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Original Research

Evaluating community pharmacists' dispensing and counseling practices of semaglutide for weight loss in the United Arab Emirates: A simulated patient study

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Abstract

Background: The rising global prevalence of obesity has led to increased demand for medications such as Semaglutide (Ozempic®), which is approved for the treatment of type 2 diabetes. However, its off-label use for weight loss has raised international concerns regarding misuse, patient safety, and pharmacist accountability. **Objectives:** This study aimed to assess whether community pharmacists in the UAE dispense Ozempic® without a valid prescription and to evaluate the quality and comprehensiveness of pharmacists' screening and counseling regarding Ozempic®. **Methods:** A cross-sectional study was conducted using the simulated patient (SP) methodology. A trained SP visited 153 randomly selected community pharmacies across Dubai and the Northern Emirates and requested Ozempic® without a prescription for weight loss. Data was collected using a structured checklist covering prescription requirements, screening practices, and counseling quality. **Results:** Of the 153 pharmacies visited, only a minority (26.8%) requested a prescription for Ozempic® before dispensing the medication. Chain pharmacies (35.4%) and female pharmacists (38.6%) were significantly more likely to request a prescription ($p = 0.011$ and $p = 0.004$). Additionally, when comparing the total percentage of pharmacists willing to dispense the medication without a prescription to a hypothetical benchmark of 50%, the difference was statistically significant ($p<0.001$). Screening practices were minimal, with only 3–30% of pharmacists inquiring about basic patient information. Counselling quality was generally low, with 27% of visits receiving no counselling. Male pharmacists had significantly higher counselling scores than female pharmacists ($p = 0.024$). Time spent in the pharmacy was significantly correlated with better counselling ($p < 0.001$). In 20.3% of visits, alternatives, such as Tirzepatide or herbal weight loss products, were suggested. **Conclusion:** The study revealed significant gaps in prescription compliance and patient counseling among UAE community pharmacists when dispensing Ozempic®. These findings reflect broader global concerns about off-label medication use and the critical role of pharmacists in ensuring safe access to high-demand therapies.

Keywords: Ozempic; Pharmacist; Simulated patient; Prescription; Dispensing; Patient counselling; Semaglutide

INTRODUCTION

Obesity and type 2 diabetes mellitus (T2DM) are rising public health challenges worldwide, with obesity being a significant risk factor for the development of T2DM. Globally, an estimated 80–90% of individuals diagnosed with T2DM are overweight or obese, highlighting the critical connection between these conditions[1]. This high prevalence emphasizes the urgent need to address obesity as a key component in the effective management of T2DM.

The pathophysiological link between obesity and T2DM is primarily driven by insulin resistance. This condition, in which peripheral tissues become less responsive to insulin, results in chronic hyperglycemia. Insulin resistance is worsened by visceral fat accumulation, which triggers metabolic disturbances, including chronic low-grade inflammation, altered adipokine secretion, and elevated levels of free fatty acids. These factors impair insulin signaling and contribute to the progressive dysfunction of pancreatic β-cells, further intensifying hyperglycemia and eventually leading to the onset of T2DM[2].

In addition to its strong association with T2DM, individuals with obesity have a 50-100% higher risk of death than those with normal weight, with cardiovascular diseases (CVDs) being a leading cause. Excessive body weight is associated with hypertension, dyslipidemia, atherosclerosis, heart failure, thromboembolism, valvular disease, and arrhythmia[3]. Moreover, obesity negatively affects quality of life (QoL). One study showed an inverse association between body weight and health-related quality of life (HRQoL), with greater weight linked to lower physical, emotional, and social well-being[4].

Recognizing these risks, the American Diabetes Association (ADA) and American Heart Association (AHA) emphasize

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that weight management is a cornerstone of T2DM and CVD management. Modest weight loss reduces the need for medication and improves glycemic control, whereas more substantial weight loss can promote remission of T2DM in some patients. Accordingly, pharmacotherapeutic agents that promote weight loss are essential, alongside lifestyle modifications, especially in patients with obesity[5,6]. Currently, agents that are FDA-approved specifically for weight loss in overweight and obese patients include orlistat (Xenical®, Alli®), phentermine-topiramate (Qsymia®), naltrexone-bupropion (Contrave®), liraglutide (Saxenda®), semaglutide (Wegovy®), and tirzepatide (Zepbound®)[7].

One medication that has garnered significant attention is semaglutide, marketed under the Ozempic® brand, which was approved by the U.S. Food and Drug Administration (FDA) in 2017 for glycemic control in adults with T2DM. It is a once-weekly GLP-1 agonist that is administered subcutaneously. Ozempic® is available in the following strengths: 2 mg/1.5 mL (delivering doses of 0.25 or 0.5 mg), 4 mg/3 mL (delivering 1 mg), and 8 mg/3 mL (delivering 2 mg). It mimics the effects of the hormone GLP-1, which helps regulate blood sugar levels and promotes weight loss by enhancing satiety and slowing gastric emptying[8]. A cohort study demonstrated that patients taking the highest doses of semaglutide (1.7 and 2.4 mg) experienced a 5.9% reduction in total body weight within three months and a 10.9% reduction within six months[9]. Another study showed that patients with obesity but without T2DM experienced an 11.85% reduction from baseline compared with the placebo group[10]. It has become popular not only among obese diabetic patients but also among non-diabetic individuals seeking weight loss.

The growing demand for Ozempic® for weight loss has now become a global concern. Off-label use by non-diabetic individuals has increased rapidly in countries like the United States and Canada[11,12], driven in part by social media influence and the public perception of rapid weight loss benefits.

In the United Arab Emirates (UAE) Ozempic® is classified as a prescription-only medicine (POM), requiring proper physician supervision before initiation, owing to its potential for serious side effects, including gallbladder-related disorders, gastrointestinal adverse effects, and a possible risk of thyroid cancer[13–15]. A thorough medical history must be obtained to rule out contraindications such as a personal or family history of medullary thyroid carcinoma (MTC) or multiple endocrine neoplasia syndrome type 2 (MEN2)[8]. In the UAE, 25.1% of men and 30.6% of women are obese, and 45.7% of men and 34.3% of women are overweight. Projections indicate that these rates may rise to over 66.48% in men and 64.21% in women[16]. As obesity prevalence continues to rise, demand for effective weight management strategies has intensified, contributing to the growing popularity of semaglutide, particularly for off-label use. Structural and environmental barriers in the UAE, such as extreme weather, sedentary lifestyles, and easy access to energy-dense foods, make long-term lifestyle changes difficult. This situation leads to a greater reliance on medication[17]. These challenges have fuelled public demand for pharmacological alternatives, often perceived as quicker solutions for weight management.

This growth in demand has led to global shortages and the emergence of counterfeit products. In 2023, the FDA warned the public about counterfeit Ozempic® circulating in the legitimate U.S. drug supply chain, with unsafe needles and questionable product origins posing serious health risks[18]. Although this warning was US-specific, countries with high demand and regulatory variability, such as the UAE, may face similar risk, especially in the absence of proper prescription verification and pharmacist neglect. In response to the global demand, Wegovy®, a higher-dose formulation of semaglutide, was developed and approved by the FDA for chronic weight management[19]. It is available in the following strengths: 0.25 mg/0.5 mL, 0.5 mg/0.5 mL, 1 mg/0.5 mL, 1.7 mg/0.75 mL, and 2.4 mg/0.75 mL. It was introduced to the UAE market in late 2023 to provide a regulated alternative for weight loss[20,21]. In a Randomized clinical trial involving obese patients without T2DM, participants who received semaglutide 2.4 mg had a mean weight loss of 17.3% compared with 2.0% in the placebo group. However, after discontinuing medication for 1 year, weight was regained by 11.6% in the semaglutide group and 1.9% in the placebo group. Despite this, public awareness of Wegovy® remains limited compared with Ozempic®, which is older and more widely recognized. In addition, the limited availability of Wegovy® may further push individuals and providers to rely on Ozempic® for off-label use, contributing to supply issues and increasing the risk of inappropriate use and adverse events[22].

Moreover, several studies have highlighted poor dispensing practices and counseling quality among pharmacists in the UAE and the neighboring Gulf countries. A 2019 simulated patient study in the UAE involving 201 community pharmacies found that only 12% of pharmacists provided complete counseling on the proper use of oral contraceptives, 7% offered complete counseling on adherence and missed doses, and only 2.5% provided complete counseling on expected side effects[23]. Similarly, a study from Saudi Arabia using a simulated patient method reported that 12.5% of community pharmacists dispensed POMs without valid prescriptions[24]. These findings reflect a concerning trend in which regulatory policies are not effectively enforced. Such behaviors raise significant concerns about the safe and effective use of medications such as Ozempic®, especially when dispensed without proper medical oversight or patient education. Given these concerns, our study used a simulated patient (SP) methodology. In this research approach, trained individuals pose as real patients in a predefined scenario to assess healthcare provider behavior in a real-life setting. SP studies are considered the gold standard for evaluating actual practice, particularly in pharmacy, as they provide objective judgment on dispensing behavior, counselling quality, and adherence to regulatory rules[25]. This method allowed us to evaluate community pharmacists' practices and counselling behaviors regarding Ozempic® in the UAE. Specifically, we aimed to determine whether community pharmacists in the UAE dispense Ozempic with or without a valid prescription, evaluate the quality and comprehensiveness

of counseling provided by pharmacists about Ozempic®, and examine patterns in pharmacists' observed behaviors related to Ozempic's® off-label use for weight loss and whether these vary by pharmacy characteristics.

METHODS

Study design

This cross-sectional observational study utilized simulated patient (SP) methodology to assess community pharmacists' dispensing practices and counseling behaviors regarding Ozempic®. The study was conducted between December 2024 and May 2025. Institutional ethical approval was obtained from the Research Ethics Committee of Ajman University. Ref No: P-F-H-24-Feb. After completing the data collection phase, the pharmacists were contacted, and informed consent was sought to avoid influencing the pharmacists' behavior and preserve authenticity[26].

Pharmacy Selection

In the UAE, community pharmacies are regulated by three leading authorities: the Dubai Health Authority (DHA), which governs Dubai; the Ministry of Health and Prevention (MOHAP), which regulates the northern emirates (Sharjah, Ajman, Ras Al Khaimah, Fujairah, and Umm Al Quwain); and the Department of Health (DOH), which regulates pharmacies in Abu Dhabi.

The sampling margin consisted of all community pharmacies (chain/independent) within Dubai and the Northern Emirates, as listed in the UAE Yellow Pages [27]. Pharmacies not listed or located in Abu Dhabi were excluded. A total of 983 community pharmacies were identified: Dubai (479), Ajman (88), Sharjah (297), Umm Al Quwain (21), Fujairah (34), and Ras Al Khaimah (64).

Sample Size

To determine the required sample size, we referred to an existing study, "Community pharmacy sales of non-prescribed antibiotics in Riyadh, Saudi Arabia: a simulated patient study," conducted in Riyadh, Saudi Arabia. This study aimed to assess the rate of non-prescribed antibiotic sales by community pharmacies using the SP method. The proportion of pharmacies dispensing antibiotics without prescriptions was 12.5%[24]. We assumed that this percentage was representative of our population because one of our main assessments was to determine whether pharmacists would dispense Ozempic® without a prescription. Therefore, we used this percentage as an estimate in our study. A sample size calculator was used[28] with a 95% confidence interval and 5% margin of error. To account for the possibility that approximately 30% of approached individuals might decline to participate, the initially calculated sample size increased to 190 participants. Stratification with proportional allocation was performed using Microsoft Excel.

Scenario

The research team developed a standardized scenario (Appendix 1) and a structured data collection sheet (Appendix 2) for the SP. The SP was trained in a 4-hour workshop that included scenario review, role-playing, and finalizing the structured data collection sheet. An expert in SP studies conducted the training, and pre- and post-pilot study sessions were held to ensure that the SP, were indistinguishable from real patients. The scenario involved a request for Ozempic® for weight loss without a valid prescription.

A pilot test was conducted in 10 pharmacies to assess the clarity and feasibility of the scenarios and the data collection sheet. No modifications were deemed necessary, confirming the integrity and feasibility of the sheet. Immediately after each visit, the SP was instructed to discreetly complete the checklist to ensure accurate recall and prevent data loss.

The correct outcome of the scenario was defined as one of the following:

1. The pharmacist refuses to dispense Ozempic® because a valid prescription was unavailable.
2. If the pharmacist dispenses the medication, they provide comprehensive counselling on its proper use, side effects, and risks.

The structured collection sheet contained 17 items with five main domains:

1. Pharmacy environment (chain/independent, number of pharmacists, number of patients, and busy level (calculated based on the number of customers/ number of staff if the ratio is < 1 = not busy, >1 = busy)).
2. Pharmacist screening questions (age, weight, medication history, and medical history).
3. Additional information (if the pharmacist provided any other recommendations for weight loss or discounts).
4. Whether the pharmacist was willing to dispense medications without a prescription.
5. Counselling comprehensiveness (regimen, injection technique, lifestyle modification, side effects, adherence– each item was rated using a standardized scoring rubric where 0= no/incorrect, 1= incomplete, 2= complete) (Table 1).

Example scenario to assess counselling comprehensiveness based on three outcomes: complete, incomplete and incorrect:

1) Example 1: Complete counselling

A pharmacist will clearly explain that: "Ozempic® is an injectable medication that should be injected in the abdomen, thigh, or upper arm using a pinch technique, and the site should be switched every time to avoid irritation. The first dose you should take starts at 0.25 mg once per week for the first month, then increases to 0.5 mg in the second month, and 1 mg from the third month onwards. The common side effects of this medication include nausea, vomiting, and abdominal pain. This medication is meant for long-term use; therefore, you need to adhere to it to prevent weight gain. Additionally, for optimal results, it is recommended to follow a healthy lifestyle, including a balanced diet, regular exercise, and reduced fast

Table 1. Counseling points scoring guide

Counseling Point	Score = 2 (Complete)	Score = 1 (Incomplete)	Score = 0 (No/Incorrect)
Injection technique	Clearly explains: – Pinch site – Inject into the abdomen, thigh, or upper arm – Alternate sites	Mentions some but not all elements (example: "inject in abdomen").	Does not mention or provide a vague statement (example: "it's an injection medication").
Dosing schedule	States: – Month 1: 0.25 mg once weekly, followed by – Month 2: 0.5 mg once weekly, followed by – Month 3: 1 mg once weekly Recommended to take it at the same time on the same day each week.	Mentions only some elements of the schedule (example: "start with 0.25 then increase gradually").	Does not mention the dosing schedule, gives incorrect instructions (example: "start with 0.5 mg"), or refers the patient to external sources (example: "check online," "watch YouTube").
Side effects	List at least 2 of: – Nausea – Vomiting – Diarrhea – Abdominal pain	Mentions one side effect only.	Does not mention side effects or states incorrect information (e.g., "the medication has no side effects").
Adherence	Emphasizes the importance of long-term use to maintain effectiveness and reduce the risk of weight regain.	Mentions that it's a regular medication but does not emphasize long-term use or the risk of weight regain.	Does not mention adherence.
Lifestyle advice	States that a healthy diet and regular exercise improve treatment effectiveness. Provides specific advice, such as reducing sugar or fat intake.	Mentions lifestyle advice only vaguely (example: "you should eat healthy").	Does not mention lifestyle advice.

food intake."

Scoring Calculations:

Injection technique: 2

Dosing schedule: 2

Side effects: 2

Adherence: 2

Lifestyle advice: 2

Here, the total score is 10 out of 10

2) Example 2: Incomplete counselling

A pharmacist might say, for example: "Ozempic® is an injectable medication; you can inject it into the abdomen. The dose started at 0.25 mg once weekly, then increased to 0.5 mg in the second month, and 1 mg from the third month onwards. As a side effect, it can cause nausea and abdominal pain, and it is better to take it regularly. In addition, try to eat healthily while taking it."

Scoring Calculations:

Injection technique: 1

Dosing schedule: 2

Side effects: 2

Adherence: 1

Lifestyle advice: 1

Here, the total score is 7

3) Example 3: Incorrect/no counselling

A pharmacist might say, for example: "Ozempic® is an injectable medication that should be injected in the abdomen, thigh, or upper arm using a pinch technique. You can watch YouTube to know more about it, and it has no side effects. The dose starts at 0.25 mg once weekly, then increases to 0.5 mg in the second month, and 1 mg from the third month onwards, and stops whenever the desired weight is reached."

Scoring Calculations:

Injection technique: 1

Dosing schedule: 2

Side effects: 0

Adherence: 0

Lifestyle advice: 0

Here, the total score is 3

Statistical analysis

Statistical analyses were performed using IBM SPSS version 27, USA. A one-sample z-test was used to compare the proportion of prescription requests with the 12.5% reported in the Saudi study results[24]. To compare the quality and comprehensiveness

of counseling across subgroups (independent vs chain, male vs female), a t-test will be used if the data are normally distributed and a non-parametric Mann-Whitney U test if the data are not normally distributed. Normality was assessed using the Shapiro-Wilk test. Spearman's rank correlation was used to examine the relationship between time spent in the pharmacy and counselling score. The association between pharmacist characteristics (gender, pharmacy type, emirates, and busy level) and dispensing behavior was analyzed using the Chi-square test. Fisher's exact test was used when the expected cell count was less than 5. A p-value of < 0.05 is considered statistically significant for all tests.

RESULTS

After the simulated patient visits were completed, 153 of the 190 pharmacies (81%) that agreed to participate in the study were included.

Among 153 pharmacies, 71 (46.4%) were located in Dubai, and the remaining 82 (53.6%) were distributed across the northern emirates, specifically in Sharjah, Ajman, Ras Al Khaimah, Fujairah, and Umm Al Quwain (Table 2).

Prescription requirements

Of the 153 pharmacies, only 41 pharmacists (26.8%) requested a prescription before dispensing Ozempic®. This proportion was significantly lower than the 87.5% reported in a similar study in Saudi Arabia[24] (p <0.001). Furthermore, as an exploratory comparison, we tested this against a hypothetical benchmark of 50%, and the difference remained statistically significant (p <0.001). Additionally, 112 pharmacists were willing to dispense without a prescription (65%), which was significantly higher than the hypothesized 50% (p < 0.001) Table 3.

Table 2. Baseline characteristics of the community pharmacies visited.

Characteristic	Category	Frequency (n)	Percentage (%)
Location	Dubai (DHA)	71	46.4
	Northern Emirates (MOHAP)	82	53.6
Pharmacy type	Chain	82	53.6
	Independent	71	46.4
Pharmacist gender	Male	83	54.2
	Female	70	45.8
Pharmacy busy status	Busy	34	22.2
	Not Busy	119	77.8
Number of Customers present	1	87	56.9
	2	41	26.8
	3	18	11.8
	≥4	7	4.6
Number of pharmacists present	1	90	58.8
	2	43	28.1
	3	17	11.1
	≥4	3	2

Table 3. Summary of factors associated with the pharmacist asking for a prescription in the community pharmacy.

Variable	Category	Asked for prescription (n, %)	Did not ask (n, %)	p-value
Pharmacy type	Chain	29 (35.4)	53 (64.6)	0.011*
	Independent	12 (16.9)	59 (83)	
Gender	Male	14 (16.9)	69 (83.1)	0.004*
	Female	27 (38.6)	43 (61.4)	
Busy status	Busy	10 (29.4)	24 (70.6)	1*
	Not busy	31 (26.1)	88 (73.9)	
* Fishers exact test				

Screening Questions

Of the 153 pharmacies, only five (3.3%) inquired about age, eight (5.2%) about weight, four (2.6%) about pregnancy, and 15 (9.8%) about medication history. The most frequently asked question was about medical history, but it was still limited to 31 (20.3%). Additionally, independent pharmacies were significantly more likely to inquire about a patient's medical history than chain pharmacies (30% vs. 8%, Fisher's p-value ≈ 0.001), while the other screening questions showed no significant difference between the two groups Table 4.

Table 4. Comparison of screening practices between independent and chain Pharmacies

Screening Question	Chain (n = 82)	Independent (n=71)	p-value (Fisher's exact)
Age	3.70%	2.80%	1.0*
Weight	4.90%	5.60%	1.0*
Pregnancy	2.40%	2.80%	1.0*
Medication History	12.20%	7.00%	1.0*
Medical History	8.40%	30.40%	0.001*
* Fishers exact test			

Quality of Counselling

Counselling quality was generally low throughout the 153 pharmacy visits. The total counseling score ranged from 0 to 10 based on five key elements (dosing regimen, injection technique, side effects, adherence, and lifestyle advice). The mean counselling score was 3.57 ± 2.94 in independent pharmacies and 2.87 ± 2.45 in chain pharmacies, with median scores of 3.5 for independents and 2.0 for chains; however, this difference was statistically insignificant. (p ≈ 0.17). Male pharmacists had significantly higher counselling scores than female pharmacists (4 vs 2, p = 0.024). Overall, 41 SP encounters (27%) received no counselling (score = 0), with the most common band being 4-6 points, while only two visits achieved a score of 10. Table 5 summarizes the number of pharmacists who scored in each counselling element.

Discount Offers

Of the 153 pharmacies, only 10 encounters (6.5%) offered a discount on Ozempic®. Discounts were slightly more common

Table 5. Summary of the community pharmacists' score by counseling element.

Counselling elements	Scored 2	Scored 1	Scored 0
Regimen	78	20	55
Injection technique	20	27	106
Side effects	55	26	72
Adherence	23	17	113
Lifestyle advice	20	15	118

in chain pharmacies (8.5%) than in independent pharmacies (4.9%), but the difference was not statistically significant (p≈ 0.52). Similarly, there was no significant difference based on pharmacist gender, with a 7.2% discount offered by female pharmacists and a 5.7% discount offered by male pharmacists (p≈ 0.76).

DHA vs MOHAP

When comparing practices across regions, pharmacies under the DHA dispensed medications without a prescription in approximately 73% of visits, compared to 59% in the northern emirates under MOHAP. However, the difference was not significant (p ≈ 0.063, Fisher's exact test).

Time spent in the pharmacy

The median visit duration was 5 minutes, peaking at approximately 3-4 minutes, with most encounters lasting between 2 and 6 min. The distribution was positively skewed (1.401) and not normally distributed (Shapiro-Wilk test, p <0.05) (Figure 1). No significant differences were observed in the time spent based on pharmacy type (p = 0.79), pharmacist gender (p = 0.11), or emirates (p = 0.41) using Kruskal-Wallis. However, there was a strong positive correlation between visit duration and counselling scores (Spearman's ρ ≈ 0.61, p ≈ 3.1×10^{-17}), indicating that longer visits were associated with higher counselling scores. This suggests that the more time a pharmacist spends with the simulated patient, the more comprehensive the counselling.

Additional recommendations from pharmacists include the following

Among the 153 pharmacies visited, 31 pharmacists (20.3%) provided recommendations in addition to or as an alternative to Ozempic®. These are summarized in Table 6.

DISCUSSION

Globally, the off-label use of Ozempic® for weight loss has

Table 6. Summary of additional or alternative recommendations

Recommendation	Total n=153 (n, %)
Tirzepatide	13 (8.5)
Herbal weight loss products	15 (9.8)
Semaglutide (particularly Wegovy)	1 (0.7)
Probiotic*	1 (0.7)
Vitamin B-complex**	1 (0.7)

* Probiotic was recommended as an adjunct to reduce Ozempic side effects

** Vitamin B-complex was recommended as an adjunct to reduce vitamin B12 deficiency

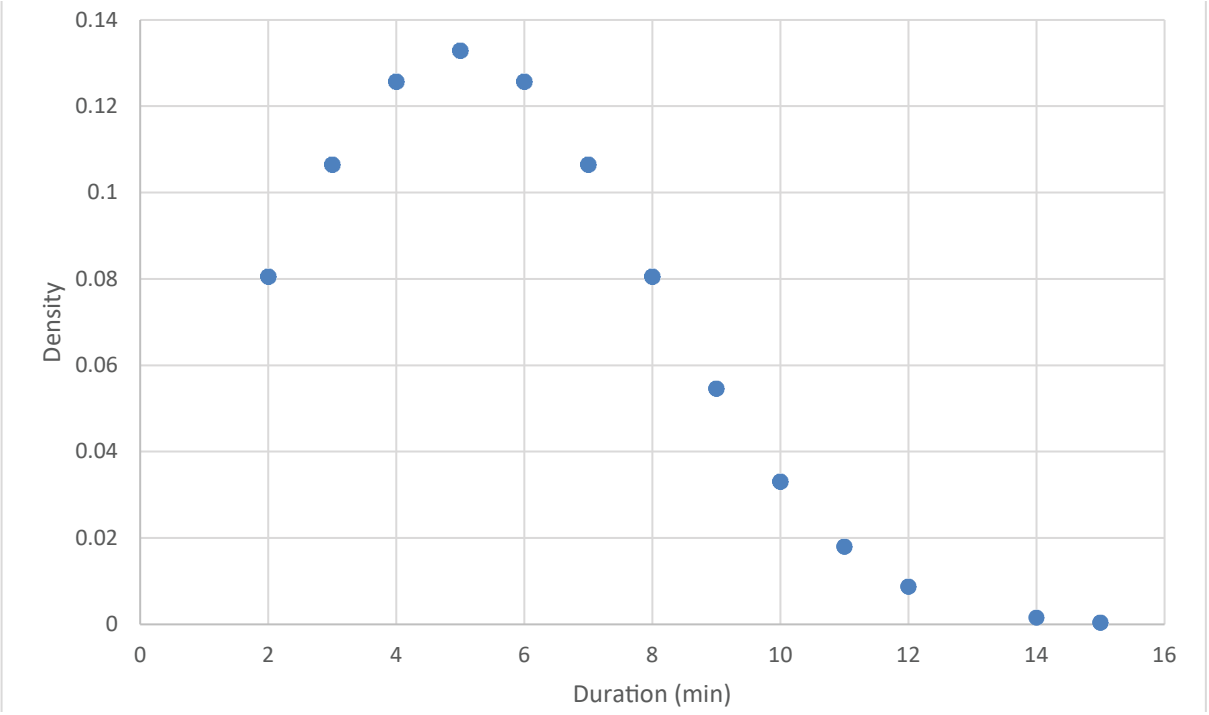

Figure 1. Distribution of time spent during pharmacy encounters

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raised concerns about medication misuse, pharmacists' accountability, and patient safety. This study aimed to evaluate the current practices of community pharmacists in the UAE regarding the dispensing and counselling of Ozempic®, a medication frequently used off-label for weight loss. Using a simulated patient approach, we assessed whether pharmacists adhered to prescription regulations, conducted appropriate patient screenings, and provided adequate counselling.

The findings revealed significant gaps in safe and evidence-based dispensing practices. Although Ozempic® is a prescription-only medication indicated for T2DM, only 26.8% of pharmacists requested prescriptions. This rate is significantly lower than that reported in a similar study in Saudi Arabia, where 87.5% of pharmacists required a prescription when dispensing antibiotics[24]. It was also significantly lower than a 50% hypothetical benchmark ($p < 0.001$), indicating that even if we assumed that half of the pharmacists might forget to observe prescription requirements, the actual level of noncompliance observed in this study was far greater than expected. The overall dispensing results were more consistent with those of a study from Ho Chi Minh City, Vietnam, where 83% of pharmacists dispensed antibiotics without prescriptions[29].

Pharmacy type was significantly associated with dispensing behavior, with only 16.9% of independent pharmacists requesting a prescription compared to 35.4% of those working in chain pharmacies ($p = 0.0011$), a finding similar to that of a systematic review[30]. Several factors may explain this difference. Independent pharmacies face greater pressure to retain customers, as they already struggle to compete with chain pharmacies on price, services, and visibility. Unlike large chains, independent pharmacies in the UAE may be particularly vulnerable to financial pressure because they face higher operational costs, such as rent, staffing, and inventory management. This aligns with the findings of a Saudi Arabian study, in which 20.65% of pharmacists admitted to dispensing medications without a prescription to avoid losing customers to competing pharmacies[31].

Pharmacist screening practices were also limited in this study. Fewer than 10% of pharmacists asked basic clinical questions, such as age, weight, pregnancy status, or medication history. Only 20.3% asked about general medical history, with independent pharmacies performing significantly better than chain pharmacies (30.4% vs. 8.4%, $p \approx 0.001$). One possible reason for this difference is that pharmacists in chain pharmacies may be more likely to assume that the physician has already performed the screening, especially when a prescription is expected. These missed opportunities to screen for contraindications are particularly concerning, given that semaglutide requires careful consideration in patients with specific conditions, such as a personal history of medullary thyroid carcinoma, neoplasia syndrome type 2, pancreatitis, and gallbladder disease[32–34]. In many cases, pharmacists dispensed medications without verifying whether the patient has diabetes, relying solely on the request rather than the clinical need. These findings are similar to those of another study conducted in the UAE, which reported a similarly low level of screening for cardiovascular medications, where only 5% of pharmacists engaged in such practices[35].

The overall quality of counselling was inferior, with 27% of visits receiving no counselling at all. Many pharmacists failed to provide basic information about administration, side effects, or lifestyle considerations, similar to the findings of other studies, where counselling on non-prescription or prescription medications was often inadequate[36–38].

A possible explanation for this might be that community pharmacists in the UAE need to perform several tasks simultaneously. They dispense medications, manage inventory, process insurance claims, handle administrative work, and serve multiple customers. Similar workflow and time constraint challenges have been reported in several studies, where high workload is consistently identified as a major barrier to effective counselling. This high workload is further intensified by limited staffing in many community pharmacies. Inadequate staffing levels in UAE community pharmacies may lead to poor counselling quality. Our baseline data indicated that 56.9% of visits happened when only one pharmacist was available, forcing a single individual to handle all pharmacy operations alone. In these situations, pharmacists often must prioritize their responsibilities carefully, usually placing dispensing and administrative tasks above counselling. Evidence from multiple studies reports that adequate staffing is crucial for maintaining care quality, including effective counselling[39]. Pharmacy revenue mainly comes from product sales instead of services like patient counseling, creating financial incentives that favor quick dispensing over thorough patient education. A study examining barriers to enhancing pharmacy services in Dubai found that 64.7% of pharmacists believed pharmacy practice has become business-focused, with 48.5% reporting increasing pressure to meet high sales targets[40]. Additionally, male pharmacists had significantly higher counselling scores than female pharmacists ($p = 0.024$). One possible explanation is that female pharmacists were more likely to reject dispensing requests because of a lack of prescription, resulting in fewer counseling opportunities. Our study also showed a strong correlation between the time spent with the SP and counselling quality ($p < 0.001$), suggesting that longer sessions result in higher counselling scores, which is consistent with another study conducted in Malaysia[41]. This is expected as longer encounter times allow for better opportunities for pharmacists to provide comprehensive counseling. According to our study, the counseling element most frequently scored as complete was the dosing regimen, including duration, dose, and frequency, consistent with findings from another study [42].

Moreover, in our study, only 6.5% of pharmacists offered a discount on Ozempic®. Although this proportion was low, it is essential to note that providing discounts on medications with prices set by the ministry is not permitted under UAE pharmacy regulations, violating this law could lead to fines or the suspension of a pharmacy license. This is likely the reason most pharmacists do not offer price reductions, even when asked[43]. Many UAE chain pharmacies use alternative strategies such as cashback rewards, loyalty points, membership programs,

and in-store promotions. These strategies comply with pricing regulations because they do not lower the official medication price but instead provide a financial benefit to customers through other means. For example, customers can use cashback for future purchases, and they can accumulate loyalty points to redeem for non-regulated items. These methods help pharmacies follow price-fixing laws while still attracting customers in a competitive market. When asked, pharmacists most frequently recommend tirzepatide, specifically Mounjaro®, and weight-loss herbal products. Tirzepatide is another prescription-only medication that is FDA-approved for T2DM and is commonly used off-label for weight loss. One study reported that patients who received tirzepatide achieved 5% more weight loss than those who received Ozempic® in three months. Some pharmacists mentioned that tirzepatide helps reduce weight loss faster, but acknowledge that it costs more than Ozempic®. Only one pharmacist recommended Semaglutide (Wegovy®), a formulation approved specifically for chronic weight management [44]. In our study, consent was obtained after the simulated visits, which might be considered unethical; however, the aim was to prevent any leaked information from influencing the study results. It is worth mentioning that some of the pharmacies that later provided informed consent emphasized that the semaglutide injection is POM; however, the same pharmacists were initially willing to dispense it without a prescription[26]. To our knowledge, this is the first study globally to evaluate community pharmacist dispensing behavior and counselling practices related to Ozempic®. This study has several limitations. First, the study was limited to pharmacies in Dubai and the Northern Emirates and did not include Abu Dhabi, which may limit its generalizability. Second, as this was a cross-sectional study, we were unable to establish causality. Third, informed consent was obtained directly after the visits were completed. While this might constitute a form of deception, it was necessary to avoid biased behavior. The study included subgroup analyses, such as pharmacy type, pharmacist gender, counselling score, and visit duration. These should be considered for hypothesis generation only and cannot be generalized because of the sample size. These findings suggest that several interventions are necessary to improve counseling and prevent pharmacists from engaging in unsafe dispensing practices. These could include accessible continuing education programs focused on pharmacy regulations, public awareness conferences, and stricter enforcement of prescription laws. Together, these efforts can promote more responsible use of Ozempic® and reduce risks associated with off-label dispensing [45,46].

CONCLUSION

This study provides real-world insights into how community pharmacists dispense and counsel Ozempic®, particularly in the context of off-label use for weight loss. The findings revealed significant gaps in observing prescription regulations, patient screening, and the quality of counseling, which raised concerns about patient safety and accountability. Future research should investigate the factors influencing pharmacists' decisions to dispense Ozempic® without a prescription to better understand the motivations behind such practices and inform targeted interventions. Subgroup analyses based on pharmacist gender, pharmacy type, counseling score, and counseling duration may yield further valuable insights for subsequent studies. Additionally, longitudinal studies tracking changes in practice following educational or regulatory interventions would help evaluate the effectiveness of proposed solutions.

CONFLICTS OF INTEREST

The authors report there are no conflicts of interest to declare.

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