#1074 Weight Trajectories in the Breast Cancer Weight Loss (BWEL) Trial (Alliance)

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BACKGROUND

- Obesity is associated with higher risk of recurrence, mortality, comorbidities, treatment-related adverse effects, and poor quality of life in patients with breast cancer.
- Wireless scales serve as motivational tools in weight-loss interventions and allow for evaluation of real-world weight trajectories.
- BWEL is a phase 3, randomized trial testing impact of a supervised weight loss intervention (WLI) on invasive disease-free survival in women with breast cancer and a BMI ≥27 kg/m^2.

OBJECTIVE

- To examine the 2-year trajectories and predictors of weight change in BWEL participants

METHODS

Participants:

- 3180 women with stage II-III breast cancer and a BMI ≥27 kg/m^2.

Intervention:

- WLI participants were provided 42 coaching calls over the 2-yr period, focusing on caloric restriction and exercise.
- All WLI participants given a Fitbit wireless scale.

Data collection:

- Fitbit weight records (FWRs) automatically imported to BWEL portal for pts with wireless access and self-reported in the portal for pts without wireless access.
- FWRs averaged by week from WLI start date up to 104 weeks.

Analysis:

- Linear mixed-effect models used to evaluate trajectories of weight change over the study period.
- Principal component analysis (PCA) and multinomial models used to examine distinct clusters of weight trajectories.

RESULTS

Baseline Characteristics

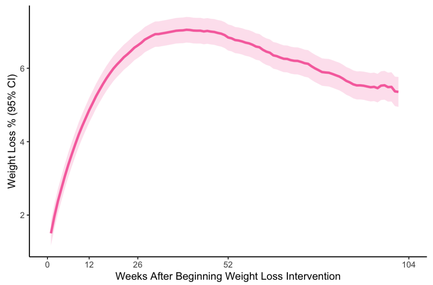
- A total of **366,294 Fitbit weight records** collected during the 2-yr WLI period.
- **No statistically significant differences** in baseline factors observed between pts with and without Fitbit weight records.

Table 1. Baseline Characteristics in the BWEL WLI Pts

Characteristics	Fitbit Weight Data	
	Available	Not Available
N	1508	83
Age (years), median (IQR)	54 (46-62)	53 (46-65)
BMI (kg/m2), median (IQR)	33.2 (30.0-37.6)	33.8 (31.0-37.6)
Race/Ethnicity, n (%)		
Non-Hispanic White	1167 (77.4%)	49 (59%)
Non-Hispanic Black	180 (11.9%)	21 (25.3%)
Hispanic	102 (6.8%)	11 (13.3%)
Other	59 (3.9%)	2 (2.4%)
Education, n (%)		
<College Graduate	602 (39.9%)	52 (62.7%)
College Graduate	483 (32.0%)	18 (21.7%)
Post-Graduate	423 (28.1%)	13 (15.7%)
Menopausal status, n (%)		
Premenopausal	650 (43.1%)	30 (36.1%)
Postmenopausal	858 (56.9%)	53 (63.9%)
Chemotherapy, n (%)		
Yes	1223 (81.1%)	65 (78.3%)
Endocrine Therapy, n (%)		
Yes	1134 (75.2%)	55 (66.3%)
Radiation, n (%)		
Yes	1346 (89.3%)	73 (88.0%)
Surgery type, n (%)		
Partial mastectomy	822 (54.5%)	43 (51.8%)
Mastectomy	667 (44.2%)	38 (45.8%)
Alcohol Use, n (%)		
Yes	767 (50.9%)	36 (43.4%)
Physical Activity, n (%)		
Any	939 (62.3%)	52 (62.7%)
No. of Chronic Conditions*		
0	457 (30.3%)	25 (30.1%)
1	454 (30.1%)	17 (20.5%)
2	330 (21.9%)	23 (27.7%)
≥3	267 (17.7%)	18 (21.7%)

*including high cholesterol, high blood pressure, heart disease, stroke, diabetes, osteoporosis, thyroid problem and depression

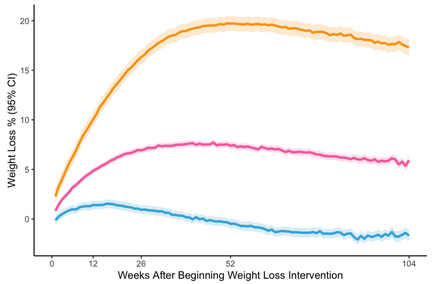
Figure 1. Weight Loss Trajectories



Weight Loss Trajectories in BWEL WLI Pts

- Intraclass correlation coefficient between weights measured by study staff and by Fitbit scales was **0.994**, indicating **excellent agreement**.
- In the WLI cohort, participants achieved a peak weight loss of 6.1% (95% CI: 5.7-6.4) at week 40, which stabilized through week 52 and decreased slightly to a 4.4% (95% CI: 4.0-4.8) loss at week 104 of baseline weight.

Figure 2. Clusters of Weight Loss



PCA Analysis of Weight Loss Trajectories

- **67.6%** of patients achieved a peak weight loss of 6.6% (95% CI: 6.3–6.9), **10.0%** achieved a peak loss of 17.5% (95% CI: 16.8–18.2) of baseline weight, and **22.4%** did not achieve weight loss.
- Pts with **premenopausal status** and **higher education** were more likely to belong to the cluster that did not lose weight.
- Pts who were **NH White**, **abstained from alcohol**, **postmenopausal**, had **not received chemo,** and had **<3 chronic conditions** were more likely to be in the cluster with the highest weight loss.

CONCLUSION & FUTURE DIRECTIONS

- Longitudinal weight data from BWEL demonstrated peak weight loss of 6.1% at around 40 weeks, with **distinct trajectories indicating differential responses to the WLI.**
- Future work will evaluate the association between distinct weight loss trajectories and cancer and patient-reported outcomes.

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