased physical activity among white, middle-class, middle-aged women.

ACKNOWLEDGMENTS

This research was partially supported by Grant 1 R43 HL61119-01A1 (NHLBI).

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