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Prescription Refill Timing as a Predictor of Long-Term Weight Loss Outcomes in Real-World Obesity Pharmacotherapy

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1 Background

Sustained adherence is critical to achieving long-term outcomes in obesity pharmacotherapy, yet scalable and objective markers of adherence in real-world practice remain limited.

Prescription refill timing may provide a pragmatic proxy for treatment continuity and long-term engagement.

Real-world evidence is needed to understand the impact of treatment continuity on long-term weight loss outcomes.

2 Objective

To evaluate the relationship between prescription refill timing and long-term weight loss outcomes in patients receiving once-weekly GLP-1RA / GLP-1-GIP RA obesity pharmacotherapy.

3 Methods

Retrospective real-world analysis of 152 patients receiving once-weekly obesity pharmacotherapy within a fully virtual, physician-led clinic.

Patients were stratified into three groups based on prescription refill timing:
→ On-time (≤ 28 days)
→ Delayed (29-33 days)
→ Extended delay (34-38 days)

Primary outcome:
Percentage weight loss at 18 months.

Prescription Refill Time Breakdown

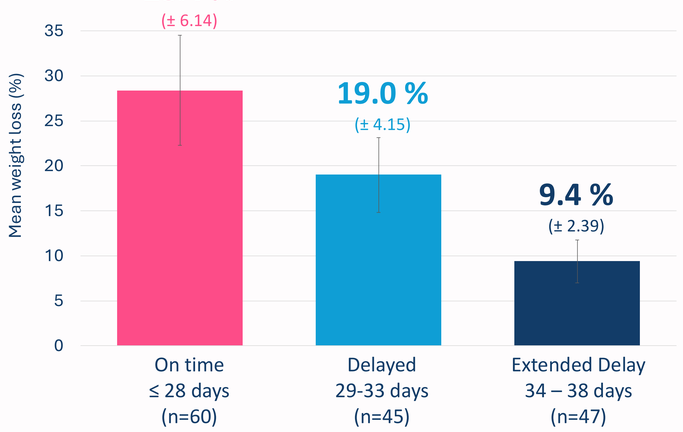
On time
≤ 28 days
(n=60)

Delayed
29-33 days
(n=45)

Extended Delay
34 – 38 days
(n=47)

4 Results

Mean Weight Loss (%) at 18 months



Between-group differences

On-time vs Delayed:
9.4 % higher weight loss
($p < 0.001$)

On-time vs Extended Delay
19.0 % higher weight loss
($p < 0.001$)

Delayed vs Extended Delay:
9.6 % higher weight loss
($p < 0.001$)

Mean percentage weight loss at 18 months according to prescription refill timing. Mean weight loss was greatest among patients with on-time refills (≤28 days; 28.4 ± 6.14%; n=60), followed by delayed refills (29–33 days; 19.0 ± 4.15%; n=45) and extended delays (34–38 days; 9.4 ± 2.39%; n=47). Values are presented as mean ± standard deviation (SD). Findings demonstrate a progressive reduction in weight loss with increasing prescription refill intervals.

Group	N	Mean % weight loss a t 18 months	Standard Deviation (SD)
On-time (≤ 28 days)	60	28.4	6.14
Delayed (29-33 days)	45	19	4.15
Extended delay (34-38 days)	47	9.4	2.39

Statistical Anayses:
Welch's one-way ANOVA (unequal variances):
$F(2, 90.26) = 282.01$, $p < 0.001$
Post-hoc pairwise comparisons (Welch's t-test with Holm correction):
- On-time vs Delayed: $p < 0.001$
- Delayed vs Extended delay: $p < 0.001$
- On-time vs Extended delay: $p < 0.001$

5 Discussion & Clinical Implications

Clear Relationship between refill time & outcomes

Greater prescription refill delays were associated with progressively lower weight loss at 18 months, with each pairwise comparison showing a statistically significant difference (all $p < 0.001$).

Why might this occur?

Delayed refills may lead to periods of suboptimal drug exposure, reduced appetite and metabolic benefit, and disrupted treatment habits, resulting in lower overall weight loss

Consistency matters

The relationship remained consistent over time, with widening divergence between groups at extended follow-up, highlighting the importance of maintaining treatment continuity.

Implications for patients:

→ Try to refill on time (within 28 days) to maximise your chances of achieving greater weight loss.
→ Avoid longer gaps (more than 28 days) between doses, as these are associated with significantly lower outcomes.
→ If you anticipate a delay, discuss this with your healthcare provider so that additional support can be provided (e.g. behaviours, follow-up or alternative strategies).

Implications for clinicians / providers:

→ Use prescriptions refill timing as a simple, objective marker to identify patients at risk of suboptimal outcomes.
→ Proactively discuss the importance of timely refills with patients and explore potential barriers (e.g. cost, access, side effects, travel).
→ Consider enhanced follow-up and behavioural support for patients with delayed refills to help them re-establish treatment continuity.
→ Implement systems (eg. reminders, automated messaging) to support on-time refills and optimise long-term outcomes.

References None

Disclosures

Author disclosure: Clinical Director and founder of Weight Loss Wales; previously employed by Novo Nordisk, Lilly and Amgen. Advisor to Evumed and speaker for Merck. Programme director Obesity MSc – University South Wales & Learna. Course director obesitycpd.co.uk