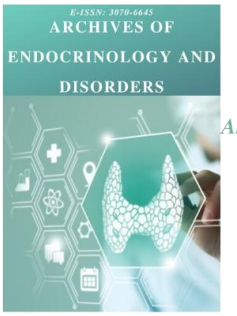

E-ISSN: 3070-6645
Archives of Endocrinology and Disorders

ATHENAEUM SCIENTIFIC PUBLISHERS

Research Article

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Real-World Effectiveness and Tolerability of Indian Generic Semaglutide for Obesity: A Retrospective Observational Study from a Nationally Deployed Virtual Weight Management Programme

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Citation: Jain D, et al. Real-World Effectiveness and Tolerability of Indian Generic Semaglutide for Obesity: A Retrospective Observational Study from a Nationally Deployed Virtual Weight Management Programme. Arch Endocrinol Disord. 2026;2(2):1-10.

https://doi.org/10.46889/AED.2026.2208

Received Date: 20-07-2026

Accepted Date: 05-08-2026

Published Date: 12-08-2026

Abstract

Background and Aim: India's semaglutide patent expired in March 2026, catalysing entry of more than 12 domestic generic manufacturers and reducing monthly treatment costs from ₹10,000-16,000 to under ₹2,000. Despite rapid nationwide adoption, particularly through digital health platforms, no independent post-marketing data exist for any Indian generic semaglutide formulation. This study addresses that gap. To evaluate the real-world effectiveness and tolerability of Indian generic semaglutide for obesity within a structured, physician-supervised national telehealth programme and to benchmark early outcomes against Phase 3 clinical trial data.

Methods: Retrospective observational study using Electronic Medical Records (EMR) from the WeightWise programme (Tata 1mg Healthcare Solutions Pvt. Ltd., New Delhi), March-May 2026. Fifty (n=50) adults with obesity (BMI ≥27 kg/m²) initiating Indian generic semaglutide were identified; one patient was excluded (semaglutide prescribed for glycaemic management in type 2 diabetes, BMI below threshold). The final analytic cohort comprised 49 patients. Primary outcome: percentage body weight change from baseline to last follow-up. Secondary outcomes: proportion achieving ≥5% and ≥3% weight loss, rate of weight loss (kg/week), Gastrointestinal (GI) adverse event profile with severity grading and treatment discontinuation rate.

Mean age was 38.5 ± 9.3 years (range 18-59; n=49); 57% male; mean baseline BMI 34.6 ± 5.2 kg/m²; mean baseline weight 96.6 ± 18.0 kg; mean treatment duration 3.9 ± 1.7 weeks (range 1-8). Mean body weight decreased by 2.94% ± 2.16% (95% CI: −3.54% to −2.34%; p<0.001).The mean absolute weight reduction was 2.79 ± 2.22 kg (95% CI: -3.42 to - 2.15 kg; p<0.001). Forty-seven of 49 patients (96%) achieved measurable weight loss. Fourteen percent achieved the ≥5% clinically significant benchmark; 53% achieved ≥3% weight loss. A dose-duration effect was observed: patients treated for ≥6 weeks achieved 4.50% mean weight loss versus 2.12% in those treated for ≤3 weeks. GI adverse events occurred in 27% of patients (n=13); dyspepsia/indigestion 12%, nausea 8%, constipation 6%, vomiting 4%, diarrhoea 2%. Seventy-seven percent of affected patients reported only mild symptoms. Two patients (4%) discontinued treatment: one due to severe nausea, one due to perceived slow weight loss response. Four domestic formulations were represented: SEMANEXT (51%), SEMAGLYN (39%), SEMBOLIC (8%), SEMATRINITY (2%).

Conclusion: Indian generic semaglutide produced statistically significant, clinically meaningful weight reduction in 96% of patients over a mean 3.9 weeks, with a favourable tolerability profile and a low discontinuation rate. These findings constitute the first independent post-marketing evidence for Indian generic semaglutide and demonstrate the feasibility of physician-supervised virtual GLP-1 delivery at national scale. Larger prospective studies with longer follow-up are warranted.

Keywords: Semaglutide; Generic Semaglutide; GLP-1 Receptor Agonist; Obesity; India; Real-World Evidence; Telehealth; Virtual Care; Weight Management; Post-Marketing Surveillance

Introduction

Obesity is a chronic, relapsing, non-communicable disease of escalating public health concern in India. Data from the National Family Health Survey (NFHS-5, 2019-2021) document a 91% increase in overweight and obesity prevalence among women and a 146% increase among men over the preceding two decades, with adult prevalence now approaching 24% among women and 23% among men [1]. India is projected to be home to over 27 million children and adolescents living with obesity by 2030, representing 11% of the global paediatric burden [2]. The economic cost is substantial. India's Economic Survey 2024-25 flagged obesity as an emerging national health emergency, with per capita costs projected to reach ₹4,700 by 2030 [3].

Pharmacological management of obesity has been transformed by Glucagon-Like Peptide-1 Receptor Agonists (GLP-1 RAs). In the landmark STEP 1 trial, once-weekly semaglutide 2.4 mg produced a mean weight loss of 14.9% over 68 weeks, with 86% of participants achieving ≥5% weight loss [4]. Subsequent evidence has established cardiovascular benefit (SELECT trial, 2023), renal protection and efficacy in obesity-related hepatic steatosis [5]. Semaglutide is now the most widely prescribed anti-obesity medication globally.

Until March 2026, semaglutide's availability in India was largely restricted to Novo Nordisk's branded products, Ozempic and Wegovy, at costs of ₹10,000-16,000 per month, effectively excluding the majority of eligible patients. The expiry of Novo Nordisk's Indian semaglutide patent in March 2026 fundamentally altered this landscape. Within weeks, over 12 domestic pharmaceutical manufacturers had launched or registered generic formulations, with treatment costs collapsing to under ₹2,000 per month for pre-filled pen devices and as low as ₹1,290 per month for vial-based products [6,7]. This generic entry represents one of the most consequential developments in Indian metabolic pharmacotherapy in a generation.

Concurrent with this pharmacological shift, India's digital health infrastructure has undergone rapid maturation. The Government of India's Telemedicine Practice Guidelines, promulgated on 25 March 2020, provided the statutory framework for physician-supervised virtual care, including prescription of chronic disease pharmacotherapy via video consultation [8]. The national eSanjeevani platform has logged over 148 million patient interactions and India is projected to reach one billion smartphone users by 2026 [9,10]. This infrastructure has enabled physician-led virtual weight management programmes to achieve national scale, reaching geographically distributed patient populations simultaneously.

Despite the rapid and widespread adoption of Indian generic semaglutide, no independent post-marketing effectiveness or tolerability data exist for any domestic formulation. Clinicians prescribing these products currently extrapolate from Novo Nordisk's branded trial programme, with no evidence base specific to the Indian generic context, where formulations may differ in device design, excipient composition and manufacturing origin. This evidentiary gap represents both a clinical and patient safety concern.

This study aimed to address that gap by evaluating the real-world effectiveness and tolerability of Indian generic semaglutide in adults with obesity managed through the WeightWise physician-supervised national telehealth programme and by contextualising early outcomes against established Phase 3 benchmarks. We report what we believe to be the first independent post-marketing evidence for this drug class in India.

Methodology

Study Design and Setting

This was a retrospective observational study using de-identified electronic medical records from WeightWise, a physician-supervised virtual weight management programme operated by Tata 1mg Healthcare Solutions Pvt. Ltd., New Delhi, India. WeightWise operates nationally under the Telemedicine Practice Guidelines 2020, delivering consultations via video to patients across multiple Indian states. The programme is staffed by physicians with specialised training in obesity medicine and follows a structured protocol of metabolic assessment, individualised pharmacotherapy, dietary counselling, physical activity guidance and regular follow-up via teleconsultation.

The study period was March to May 2026, the initial 12-week window following the expiry of the Novo Nordisk semaglutide patent in India, representing the earliest period in which real-world post-marketing data on Indian generic semaglutide became available for analysis.

Participants

Adults with obesity (BMI ≥27 kg/m²) enrolled in WeightWise who initiated an Indian generic semaglutide formulation during the study window were identified from the EMR. Fifty patients (n=50) were initially screened. One patient (Patient 41 was excluded on the grounds that semaglutide had been prescribed for glycaemic management in established type 2 diabetes mellitus with a baseline BMI of 23.67 kg/m², below the obesity threshold. This exclusion was pre-specified based on indication. The final analytic cohort comprised 49 patients.

Inclusion criteria: adult age (≥18 years); BMI ≥27 kg/m²; initiation of any Indian generic semaglutide formulation during the study period; at least one documented follow-up weight measurement. No exclusions were made on the basis of comorbidity, sex or geographic location.

Intervention

All patients received physician-prescribed once-weekly subcutaneous injection of an Indian generic semaglutide formulation. Four domestic generic brands were represented: SEMANEXT (Mankind Pharma), SEMAGLYN (Zydus), SEMBOLIC (Torrent) and SEMATRINITY (Sun Pharma). Starting doses followed the standard titration protocol: 0.25 mg/week for the initial 4 weeks, with incremental escalation by 0.25 mg every 4 weeks as tolerated, to a maximum of 2.4 mg/week. Dose escalation decisions were made by the treating physician based on tolerability and clinical response, documented at each teleconsultation. All prescriptions were accompanied by dietary modification counselling and physical activity guidance per the WeightWise programme protocol.

Data Collection

Data were extracted from the WeightWise EMR by designated programme staff (D.J. and M.G.) and independently verified by the clinical lead (R.M.). Variables recorded included: patient demographics (age, sex, geographic location), anthropometric measurements (height, baseline and follow-up weight, BMI), treatment parameters (generic brand, final dose reached in mg/week, treatment duration in weeks), gastrointestinal adverse events and their severity (mild, moderate, severe as clinically graded by the treating physician), reasons for treatment discontinuation and baseline biochemical investigations (HbA1c; AST and ALT; total cholesterol, HDL cholesterol, LDL cholesterol, triglycerides). Body weight was self-reported by patients at each teleconsultation and documented in the EMR.

Outcomes

The primary outcome was percentage change in body weight from baseline to last recorded follow-up weight. Secondary outcomes were: (i) proportion of patients achieving ≥5% weight loss (FDA-recognised clinically significant benchmark); (ii) proportion achieving ≥3% weight loss (threshold associated with clinically meaningful cardiometabolic benefit); (iii) mean rate of weight loss (kg/week); (iv) GI adverse event profile including type, frequency and severity; and (v) treatment discontinuation rate and reasons. Exploratory subgroup analyses were conducted by BMI category, treatment duration and age group.

Statistical Analysis

Continuous variables are presented as mean ± standard deviation (SD) with ranges. The primary outcome (percentage weight change) was analysed using a one-sample t-test against a null hypothesis of zero weight change, with a 95% confidence interval calculated for the mean. Subgroup analyses by BMI category (BMI 27-<30, 30-<35, 35-<40, ≥40 kg/m²), treatment duration (≤3 weeks, 4-5 weeks, ≥6 weeks) and age group (<40, ≥40 years) were performed descriptively. Categorical variables are presented as frequencies and proportions. All analyses used standard statistical methods; a two-tailed $p<0.05$ was considered statistically significant.

Ethics/Legal

This study was conducted as a retrospective audit of routinely collected, de-identified clinical programme data. An institutional ethics waiver was obtained from the Ethics/Legal Team, Tata 1MG Healthcare Solutions Pvt. Ltd. on 15th June 2026 on the grounds

that retrospective anonymised audit of routinely collected clinical records does not constitute research requiring full ethics review under ICMR guidelines for observational studies. The study was conducted in accordance with the Declaration of Helsinki. Patient data were anonymised prior to analysis; no identifiable personal information is presented in this manuscript.

Results

Patient Characteristics

Fifty patients were initially identified; one was excluded on indication grounds (T2DM indication, BMI below threshold). The analytic cohort comprised 49 patients (Table 1). The cohort included 28 males (57%) and 21 females (43%), with a mean age of 38.5 ± 9.3 years (range 18-59 years). Mean baseline BMI was 34.6 ± 5.2 kg/m² (range 27.2-45.8 kg/m²) and mean baseline body weight was 96.6 ± 18.0 kg. All 49 patients had BMI ≥27 kg/m², consistent with the inclusion criterion. Patients were geographically distributed across multiple Indian states, with locations documented in Mumbai, Delhi/NCR, Bangalore, Hyderabad, Pune, Kolkata and Ghaziabad, reflecting the pan-India reach of the WeightWise virtual delivery model.

Baseline biochemistry is presented in Table 2. Mean HbA1c was 6.0 ± 1.5% (n=49; range 4.9-14.0%), confirming a predominantly non-diabetic or pre-diabetic cohort; patients with elevated HbA1c reflect those with borderline glycaemia managed within the programme. Liver transaminases were within or marginally above the upper limit of normal on average AST 28.6 ± 13.5 U/L and ALT 34.3 ± 21.6 U/L (n=49), consistent with obesity-associated hepatic steatosis in a subset. The lipid profile was notable for a mean total cholesterol of 180.8 ± 32.1 mg/dL, mean HDL of 42.5 ± 11.7 mg/dL, mean LDL of 110.2 ± 25.0 mg/dL and mean triglycerides of 140.1 ± 45.2 mg/dL (n=48; one patient's lipid profile was excluded because of a data-quality concern), consistent with the insulin-resistance-associated mixed dyslipidaemia characteristic of the South Asian obese phenotype.

Treatment Characteristics

Mean treatment duration was 3.9 ± 1.7 weeks (range 1-8 weeks), reflecting the early post-patent window and the fact that the majority of patients were still in the dose titration phase. The most common final dose achieved was 0.5 mg/week (43%; n=21), followed by 1.0 mg/week (29%; n=14), 0.25 mg/week (20%; n=10), 1.7 mg/week (6%; n=3) and 2.4 mg/week (2%; n=1). No patient had reached the 2.4 mg maintenance dose at the time of last follow-up, underscoring the early-titration nature of this dataset. Four Indian generic semaglutide formulations were prescribed: SEMANEXT (51%; n=25), SEMAGLYN (39%; n=19), SEMABOLIC/SEMBOLIC (8%; n=4) and SEMATRINITY (2%; n=1). This mix accurately reflects the real-world prescribing environment in India following patent expiry, where multiple DCGI-approved domestic manufacturers entered the market concurrently.

Primary Outcome: Body Weight Change

Mean body weight decreased by 2.94% ± 2.16% from baseline ($t = -9.54$; $p<0.001$; 95% CI: −3.54% to −2.34%). The corresponding absolute reduction was 2.79 ± 2.22 kg (paired t-test; $p < 0.001$; 95% CI: −3.42 to −2.15 kg). Mean rate of weight loss was 0.78 ± 0.78 kg per week (95% CI: −1.007 to −0.557 kg/week). Forty-seven of 49 patients (96%; n=47) achieved measurable weight loss from baseline. Only two patients did not lose weight: one patient gained 2.76% body weight (Patient no. 24, 3 weeks at 0.25 mg/week, a minimal-response pattern consistent with the subtherapeutic dose at an early titration stage) and one gained 0.95% (Patient no. 43, 2 weeks at 0.25 mg/week). Both patients are retained in the analytic cohort consistent with intention-to-treat principles.

Secondary Weight Outcomes

Seven patients (14%; n=7) achieved the FDA-recognised clinically significant benchmark of ≥5% weight loss. Twenty-six patients (53%; n=26) achieved ≥3% weight loss, a threshold consistently associated with clinically meaningful improvements in cardiometabolic risk markers including blood pressure, fasting glucose and lipid profiles. These proportions must be interpreted in the context of the short observation window and low titration doses in this early-treatment cohort.

Subgroup Analysis: Treatment Duration

A clear dose-duration-response pattern was observed across treatment duration subgroups. Patients treated for ≤3 weeks (n=23) achieved a mean weight loss of 2.12%, with 3 of 23 (13%) achieving ≥5% loss. Those treated for >3 to <6 weeks (n=19) achieved a mean weight loss of 3.34% and patients treated for ≥6 weeks (n=7), representing the group most likely to have titrated to pharmacologically meaningful dose levels, achieved a mean weight loss of 4.50%, with 2 of 7 (29%) meeting the ≥5% threshold. This progressive pattern is consistent with the known pharmacokinetics of semaglutide, which achieves steady-state plasma

concentration after 4-5 weeks of once-weekly dosing, as well as with Phase 3 trial data demonstrating progressive weight loss with sustained treatment.

Subgroup Analysis: BMI Category

Weight loss was observed across all BMI categories. Patients with BMI 27-<30 kg/m² (n=14) achieved a mean weight loss of 3.50% ± 2.42%; BMI 30-<35 (n=16): 2.78% ± 1.64%; BMI 35-<40 (n=9): 2.15% ± 2.37%; BMI ≥40 (n=10): 3.12% ± 2.38%. The broadly consistent efficacy signal across BMI strata supports the generalisability of the treatment response across the obesity severity spectrum.

Subgroup Analysis: Age

Patients aged <40 years (n=27) achieved a mean weight loss of 2.90%, compared with 2.98% in those aged ≥40 years (n=22), indicating no clinically meaningful age-related difference in early treatment response within this cohort.

Gastrointestinal Tolerability

GI adverse events were reported in 13 of 49 patients (27%; n=13). By symptom type, dyspepsia or indigestion was most frequent (12%; n=6), followed by nausea (8%; n=4), constipation (6%; n=3), vomiting (4%; n=2) and diarrhoea (2%; n=1). These rates are markedly lower than those reported in the STEP 1 trial at maintenance dosing (nausea 44%; diarrhoea 30%; vomiting 25%; constipation 24%), which is attributable to the predominantly low titration doses in the present cohort; GI adverse events with semaglutide are strongly dose-dependent and peak during dose escalation phases.

Of the 13 patients who experienced GI adverse events, 10 (77%) reported only mild symptoms requiring no dose modification. Two patients (15%) experienced moderate symptoms. One patient (8%) experienced severe nausea, which led to treatment discontinuation. Ninety-two percent of affected patients had mild-to-moderate symptoms at most, consistent with the expected tolerability profile at titration doses.

Treatment Discontinuation

Two patients (4%; n=2) discontinued treatment. Patient 17 (age 44) discontinued after 1 week at 0.25 mg/week due to severe nausea. Patient 6 (age 42) discontinued after 4 weeks due to perceived inadequacy of weight loss response. No discontinuations were attributable to serious adverse events, cardiovascular events or safety signals beyond GI intolerance. Two additional patients experienced treatment pauses: one due to intercurrent gastroenteritis (Patient 20, 1-week pause), one due to travel (Patient 25, 1-week pause); both subsequently resumed treatment and are included in the analytic cohort.

Parameter	Value	Notes / Reference
Enrolled / Analysed	50 enrolled; 49 analysed	1 excluded: T2DM indication, BMI 23.67 kg/m²
Sex	28 male (57%); 21 female (43%)	
Age (years)	38.5 ± 9.3	Range 18-59; n=49 (complete)
Baseline BMI (kg/m²)	34.6 ± 5.2	Range 27.2-45.8; all ≥27
Baseline weight (kg)	96.6 ± 18.0	
Study window	March-May 2026	First 12 weeks post patent expiry
Mean treatment duration (weeks)	3.9 ± 1.7	Range 1-8; early titration phase
Geographic distribution	Multi-state pan-India	Mumbai, Delhi-NCR, Bangalore, Hyderabad, Pune, Kolkata, Ghaziabad
	PRIMARY OUTCOME	

Mean % weight change	−2.94% ± 2.16%	t = −9.54; p<0.001; 95% CI −3.56% to −2.32%
Mean absolute weight loss (kg)	2.79 ± 2.22	p<0.001; 95% CI -3.42 to -2.15 kg
Weight loss rate (kg/week)	0.78 ± 0.78	95% CI −1.007 to −0.557 kg/week
	SECONDARY OUTCOMES	
Any weight loss achieved	**47/49 (96%)**	Key headline outcome
≥5% weight loss	7/49 (14%)	FDA clinically significant benchmark
≥3% weight loss	26/49 (53%)	Associated with cardiometabolic benefit
	GI TOLERABILITY	
Any GI adverse event	13/49 (27%)	
- Dyspepsia / indigestion	6/49 (12%)	All mild
- Nausea	4/49 (8%)	Mild to severe
- Constipation	3/49 (6%)	All mild
- Vomiting	2/49 (4%)	Mild to moderate
- Diarrhoea	1/49 (2%)	Mild
GI severity (of 13 affected)	77% mild; 15% moderate; 8% severe	92% mild-to-moderate
Discontinuation rate	2/49 (4%)	1 severe nausea; 1 slow response
Generic formulations	SEMANEXT 51%; SEMAGLYN 39%; SEMABOLIC/SEMBOLIC 8%; SEMATRINITY 2%	4 domestic DCGI-approved brands

Table 1: Baseline characteristics and treatment outcomes - analytic cohort (n=49).

Parameter	Mean ± SD	Range	n
HbA1c (%)	6.0 ± 1.5	4.9-14.0	49
AST/SGOT (U/L)	28.6 ± 13.5	12-89	49
ALT/SGPT (U/L)	34.3 ± 21.6	8-122	49
Total Cholesterol (mg/dL)	180.8 ± 32.1	75-250	48*
HDL Cholesterol (mg/dL)	42.5 ± 11.7	25-89	48*
LDL Cholesterol (mg/dL)	110.2 ± 25.0	65-166	48*
Triglycerides (mg/dL)	140.1 ± 45.2	82-369	48*
* Lipid Profile values excluded due to a data quality flag (unverifiable result in source records; confirmed with clinical team			

pending repeat laboratory analysis).

Table 2: Baseline laboratory parameters - analytic cohort (n=49).

Discussion

Principal Findings

This study reports the first independent real-world post-marketing evidence for Indian generic semaglutide in adults with obesity. The principal finding is that Indian generic semaglutide administered through a structured, physician-supervised national telehealth programme produced statistically significant and clinically meaningful early weight reduction in 96% of patients, with a highly favourable tolerability profile and only a 4% discontinuation rate. These outcomes, generated over a mean of 3.9 weeks at early titration doses, are consistent with the established pharmacology of semaglutide and with Phase 3 trial benchmarks at equivalent treatment time points.

Comparison with Phase 3 and Real-World Evidence

The STEP 1 trial reported 14.9% mean weight loss over 68 weeks at the 2.4 mg maintenance dose, with 86% achieving ≥5% weight loss [4]. The 2.94% mean weight loss and 14% ≥5% achievement rate in the present cohort represent early titration signal data, not steady-state efficacy and must be interpreted accordingly. The dose-duration subgroup analysis directly supports this interpretation: patients in the ≥6-week group, where the majority would have titrated beyond the starting 0.25 mg dose, achieved a mean weight loss of 4.50%, nearly double that of the ≤3-week group (2.12%). At comparable early titration time points in the STEP 1 trial (weeks 4-8), weight loss was similarly in the 2-5% range, indicating that the present findings are on the expected pharmacological trajectory.

Comparison with real-world GLP-1 evidence from other settings is informative. Ghusn, et al., reported approximately 10.9% weight loss at 6 months in US clinical practice and telehealth-delivered GLP-1 programmes have reported 7-9% weight loss at 12 months [11,12]. Our data represent a substantially earlier observation window; the week-by-week rate of weight loss observed here (0.78 kg/week) is consistent with these longer-term trajectories when extrapolated. The 4% discontinuation rate compares favourably with real-world discontinuation rates of 20-50% within the first year reported in registry-based studies [13], likely reflecting both the short observation window and the structured physician-supervised telehealth model's supportive effect on adherence.

GI Tolerability Profile

The GI adverse event rate of 27%, with 77% of affected patients experiencing only mild symptoms is notably lower than that observed in clinical trials at maintenance dosing (nausea 44%; diarrhoea 30%) [4,14]. This discrepancy is attributable to the dose-dependent nature of semaglutide's GI effects: the peak of GI adverse events in clinical trials occurs during dose escalation and the majority of patients in this cohort were at 0.25-0.5 mg/week, far below the doses associated with maximum GI burden. This interpretation is supported by the observation that the one case of severe nausea leading to discontinuation occurred at the very first dose (0.25 mg/week, 1 week), a pattern consistent with individual idiosyncratic sensitivity rather than dose-related toxicity. The GI profile observed here should reassure both prescribers and patients that the early-titration period, the phase most likely to deter patients from continuing, is well-tolerated by the substantial majority.

The Indian Generic Context: First Independent Evidence

The central novelty of this study is its subject matter rather than its design: these are the first effectiveness and tolerability data for any Indian generic semaglutide formulation, generated in the real-world clinical context where these products are now being prescribed at scale across India. The consistency of the efficacy and tolerability signal across four distinct domestic brands, namely SEMANEXT, SEMAGLYN, SEMBOLIC and SEMATRINITY, spanning two major manufacturers is clinically reassuring [15]. It provides preliminary evidence that the weight-lowering pharmacological activity of the semaglutide molecule is preserved across domestic generic formulations, notwithstanding that formal pharmacokinetic bioequivalence studies against branded Wegovy are not yet publicly available for all brands.

This evidence matters particularly in the current Indian prescribing environment, where over 12 brands have entered the market simultaneously, creating significant uncertainty among clinicians about which formulations to trust. While the present study is

not designed or powered to compare individual brands, the multi-formulation real-world signal reported here provides a meaningful starting point for evidence-based prescribing confidence.

Telehealth as a Scalable Delivery Model

A secondary contribution of this study is the demonstration that physician-supervised telehealth is an effective delivery model for GLP-1 pharmacotherapy in India at national scale. The WeightWise programme reached patients across seven cities in multiple states simultaneously, with documented weight outcomes at follow-up teleconsultations. India's digital health infrastructure, among the world's largest in terms of both internet connectivity and healthcare application penetration, supported by the Government of India's Telemedicine Practice Guidelines 2020 and the Ayushman Bharat Digital Mission, positions virtual care as the most scalable modality for metabolic pharmacotherapy in a country where specialist obesity medicine centres remain geographically concentrated in metropolitan areas [8,10]. The present study provides the first outcome data from such a programme in the Indian generic GLP-1 era.

Limitations

Several limitations should be acknowledged. First, mean follow-up was 3.9 weeks, shorter than any published GLP-1 real-world cohort study and the majority of patients had not titrated beyond 1.0 mg/week. Outcomes represent an early effectiveness signal, not steady-state or maintenance efficacy. Second, this is an uncontrolled retrospective observational study without a comparator arm; weight loss cannot be attributed exclusively to semaglutide in the absence of randomisation. Third, body weight was self-reported at teleconsultations and was not verified by standardised clinical measurement, introducing potential measurement variability inherent to virtual care delivery. Fourth, while four generic brands were represented, the study is not powered for formal brand comparisons. Fifth, baseline demographics noted two minority data items: Patient 21 had been switched from tirzepatide at baseline (which may have influenced early weight trajectory) and three patients had no age recorded in the original EMR (since resolved from the updated dataset). Sixth, with n=49, all subgroup analyses are exploratory and should be regarded as hypothesis-generating. Finally, the absence of follow-up biochemical data means we cannot report changes in HbA1c, lipids or liver enzymes, which are important outcomes for future studies.

Clinical and Policy Implications

For prescribing physicians in India, this study provides the first real-world evidence that domestically manufactured generic semaglutide produces weight reduction consistent with its pharmacological mechanism, with a tolerability profile comparable to clinical trial data at equivalent dose levels. For health policymakers, the data validate structured physician-supervised telehealth as a viable, scalable model for GLP-1 delivery in a price-sensitive, geographically diverse population. The combination of affordable generics and national telehealth infrastructure may represent India's most realistic pathway to addressing its obesity epidemic at scale[16]. Larger prospective studies with 12-month follow-up, standardised weight measurement, formal brand comparisons and systematic collection of patient-reported outcomes and follow-up biochemistry are now a clinical priority.

Conclusion

Indian generic semaglutide, delivered through a structured physician-supervised national telehealth programme, produced statistically significant and clinically meaningful weight reduction in 96% of patients, with a favourable tolerability profile and a low discontinuation rate. The mean weight loss of 2.94% at 3.9 weeks, including 53% of patients achieving ≥3% loss and 14% achieving ≥5% loss, reflects an early titration signal consistent with the known pharmacology of semaglutide and with Phase 3 trial benchmarks at equivalent treatment time points. The dose-duration subgroup data confirm that weight loss accelerates with sustained treatment. These findings constitute the first independent post-marketing evidence for Indian generic semaglutide and demonstrate the feasibility of national-scale physician-supervised virtual GLP-1 delivery. The combination of accessible generic pricing and telehealth infrastructure positions India to address its obesity burden at scale. Prospective multicentre studies with longer follow-up and formal formulation comparisons are the essential next step.

Conflict of Interest

All authors are employees of Tata 1mg Healthcare Solutions Pvt. Ltd. The study was conducted using WeightWise programme data. No external funding was received. No author has a financial relationship with any semaglutide manufacturer. The authors declare no conflicts of interest with respect to the research, authorship or publication of this article.

Funding Statement
This research received no specific external funding. Data collection and analysis were conducted as part of routine clinical programme evaluation at Tata 1mg WeightWise.

Acknowledgement
The authors have no acknowledgments to declare.

Data Availability Statement
De-identified patient-level data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to patient confidentiality and Tata 1mg institutional data governance approval. This article was previously posted as a preprint on the SSRN preprint server on July 6, 2026.

Ethical Statement
This study was conducted as a retrospective audit of routinely collected, de-identified electronic medical records. An institutional ethics waiver was obtained from the Ethics/Legal Team, Tata 1MG Healthcare Solutions Pvt. Ltd. on 15th June 2026. The study was conducted in accordance with the Declaration of Helsinki and applicable ICMR guidelines for retrospective observational research.

Informed Consent Statement
Informed consent was obtained from all participants included in the study.

Authors' Contributions
Darshit Jain (1st author): Primary data extraction, statistical analysis, manuscript drafting. Riya Mangla (2nd author): Clinical data review, patient record verification, manuscript review. Muskan Gupta (3rd author): Data collection, database management, statistical support. Mekhala Chandra (Senior/Corresponding author): Study conception and design, clinical oversight of the WeightWise programme, critical revision of manuscript, final approval. All authors approved the final version and meet ICMJE authorship criteria.

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