

## Perceptions of Older Rural Women Using Computerized Programs for Weight

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### Abstract

**Purpose:** To explore older rural women's perceptions of an Internet assisted weight loss program.

**Sample:** The sample (n = 24) included white women (70%) and black women (30%) age 55 and older recruited from two rural senior centers in the Appalachian region of North Carolina.

**Method:** A qualitative design was used to explore rural older obese women's perceptions of an Internet assisted weight loss program using semi-structured interviews. A total of six focus

groups were held with a convenience sample (n=24) of Appalachian adult women (age 55 and older) from two community sites.

**Findings:** The 24 women gave their perspective on the use of the Internet for weight loss. Six themes emerged from the two groups were: awareness, use of the Internet, personal relationships, self-image, peer support, and obstacles.

**Conclusions:** Weight loss is a sensitive subject matter for rural obese older women. Evidence from this study suggests that rural women lack social support for weight loss. Nurses may assist women living in rural areas with weight loss through the use of the Internet weight loss social support program in which older obese women can access in the privacy of their own homes.

**Keywords:** Rural, Technology, Appalachian Region, Older Adults

### **Perceptions of Older Rural Women Using Computerized Programs for Weight**

Obesity is one of the most challenging health complications in the United States (US). More than a third (35.7%) of US adults are considered obese (Ogden, Carroll, Kit, & Flegal, 2012), defined as having excess body fat with a body mass index (BMI) of 30 or higher (Lopez-Miranda & Perez-Martinez, 2013). According to Lee, Wu, and Fried (2013) obesity is related to multiple health complications, including coronary artery disease, type II diabetes, cancer, hypertension, dyslipidemia, stroke, respiratory problems, osteoarthritis, gynecologic issues, liver, and gallbladder disease. In addition to health related complications, economic difficulties may also arise as a result of obesity, including direct medical charges for preventative, diagnostic, and treatment services as well as indirect costs related to morbidity and mortality (Hammond & Lavine, 2010). Health care associated with obesity now costs Medicare, Medicaid, and private

insurance payers \$147 billion annually. If obesity trends continue, the cost of healthcare related to obesity is estimated to increase to \$344 billion by the year 2018 (Grantham, 2013).

In the US, 40% of rural residents are considered obese (Pease, 2012). People living in rural areas often consume a high fat and high calorie diet; lack education related to nutrition information, do not exercise, have higher costs for fresh fruit and vegetables, and are physically isolated (Befort, Nazir, & Perri, 2012). Obesity rates of rural low-income women are higher than for women living in urban areas (Patterson, Moore, Probst, & Shinogle, 2004). Yet while women living in a rural area are interested in losing weight, they often do not use evidence based weight-management strategies. For example, Boeckner, Pullen, Walker, Oberdorfer, and Hageman (2007) found that 95.6% of their respondents reported having a primary care provider, but they lacked effective diet counseling and information. Ely, Befort, Banitt, Gibson, & Sullivan (2009) who explored influences on weight control for rural living women found that the top five reported themes were lack of support from primary care providers, lack of community resources, lack of dietary resources, the importance of group support, and the need for more intense intervention for weight control. Few studies have investigated how technology may assist older rural women to achieve weight loss. Therefore, this study explored older rural women's perceptions of an Internet assisted weight loss program. The study was part of a larger study of the effects of the Internet assisted weight-loss program, "Lose It," on Appalachian women, which has been reported elsewhere (O'Brien et al., 2013).

### **Methods**

The study used focus groups to explore to gain insight into women's familiarity with Internet technology, and their feelings, about being overweight, their expectations for using the

technology for behavior change. Institutional Review Board approval for the study was obtained at two southern universities.

A convenience sample was recruited over 4 weeks from two different rural senior centers in North Carolina. The principal investigator (PI) obtained informed consents and screened participants for eligibility requirements. Inclusion criteria included age 55 and older, BMI > 25, and current residence in Burke County or Yadkin County in North Carolina. Participants were excluded from the study if they were actively participated in a weight loss program, planned to move out of the area within the next 12 weeks, or were taking medications for weight loss. Participants received a \$10.00 gift card to a regional grocery store.

### **Data Collection**

Two focus groups were held with control participants in the larger study (baseline and 12 weeks), and four were held with intervention participants (baseline, and weeks 4, 8, and 12) to gain insight into the women's familiarity with Internet technology and their views of using the technology in regard to behavior change. The focus groups used an interview guide, which was reviewed by experts in qualitative research for face validity. The interviews were recorded, and memo writing was done using Krueger and Casey's (2000) guidelines. Ever Note was used to organize the transcripts for analysis. First the text from the audio recordings and field notes was assessed using line-by-line analysis (Hesse-Biber & Leavy, 2011). Next the authors engaged in "open" coding, to capture the deeper meaning of the context. Focused coding was then applied to identify patterns and relationships among the codes. Themes that emerged from the data were analyzed and assessed for areas of importance related to behavioral change and use of technology. The research team determined theoretical saturation after six focus group interviews were conducted and no information was collected (Hesse-Biber & Leavy, 2011). All of the

research team members had experience in planning and conducting focus group research, and in qualitative analysis.

## **Results**

### **Participants**

The initial sample was composed of 24 adult women (aged 55 and older) living in the Appalachian region of North Carolina. After 2 weeks, two participants dropped out of the intervention group due to family illness, leaving 12 women in the group. In the control group one person dropped out in week 8 due to a hospitalization. Thus, in total, of the 24 participants, 3 (12.5 %) dropped out and 21 participants completed the study. No significant differences were found in the demographic data of the two groups. Their mean age was  $69 \pm 8$  years; and their mean body mass index (BMI) ( $\text{kg}/\text{m}^2$ ) was  $34.2 \pm 8$ . The majority of women (66.7 %) had a high school diploma or GED. Almost half (45.8 %) had an annual household income of less than \$29,000. Most of the participants (87.5%) were white women; 12.5% were African American. Table 1 provides an overview of their demographic data (Table 1).

### **Focus Groups**

Focus groups were held at two different senior centers (site 1  $n = 14$ ) and a church (site 2,  $n = 10$ ). Six themes emerged from the analysis of the two groups. The key theme was awareness; other themes identified were: a) use of the Internet, b) personal relationships, c) self-image, d) peer support, and e) obstacles (Table 2).

Table 1

*Participants Characteristics by Group with Mean (SD) or N(%)*

	<b>Overall</b> <b>M (SD) or n (%)</b> <b>(range if applicable)</b> N = 24	<b>Intervention</b> <b>M (SD) or n (%)</b> <b>(range)</b> n = 14	<b>Control</b> <b>M (SD) or n (%)</b> <b>(range)</b> n = 10	<i>p</i> -value
<b>Age</b>	69 (8) (57–83 years)	69.4 (6.8) (57 – 79 years)	67.4 (6.8) (58–83 years)	.792 <sup>c</sup>
<b>BMI( kg/m2)</b>	34.2 (8.4) (25.3–51.4)	34.2 (7.2) (.4 – 50.5)	34.0 (9.3) (25.3–49.5)	.598 <sup>c</sup>
<b>Ethnicity</b>				
Hispanic	1 (4.2%)	1 (7.1%)	10 (100%)	1.00 <sup>a</sup>
Non-Hispanic	23 (95.8%)	13 (92.9%)		
<b>Race</b>				
African- American	3 (12.5%)	14 (100%)	3 (30%)	.059 <sup>a</sup>
White	21 (87.5%)		7 (70%)	
<b>Marital status</b>				
Married	14 (58.3 %)	9(64.3 %)	5 (50 %)	.613 <sup>b</sup>
Single	3 (12.5%)	2 (14.3%)	1 (10%)	
Widow	7 (29.2 %)	4 (21.4 %)	4 (60 %)	
<b>Education*</b>				
≤ HS Diploma	16 (66.6%)	10 (62.5%)	6 (37.5%)	.809 <sup>b</sup>
≥ HS Diploma	7 (29.1%)	4 (57.1%)	3 (42.9%)	
No report	1 (4%)			
<b>Income*</b>				
≤ \$ 29,000 or less	11(45.8%)	5 (35.6%)	6 (42.8%)	.280 <sup>b</sup>
> \$ 29,000	7 (29.2%)	5 (35.6%)	2 (14.3%)	
No report	6 (24.6 %)			

Note. <sup>a</sup>Fisher's Exact Test <sup>b</sup>Pearson Chi Square Test <sup>c</sup>Wilcoxon Signed Rank Tests  
\**p*-values were obtained for the dichotomous variables of education and income

**Awareness**

The women in the intervention group indicated that the weight loss program made them more aware of their portion sizes, food choices, and the need for physical activity each day. One woman said, “The “Lose It” program gives you more visualization of what you ate for the whole day;” another said, “The calorie counter bar in the “Lose It” Program helps me to stay focused each day.” The women noted that the “Lose It” program made them aware of their daily calorie intake. One woman said, “I think now before eating that piece of pie,” and another woman noted,

“It has helped me to be more aware of the portion sizes, before I would put food on my plate without thinking. Now I am measuring it.” The women talked about how they had changed some of their eating habits due to using the Internet program. One said, “It made me cut down on my coffee drinking,” and another said, “I used to eat a lot of potatoes and now I look at them and say, no they are too bad for me.” A third woman said, “The ‘Lose It’ program has made me more conscious and it encourages me to eat better.”

Table 2

*Semi-structured Interview Comments*

<b>Themes</b>	<b>Exemplar Quotes</b>
Awareness	<p>“The “Lose It” program gives you more visualization of what you ate for the whole day”</p> <p>“The calorie counter bar in the “Lose It” Program helps me to stay focused each day”</p> <p>“It has helped me to be more aware of the portion sizes, before I would put food on my plate without thinking. Now I am measuring it.”</p>
Usage of Internet	<p>“I use Facebook to keep up with what is going on in the church and my relatives.”</p> <p>“Facebook to look at pictures of my niece and stuff, but I do not post anything”</p>
Personal relationships	<p>“My family.... When I am overweight, they are down on me 24/7.</p> <p>“I had my plate and I was really trying to watch what was on my plate and I thought I had done really good job.... Another woman said, you need sidebars for that plate”</p>
Self-image	<p>“I can’t get in any clothes, my clothes are all tight. I feel like a dump.”</p>
Peer support	<p>“I have very little support from anyone, I just have Lose It”</p>
Obstacles	<p>“The only negative thing is that we cook a lot at home, so I have to create the food items in the program. Also, a lot of the grocery stores and restaurants in the “Lose it” Program we do not have in this area”</p>

The women said that the “Lose It” program also made them more aware of the need to do physical activity each day. One woman commented, “I eat all my food, but I watch the calorie counter bar in the “Lose It” program and realize that I have to do exercise or work in the yard to keep the calorie counter bar down.” Another said, “If I do not do my exercises, the program makes me feel guilty.” The women noted that the “Lose It” program encouraged them to be physically active by logging their food intake and subtracting their energy expenditure through physical activity. One woman said, “The program encourages me to do physical activity each day.” Many women said that the Internet program kept them motivated to lose weight. One woman said, “It helps motivate me to lose weight” and one said, “The ‘Lose It’ program is something to look at and refer back to. It keeps me motivated.”

### **Use of the Internet**

Many of the women in the intervention group indicated that they had high-speed Internet coverage in their home and they used the Internet for checking and sending emails. Another use of the Internet they reported was looking at Facebook. One woman said, “I use Facebook to keep up with what is going on in the church and my relatives.” Many of the women indicated that they used the Internet to look up information for genealogy and gardening information. Only one woman indicated that she used the Internet to look up health information. This woman said, “I go to a health website to look at information about my diet.” The women in the control group also had high-speed Internet coverage in their home. However, they reported that they used the Internet not for checking and sending emails, but for looking at Facebook. One woman said, “I go on Facebook to look at pictures of my niece and stuff, but I do not post anything.” Another said, “I look at my family on Facebook.” Still another woman commented that she used Facebook to keep updated about her family: “I read what my family is talking about on

Facebook.” The women said that they believed the Internet could be helpful for them to lose weight because they could look up information about diet and exercise. One woman said, “You can look things up in the privacy of your own home.”

### **Personal Relationships**

The women spoke about how their weight affected their personal relationships with friends and family. One woman said, “My family.... When I am overweight, they are down on me 24/7. I have lost some weight; I have gone from taking 24 medications to now I am taking 11 medications.” Another said, “It doesn’t matter anymore. Take me for what I am.” Yet another woman said, “It doesn’t impact my relationships with others, I am not dating so it doesn’t bother me.” Still another said, “A family member said to me, boy you have gained a lot of weight since I seen you last!” One woman noted that it was a blessing to have diabetes because her family would not pressure her to eat. She said, “Being a diabetic in a way has been a blessing, because my family leaves me alone when I say I cannot eat that because I am a diabetic.”

The women also spoke about how people judged them based on their weight status. One woman said, “People judge you on your appearance before they even know what you are like on the inside.” Another said, “When you get to be big, you cannot be fashionable, I think a lot of people prejudice you, you can tell by their eyes and the way they act.” Yet, another woman spoke about how people judged her intelligence based on her weight. She said, “They think you are not smart enough because you are big.” In the control group the women talked in depth about how being overweight influenced their personal relationships with people in the community and their family. One woman said, “I have a story....I had my plate and I was really trying to watch what was on my plate and I thought I had done a really good job...And then a woman said, ‘You need sidebars for that plate.’ I said, ‘Hmmm, I believe both of us could use sidebars on our plates.’”

Another woman spoke about her husband: “I used to get after my husband for gaining weight, now he gets after me for being bigger. He says “honey you have a behind.” Yet another woman spoke about how obesity had affected her son: “If it is my family, it has to be their decisions. My son was 400 pounds and the doctor told him that he had to lose weight if he wanted to see his daughter graduate. He has lost a lot of weight and I am very proud of him, before I could not even get my arms around his neck to give him a hug. He is in his 50’s.” Another woman spoke about her daughter. She said, “My daughter is always on me, she will say, Mom why did you eat that... you are going to have a heart attack.”

### **Self-Image**

Many of the women mentioned that being overweight negatively influenced their self-image. One woman said, “I can’t get in any clothes, my clothes are all tight. I feel like a dump.” Another woman said, “If I do not look at myself in the mirror then I do not have to acknowledge the fact that I am overweight,” and another said, “I do not like to look at myself in the mirror. I know that I would feel better if I lost weight.” Another woman said, “I cannot fit into my clothes, I do not want to look at myself.” The women said that losing weight would help them feel better and have a more positive outlook. One woman said, “When I lose weight, I feel better,” and another noted, “You feel more positive.”

### **Peer Support**

The women defined peer support as people getting together and supporting each other. One woman said, “Peer support is when people encourage you,” and another said “Peer support is when people come together and support you.” The participants said that they received very little peer support for weight loss, indeed, and the only support the intervention group had for weight loss was through the “Lose It” program. One woman said, “I have very little support from

anyone,” and another said, “I just have ‘Lose It.’” The women spoke about how the “Lose It” discussion forum motivated them. One woman said, “It encourages me to write in my food and exercise, because I can see that the others have entered their information for the day.” Another woman noted, “It tells me when people have logged in or lost weight, I think...Oh she is ahead of me.” However, after 12 weeks of using the “Lose It” program, all of the women in the intervention group reported that they still preferred peer support face-to-face. One woman said, “It is more informative when we talk as a group; I do not have the time to get on the Internet to talk.”

### **Obstacles to Using the Internet Program**

The women mentioned a few obstacles to using the “Lose It” Internet program, most had to do with not being able to find all of their food selections. One woman said, “The only negative thing is that we cook a lot at home, so I have to create the food items in the program. Also, a lot of the grocery stores and restaurants in the ‘Lose it’ Program we do not have in this area.” Another person said, “I think it is geared toward people who eat out a lot and live in a city.” Still another woman commented about restaurant selections, “We went to Olive Garden last night and I had a chicken dinner, but I could not find it in the “Lose It” program. I had to call Olive Garden to find out how many calories were in my dish.” Another commented, “If you do not have a nutrition label, then you do not know and you have to guess.” The women felt that if more food and restaurant choices were listed, the “Lose It” program could be improved for older adults.

### **Discussion**

Women in both groups, those assigned to the “Lose It” program (intervention group) and the daily wellness tips group (control group) lost weight over the 12-week period (Table 3). However, during the focus group interview the control group did not credit the daily wellness

tips provided by an Internet program to help them to achieve weight loss. Two common themes found in both groups were “Personal Relationships” and “Use of the Internet.” These women believed they were often judged in a negative manner due to their weight. Similarly, Baturka, Hornsby, and Schorling (2000) found that rural African-American women often felt they were not accepted by family members and members of the community due to their weight status, and they reported a lack of social support. Another study found that older overweight women were often stereotyped to be lazy (Zaretsky, 2013).

Table 3

*Outcome Variables*

<b>Outcome Variable</b>	<b>Time</b>	<b>Intervention M (SD) n = 14</b>	<b>Control M (SD) n = 10</b>	<b>p-Value</b>
Weight (lbs)	Baseline	195.9(45.7)	202.9 (65.6)	.815 <sup>a</sup>
	4 weeks	*191.1 (46.8)	200.1 (66.5)	.947 <sup>a</sup>
	8 weeks	*189.9 (47.4)	*198.7 (69.4)	.776 <sup>a</sup>
	12 weeks	*188.7 (47.2)	*196.1 (69.1)	.722 <sup>a</sup>
BMI (kg/m <sup>2</sup> )	Baseline	34.2± 8.0	34.2 ± 8.1	.598 <sup>a</sup>
	4 weeks	*32.6 ± 7.2	33.7 ± 9.4	.869 <sup>a</sup>
	8 weeks	*32.6 ± 7.9	*32.8 ± 9.7	.594 <sup>a</sup>
	12 weeks	*32.1 ± 7.1	*32.6 ± 9.7	.546 <sup>a</sup>

Note. <sup>a</sup> Mann-Whitney U Test, \*Intervention group data analyzed for 12 participants, \*Control group data analyzed for 9 participants, \* BL = Baseline

The Internet was used most often for looking at personal information, but not for exploring health information. In a study conducted by Choi (2011) found that older adults were the most frequent users of the US health care system, yet they were the least likely to use health information technology for the self- management of chronic disease. Although the women in this study believed, the Internet provided them privacy in their own home to explore health information about diet and exercise. The Internet was used in both groups to access Facebook in order to stay connected to their families. This is a similar finding to how young adults use

Internet to maintain social connections among peers through the use of Facebook and email. According to Brenner and Smith, (2013) 67 % of young adults use Facebook to stay connected with family and friends.

The intervention group reported a greater visual awareness of the need to eat low calorie food items and participate in daily physical activity. They reported that the social support group provided through the “Lose-It” program made them aware of others’ success and their own personal goals for weight loss. Interestingly, after 12 weeks, all but one of the women in the intervention group said that they planned to continue with the program. In fact, they planned to set monthly meetings and talk about their weight loss. Similarly, a recent study using mobile phone application (app) to provide social support to a group of obese women found that after 8 weeks the women who received the support app reported a greater increase in positive emotion for behavior change (Brindal et al., 2013). Twitter has also shown to be a source of social support of weight loss. Turner-McGrievy et al. (2013) recently found that when 96 participants were randomized to a weight loss program, the group who posted to Twitter and received feedback from fellow participants had significantly lower BMI at 6 months ( $31.5 \pm 0.5$ ) than non-users ( $32.5 \pm 0.5$ ) ( $p = 0.02$ ), and they lost more weight than the group which did not post to Twitter.

We were only able to collect focus group interviews in two rural settings of North Carolina. Therefore, our study may have limited generalizability to other populations of older adults living in other settings in the US. Despite this limitation, saturation of themes was achieved indicated the need for future studies to explore Internet use promote weight loss among older women living in other rural settings of the US.

## **Implications for Nursing**

This study highlights the need for nurses to have an understanding of how the Internet may influence older obese rural women in the weight loss process. First, nurses need to have the understanding that weight loss is a sensitive subject matter for older obese women. Often these women have experienced false judgments made about them based on their weight status. The stigma of weight affects women often negatively and increases their stress and anxiety levels.

Second, obese rural women often lack social support for weight loss. However, the Internet may be one resource they can use privately in the own home to connect to other women who may have similar issues with weight loss. Currently, older adults are the fastest growing population to use the Internet for self-management of care.

Nurses in the twenty-first century need to promote self-management of care by educating older rural women how to navigate the Internet so they can utilize Internet support programs to self-manage their health to prevent chronic disease. Nurses need to be proactive to advocate for policies protocol development for how health care providers offer client support for the use of Internet self-management programs. Lastly, programs for communication training will need to be implemented between the, primary care provider, health care provider, and the client for self-management Internet program to maintain health and prevent chronic disease in older rural women.

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