

Introduction

- Obesity is a multifactorial health condition, associated with a complex interplay of various factors – physiological, psychosocial, genetic, and environmental factors.¹⁻²
- Effective weight management may thus require a multidimensional approach that combines health education with appropriate pharmacological treatment.²
- Several studies have demonstrated the impact of lifestyle interventions and pharmacological treatments on weight loss³⁻⁵, however psychosocial and behavioral factors associated with obesity are underexplored in weight management programs.
- At Desert Oasis Healthcare (DOHC), an affiliate of Heritage Provider Network, a multidisciplinary team comprising dietitians, health coaches, and clinical pharmacists, collaborates to support comprehensive weight management.⁶

Objective

- This study examined the relationship between patient engagement, weight change, and program satisfaction in a pharmacist-led weight management clinic.

Methods

Study Design: This IRB-approved study employed a combined retrospective and prospective design:

- Retrospective:** Deidentified patient data from AY 2015 to 2024 were examined to assess participant characteristics and weight change.
- Prospective:** A 24-item survey was designed and administered to assess patient engagement and program satisfaction.
- Inclusion Criteria:** DOHC patients aged ≥18 years who were enrolled in the pharmacist-run weight management clinic for ≥3 months.
- Exclusion Criteria:** Patients with clinic duration <3 months, inconsistent enrollment, or missing weight data.

Data Collection Tool:

A 24-item two-domain survey on a 4-point agreement scale:

- Patient engagement (12 items):** belief, information seeking, trust, accountability, self-efficacy, and dispositional optimism
- Program satisfaction (11 items):** quality of care, interpersonal relationship, and overall satisfaction
- An open-ended question asking for additional comments
- Face and content validation was conducted with four experts and five patients to ensure survey accuracy and clarity.
- Surveys were administered to eligible participants via telephone outreach from October to November 2024.

Data Analysis:

- Mean patient engagement and satisfaction scores were calculated.
- T-test (continuous variables), chi-square (categorical variables) compared key characteristics between groups. Content analysis was conducted for the open-ended question.
- Psychometric assessments (Cronbach's alpha and factor analysis) were performed on the survey data.
- Correlation analyses examined relationships among patient engagement, weight-related variables, and program satisfaction.
- Path analysis was employed to examine the relationship between patient engagement, weight change, and satisfaction.
- Analyses were conducted using SPSS or R Statistical Software, with a significance level set at 95%.

Results

Table 1. Baseline Characteristics Between Survey Completers and Non-Completers

Characteristics	Survey Completers (n=166)	Non-completers (n=567)	p-value
Age (years), mean ± SD	56.7 ± 14.4	53.5 ± 14.0	.013*
Gender , n (%)			.588
Female	109 (65.7%)	385 (67.9%)	
Male	57 (34.3%)	182 (32.1%)	
Race/Ethnicity			.011*
White	97 (58.4%)	297 (52.4%)	
African American	12 (7.2%)	20 (3.5%)	
Hispanic	3 (1.8%)	6 (1.1%)	
Asian	6 (3.6%)	53 (9.3%)	
Other	4 (2.4%)	5 (0.9%)	
Unknown/Unreported	44 (26.5%)	186 (32.8%)	
Condition Count	6.4 ± 4.5	5.3 ± 3.7	<.001*
Clinic Duration (days)	289 ± 142	232 ± 122	<.001*
Insurance Type			<.001*
Commercial	74 (44.6%)	321 (56.6%)	
Medicare (Covered California)	86 (51.8%)	231 (40.7%)	
Medicaid (Medi-Cal)	6 (3.6%)	15 (2.6%)	
Medication Class			<.01*
No Medications	14 (8.4%)	109 (19.2%)	
Glucagon-Like Peptide-1 Receptor Agonist (GLP-1 RA)	115 (69.3%)	326 (57.5%)	
Tirzepatide (Zepbound®)	33 (19.9%)	107 (18.9%)	
Naltrexone-Bupropion	4 (2.4%)	25 (4.4%)	
Baseline Weight (lbs)	243.41 ± 52.45	237.97 ± 52.38	0.240

Key differences in groups: Among 733 eligible participants, survey completer group had significantly higher percentage of individuals who were older, White, with more chronic conditions, longer clinic duration, and use of GLP-1 RA compared to non-completers.

Table 2. Correlation Matrix of Patient Engagement, Satisfaction, and Weight-related Variables

Variables	Pearson Correlation Coefficient (r)	
	Engagement	Satisfaction
Weight Loss	0.276*	0.235*
Clinic Duration	0.127	0.182*
Medication Duration	0.170*	0.239*
Dispositional Optimism	0.780*	0.604*

* indicates p< .05.

Key Findings: Engagement and satisfaction were positively correlated with weight loss, duration of obesity medication use, and dispositional optimism.

Figure 1. Thematic Overview of Patient Feedback

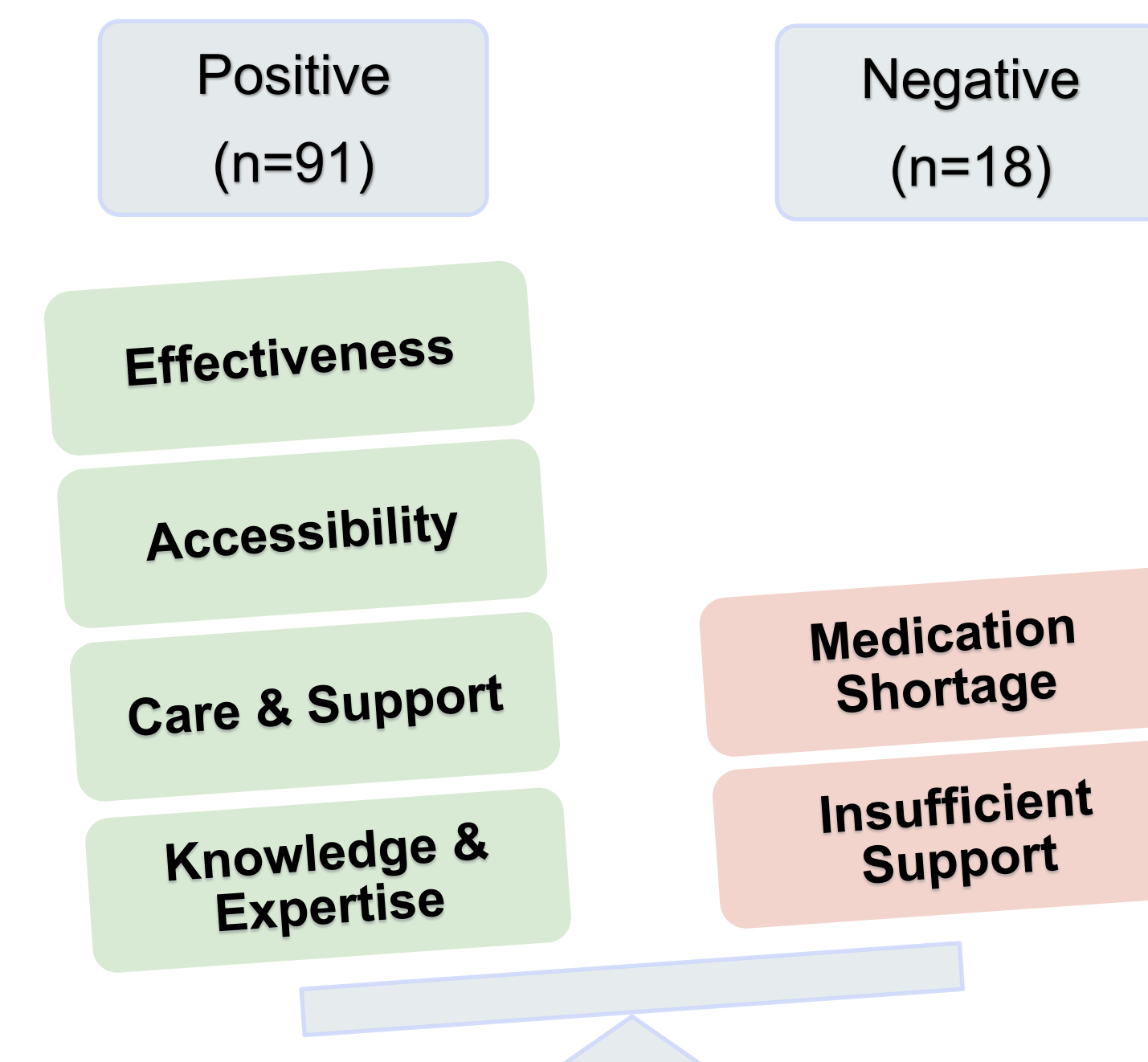
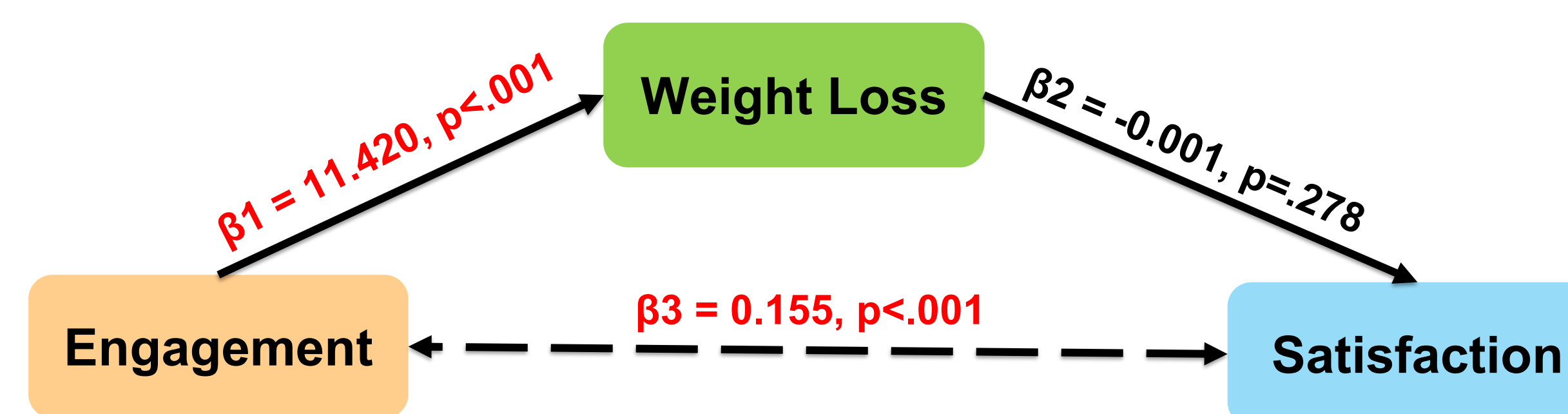


Figure 2. Conceptual Framework Between Patient Engagement, Weight Loss, and Satisfaction



Key Findings: After controlling for relevant covariates, path analysis revealed that

- Although the overall model fit was poor (SRMR = 0.184), the associations remained significant.
- Each 1-point increase in patient engagement was significantly associated with a 11-pound greater weight loss ($\beta_1 = 11.4$, $p < .001$), but weight loss was not significantly linked with program satisfaction.
- Patient engagement was positively correlated with program satisfaction ($\beta_3 = 0.155$, $p < .001$).

Discussion

- Higher patient engagement is positively associated with weight loss and program satisfaction. Patient engagement may be helped by the comprehensive approach used at DOHC, where pharmacists play a key role in:
 - 1) Enhancing patient education on lifestyle interventions
 - 2) Improving medication accessibility and affordability
 - 3) Optimizing therapy through medication counseling, dose titration, and side effect management
 - 4) Providing more frequent and structured follow-up compared to typical primary care visits
- Medication shortage was the most commonly mentioned factor in relation to lower patient satisfaction with the program. This sentiment seemed to persist despite the accompanying note that the pharmacist helped in addressing/mitigating shortages (by recommending alternative therapies and advising patients to delay initiation).
- Future Studies**
 - Expand the sample size to include participants across diverse practice settings.
 - Conduct cost-effectiveness analyses to evaluate the economic impact of pharmacist involvement on weight management.

Limitations

- Lack of generalizability: The limited sample size and data from a single managed care setting restrict the broader applicability of the findings.
- Self-selection bias may have occurred, as voluntary participation could result in a non-representative sample.
- Self-reported data on engagement and satisfaction may introduce social desirability and acquiescence biases, leading to inaccuracies.

Conclusions

- Patients with higher engagement level are likely to experience greater weight loss and program satisfaction.
- Weight management programs could potentially enhance outcomes by focusing on provider interactions that improve patient engagement, in addition to incorporating lifestyle modifications and medication use.

Acknowledgments

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