



Unleashing Women's Power in Second Life: The Development of a Virtual Weight Management Program for Women with Mobility Impairments

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Abstract

Design: Interrupted time series quasi-experimental

Setting: Weight management program conducted in Second Life (SL), a free, online virtual world.

Participants: 13 women completed the pilot weight management intervention program.

Intervention: We adapted the Diabetes Prevention Program (DPP) with input from a team of researchers and a national community advisory board (CAB) of women with mobility limitations (ML). The DPP was modified to address the unique needs of women with ML. The program consisted of 16 weekly sessions for 2 hours with women meeting in SL using their avatars. Strategies included daily recording of physical activity and food intake, action planning with weekly review, and group discussion.

Main Outcome Measures: Weight, waist circumference, self-reported physical activity and energy intake.

Results: Thirteen participants attended at least half of the GoWoman sessions. Nine lost weight (0.5-17.7 pounds), and eight reduced their waist circumference (1-5 inches). There was a significant increase in physical activity and a significant reduction in energy intake. Feedback was highly positive for the program and for group interactions in SL.

Conclusions: The online program resulted in real life changes in both diet and physical activity with moderate weight loss in women with mobility limitations.

Background

- More than 70% of people with disabilities exceed the healthy weight range.¹
- Women with disabilities are more likely to be obese than men.²
- No weight loss programs are publically available for disabled populations despite calls for such programs.³

Study Objectives

Objective 1: Adapt a face-to-face, evidence-based weight loss program for adults into an internet-based virtual reality weight loss intervention that responds to the specific needs of women with ML.

Objective 2: Pilot test the Internet-based weight management intervention, GoWoman.

Objective 1: GoWoman Program Development

Partnering with Community Members: Community Advisory Board (CAB)

- Five women, ranging in age, race/ethnicity, region of the US, and disability type
- Held two initial focus group meetings
- Met monthly to provide input on all aspects of the program: content, materials, activities, and training programs and materials on how to use MyFitnessPal.com and navigate in Second Life
- Served as Beta-testers of the 16-week program in SL
- Met monthly after the beta test to help further revise and provide input on the program.
- Assisted with dissemination

Modifications to the Diabetes Prevention Program (DPP):

- Delivered online in Second Life so women can participate from their own homes
- Greater emphasis on psychosocial factors related to disabilities and weight management
- More disability-relevant content: relation between disability and weight gain, adapted cooking, safety precautions, disability-related stress and examples of the life situation of women with ML
- Modified physical activity recommendations and range of physical activities discussed
- Added ways to track weight loss progress for those who could not weigh themselves at home
- MyFitnessPal, an app and computer program was used for daily tracking and recording of diet and physical activity
- Removed information about diabetes
- Removed clip-art images of able-bodied people and added pictures of women with ML
- More flexibility in allowing women to set their own weight loss goal

Creation of Second Life Island:

- Free 3D online world
- Anonymous (don't need to use your real names)
- Disability features (e.g., wheelchairs, ramps)
- Educational features (e.g., PowerPoints with games, information, videos)
- Different meeting locations with PowerPoint display boards

Image of SL dining and kitchen area surrounded by PowerPoint display boards on the walls.

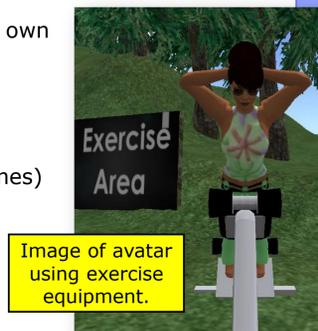


Image of avatar using exercise equipment.



Image of SL meeting space with seating and display board.

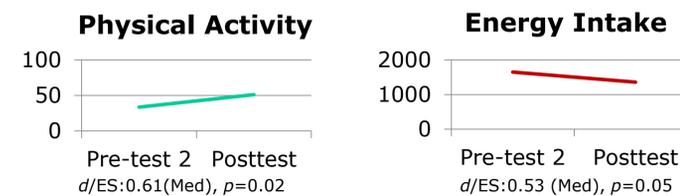
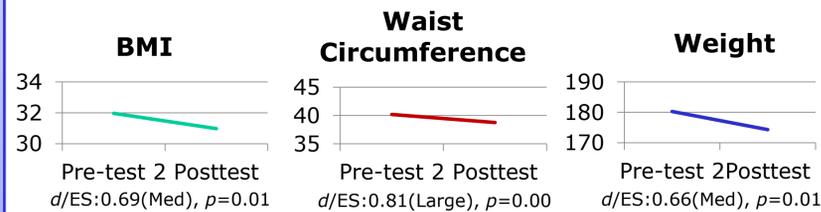
Objective 2: Pilot Test - Study Design

Interrupted time series quasi-experimental design with three assessments: Pre-test 1, Pre-test 2 (2 months later), and Post-test
Weekly session feedback using Survey Monkey
Post-intervention evaluation using Survey Monkey

Sample

Age Mean=49.62 years (8.5), range 23-59
Race/Ethnicity White/non-Hispanic, 69%; Black, 23%; Hispanic, 8%
Education HS/GED, 31%; some college, 23%; college degree, 46%
Disability Type MS (n=2); Back injury/problem (n=2); 1 each CP, SCI, Spina Bifida, Post-Polio, Osteoarthritis
Dis. Duration Mean=21.8 years (16.9), range 2.5-48

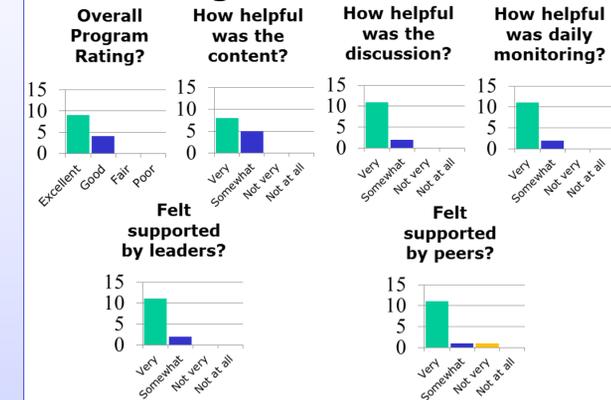
Primary Outcomes:



Secondary Outcomes

Outcome Variable	Pretest 2 Mean (SD)	Posttest Mean (SD)	d or ES	Size	p 1-tail
Nutrition Knowledge	16.46 (2.60)	16.92 (2.87)	0.14	None	0.305
Self-efficacy: Healthy Eating	37.46 (19.01)	49.08 (15.98)	0.63	Med	0.021
Self-efficacy: Physical Activity	15.38 (5.45)	19.15 (4.79)	0.54	Med	0.040
Barriers to Exercise	58.38 (15.00)	51.00 (11.92)	0.38	Small	0.101
Support for Healthy Eating: Family	7.85 (2.38)	8.31 (2.53)	0.15	None	0.298
Support for Healthy Eating: Friends	7.15 (2.12)	6.54 (1.71)	0.24	Small	0.205
Support for Physical Activity: Family	7.23 (3.09)	8.46 (3.26)	0.41	Small	0.189
Support for Physical Activity: Friends	4.92 (2.40)	6.85 (3.31)	0.47	Small	0.059

Program Evaluation



Format Preferences Ranked:

- SL and face-to-face programs ranked higher than telephone or other online programs
- SL had the most 1st choice rankings and had fewer last choice rankings than face-to-face

Open-ended question "What do you like best": 11 of the 13 women noted group interaction/support

Summary and Discussion

- Women who attended at least half of the GoWoman sessions lost an average of 3% of their body weight and 1.4 inches off their waist.
- The program was highly rated by study participants.
- SL and other online platforms may be a promising new way to offer health promotion programs to people with ML who have a great need for such accessible programming.
- **The online GoWoman program offer promise for helping women with ML improve their diet and physical activity and lose weight.**

References

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Funded by the National Institute on Disability, Independent Living, and Rehabilitation Research, ACL Award #90IF0036