Quality of Life of Enrollees and Non-enrollees in Formal Weight-Loss Programs

Donald L. Patrick,[1] Donald M. Bushnell,[2] Laura A. Glauda,[3] Dennis D. Gagnon,[3] Margaret Rothman[3] – [1]Department of Health Services, University of Washington, Seattle, Washington; [2]Health Research Associates, Seattle, Washington; [3]The R. W. Johnson Pharmaceutical Research Institute, Raritan, New Jersey

ABSTRACT

Objectives. To compare the quality of life (QOL) of persons enrolled and not enrolled in formal weight-loss programs over 12 weeks and to examine important QOL correlates of weight change, including demographic characteristics, bothersomeness of weight-related symptoms, and depressive symptomatology.

Methods. Two groups of overweight persons were compared at baseline: 1) 160 enrollees in diet, exercise, and health programs for losing weight, and 2) 180 non-enrollees recruited from the general public. Subjects had a body mass index of 27 through 50 and were between the ages of 18-75. Respondents completed the Weight-Related Symptom Measure (WRSM), Obesity and Weight-Loss QOL Instrument (OWLQOL), Centers for Epidemiological Studies-Depression Scale (CES-D), Perceived Quality of Life (PQOL) Scale, and demographics.

Results. QOL improvements at the end of 12 weeks were observed for 137 enrollees and 154 non-enrollees, but greater improvements were reported by enrollees in the OWLQOL and PQOL (Table). Sixty-six percent of enrollees lost weight (mean, 2.9±2.6 kg), and 60% of non-enrollees lost weight (mean, 2.4±2.1 kg).

Conclusions. Being enrolled in a formal weight-loss program, higher weight loss, symptoms at baseline, and losing weight were associated with improvements in obesity-specific QOL.

Table. Observed changes at end of 12 weeks

Study Group	WRSM Change (SD)	OWLQOL Change (SD)	PQOL Change (SD)	CES-D Change (SD)
New enrollees (N=137)	-8.4 (14.0)	10.7 (12.3)	0.4 (0.9)	-2.2 (7.4)
Non-enrollees (N=154)	-5.9 (14.0)	4.6 (12.4)	0.0 (1.1)	-1.3 (8.2)
F stat (Sig.)	2.3 (ns)	17.4 (0.001)	9.2 (0.01)	0.8 (ns)

INTRODUCTION

- Obesity is associated with many serious conditions, including type 2 diabetes mellitus, hypertension, and coronary heart disease. Excess weight also increases the risk of death.[1]
- In addition to its adverse effects on disease outcomes, weight gain also impairs physical functioning, reduces quality of life (QOL), and is associated with poor mental health.[1]
- It has long been believed that food restriction leads to psychological disturbances, including depression, preoccupation with food, and binge eating. However, recent studies suggest that comprehensive weight-loss programs that incorporate behavioral treatment, diet change, and encouragement of physical activity can improve psychological state, including mood.[2]
- Future studies would be enhanced by assessing a variety of approaches to weight loss by using both general and obesity-specific measures of QOL and conducting follow-up studies to assess the effects of weight regain on QOL.[3]
- The overall aim of this study was to compare the QOL of persons enrolled and not enrolled in formal weight-loss programs over 12 weeks and to examine important QOL correlates of weight change, including demographic characteristics, bothersomeness of weight-related symptoms, and depressive symptomatology.

MATERIAL AND METHODS

Subject Inclusion Criteria

- Informed consent
- 18-65 years of age
- Body mass index (BMI) of 30-40 kg/m² or a BMI of 27-29.9 kg/m² with a diagnosis of hypertension, hypercholesterolemia, and/ or type 2 diabetes
- Weight stable for ≥3 months prior to enrollment (varying no more than 4 kg)

Study Procedures

- Baseline visit:
  - Informed consent
  - Baseline assessments
  - Measurement of height and weight, blood pressure, waist and hip measurement
- 6- and 12-week visits:
  - Reassessment
  - Measurement of height and weight, blood pressure, waist and hip measurement

Weight Loss Programs

- *Live for Life* (three sites): An integrated non-pharmacological approach to diet, exercise, and cognitive behavior that includes a healthy eating plan and counseling sessions to educate, set goals, and maintain motivation.[4]
- *Weight Watchers* (three sites): Meeting-based program that also includes materials for use at home, and recipes.[5]
- *Lighten-Up* (one site): Meeting-based or at-home weight-loss program with extensive psychological education regarding weight control.[6]

Measures*

- *Obesity and Weight-Loss Quality of Life (OWLQOL):* Population-specific measure that addresses the QOL impacts of obesity and of trying to lose weight. It has 33 items with a 7-point response scale that ranges from 0 "not at all" to 6 "a very great deal." The OWLQOL has a single summative score and four domain subscale scores transformed to a 0-100 scale, with higher scores indicating better obesity-specific QOL.
- *The Weight-Related Symptom Measure (WRSM):* Newly developed 20-item, patient-based measure for symptom presence and distress. Patients respond either "yes" or "no" to whether they have experienced the symptom in the past 4 weeks and then indicate the degree of bothersomeness that having the symptom has caused them on a 0-6 response scale, with higher numbers indicating greater bothersomeness.
- *Center for Epidemiologic Studies – Depression (CES-D):* 20-item scale designed to screen for major depression in community populations and provide a measure of depressive symptomatology.[7] Higher scores indicate greater depressive symptomatology.
- *Perceived Quality of Life (PQOL):* 19-item, self-report measure that assesses satisfaction with the major categories of fundamental life needs.[8,9] Higher scores indicate better QOL.

RESULTS

Subjects Enrolled

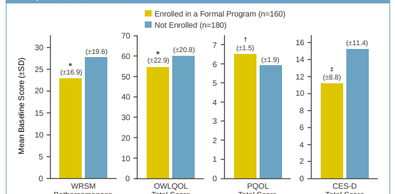
- Baseline demographic characteristics, and WRSM, OWLQOL, and PQOL scores for subjects enrolled are summarized in Table 1.

Table 1. Summary of subject characteristics (n=340)

Characteristic	N (%)	WRSM	OWLQOL	PQOL
Age [mean (SD): 45.4 (11.6)]				
18-44	157 (46.2)¶	23.3 (17.8)*	58.1 (21.6)	6.2 (1.7)
45 +	183 (53.8)	27.5 (18.9)	56.9 (22.2)	6.3 (1.8)
Gender				
Male	136 (40.0)	20.3 (15.7)‡	68.4 (19.9)‡	6.6 (1.8)†
Female	204 (60.0)	29.0 (19.4)	50.2 (20.2)	6.0 (1.7)
Ethnicity				
Caucasian	265 (77.9)	24.8 (18.0)	56.5 (22.0)	6.2 (1.7)
Other	75 (22.1)	28.2 (20.1)	60.8 (21.4)	6.3 (1.9)
Marital Status				
Married	171 (50.3)	24.2 (18.0)	59.3 (22.4)	6.5 (1.7)
Widowed/Separated/ Divorced	100 (29.4)	29.2 (19.3)	52.2 (21.9)	5.8 (1.7)
Never married	69 (20.3)	23.6 (18.0)	60.5 (19.5)‡	6.1 (1.8)†
Income (total annual household)				
Under $25,000	89 (26.2)	31.1 (20.3)†	56.0 (22.8)	5.5 (2.0)‡
$25,000 - 49,999	109 (32.0)	25.0 (18.0)	58.3 (21.4)	6.4 (1.6)
$50,000 +	140 (41.2)	22.2 (16.8)	57.9 (21.7)	6.6 (1.5)
[Missing]	[2 (0.6)]			
Education				
High School Graduate or less	75 (22.1)	25.5 (19.3)	58.3 (23.3)	6.2 (1.7)
Some College or greater	265 (77.9)	25.6 (18.3)	57.2 (21.6)	6.2 (1.8)

Higher WRSM scores indicate higher symptomatology (worse)
Higher OWLQOL scores indicate higher levels of condition-specific quality of life
Higher PQOL scores indicate higher levels of general quality of life
*p<0.05, †p<0.01, ‡p<0.001 significance tests for within category difference
¶Mean and standard deviation (SD)

Figure 1. Association of enrollment in a weight-loss program with WRSM, OWLQOL, PQOL, and CES-D

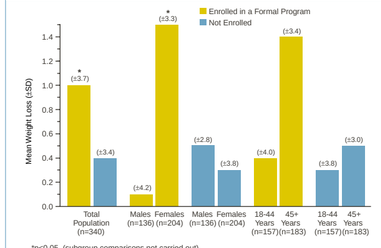


*p<0.05, †p<0.01, ‡p<0.001

Note: Higher OWLQOL and PQOL scores indicate higher levels of condition-specific and general QOL. Higher WRSM and CES-D scores indicate higher obesity-specific and depressive symptomatology (worse).

- Enrollment in a weight-loss program was associated with (Figure 1):
  - lower obesity-specific and depressive symptomatology (lower WRSM and CES-D scores, respectively)
  - lower condition-specific, but higher general QOL (lower OWLQOL and higher PQOL scores, respectively)
- There was significantly greater weight loss in enrolled females compared to enrolled males and enrolled 45+ compared to those 18-44. No differences were observed for gender and age for non-enrollees (Figure 2).

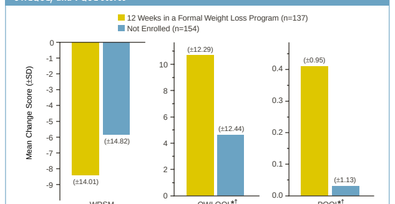
Figure 2. Association of being in a formal weight-loss program with reduction in body weight



*p<0.05 (subgroup comparisons not carried out)

- 12 weeks of treatment in a formal weight-loss program:
  - resulted in lower WRSM scores (not significant) (Figure 3)
  - significantly increased OWLQOL scores and PQOL scores (Figure 3)

Figure 3. Effects of 12 weeks of treatment in a formal weight-loss program on WRSM, OWLQOL, and PQOL scores



*p<0.01, †p<0.001

- Enrollment in a weight-loss program, weight loss, and high baseline obesity symptom bothersomeness significantly improved OWLQOL scores at the end of 12 weeks (Table 2).

Table 2. Odds ratios from logistic regression model predicting increases in QOL measured by the OWLQOL change at 12 weeks

	Any Improvement	Improvement of at least 8.3 points
Enrolled in a weight-loss program	2.0 (1.1 – 3.7)*	1.9 (1.1 – 3.1)*
Female	1.5 (0.8 – 2.8)	1.6 (0.9 – 2.8)
Age ≥45	1.0 (0.5 – 1.8)	0.7 (0.4 – 1.2)
Weight loss	2.4 (1.3 – 4.3)†	2.1 (1.3 – 3.5)†
Depressive symptomatology (baseline CES-D above median)	0.9 (0.4 – 2.1)	0.7 (0.4 – 1.5)
Obesity symptom bothersomeness (baseline WRSM above median)	0.5 (0.2 – 0.9)*	1.8 (1.0 – 3.2)*
Lower levels of general QOL (baseline PQOL below median)	0.6 (0.3 – 1.3)	0.9 (0.5 – 1.7)

*p<0.05, †p<0.01

CONCLUSIONS

- Enrollment in a formal weight-loss program was associated with lower obesity-specific and higher general QOL at baseline.
- Enrollment, weight loss, and higher weight symptom bothersomeness were associated with improvements in obesity-specific QOL at 12 weeks.
- Completion of WRSM took an average of 2 minutes and OWLQOL took approximately 5 minutes.

REFERENCES

1. Kawachi I. Physical and psychological consequences of weight gain. *J Clin Psychiatry.* 1999;60(Suppl 21):5-9.
2. Miller-Kovach K, Hermann M, Winick M. The psychological ramifications of weight management. *J Womens Health Gender Based Med.* 1999;8:477-482.
3. Fontaine KR, Barofsky I, Andersen RE, et al. Impact of weight loss on health-related quality of life. *Qual Life Res.* 1999;8:275-277.
4. Bly JL, Jones RC, Richardson JE. Impact of worksite health promotion on health care costs and utilization. Evaluation of Johnson & Johnson's Live for Life program. *JAMA.* 1986;256:3235-3240.
5. Weight Watchers International, 2001. Available at: http://www.weightwatchers.com.
6. The Lighten Up! Weight Watchers Program. Available at: http://www.lighten-up.com.
7. Lyness JM, Noel TK, Cox C, King DA, Conwell Y, Caine ED. Screening for depression in elderly primary care patients. A comparison of the Center for Epidemiologic Studies-Depression Scale and the Geriatric Depression Scale. *Arch Intern Med.* 1997;157:449-454.
8. Patrick DL, Danis ML, Southerland LI, Hong G. Quality of life following intensive care. *J Gen Intern Med.* 1988;3:218-223.
9. Patrick DL, Kinne S, Engelberg RA, Pearlman RA. Functional status and perceived quality of life in adults with and without chronic conditions. *J Clin Epidemiol.* 2000;53:779-785.