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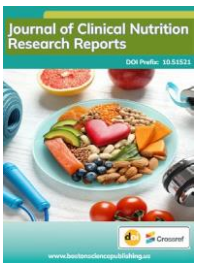

Frequency of Nutritional Follow-Up and Its Impact on Weight Loss in Adults with Overweight or Obesity

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A R T I C L E I N F O

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A B S T R A C T

Background: Frequent professional followup is often cited as a predictor of successful weight loss, yet its specific impact has not been consistently quantified in real-world settings.

Objective: To evaluate whether followup frequency is associated with improved clinical outcomes in adults with overweight or obesity.

Methods: This retrospective analysis reviewed 191 anonymized medical records from patients treated between 2010 and 2023, both in-person (Argentina, Colombia) and remotely (Spain, United States, Chile). Patients were grouped by average followup interval (≤15 vs. >15 days). Student's t-test and linear regression were used to evaluate weight loss and waist circumference changes.

Results: Those with followups ≤15 days lost significantly more weight (6.17 ± 4.94 kg vs. 2.10 ± 7.03 kg; $p < 0.01$) and reduced their waist circumference more (7.38 ± 5.18 cm vs. 2.43 ± 7.13 cm; $p = 0.01$). A negative correlation was found between visit interval and weight loss ($r = -0.32$; $p < 0.01$). Regression analysis confirmed an independent association.

Conclusion: Frequent followup is strongly associated with better weight and waist circumference outcomes, supporting its role as a key factor in obesity management.

Introduction

Although professional support is widely recognized in clinical practice as a key factor for adherence and successful treatment of excess weight [1], the specific frequency of nutritional followup—measured as the number of days between appointments—has been rarely analyzed as an independent predictor of clinical outcomes. Most existing studies evaluate structured programs or the total number of sessions, but do not specifically assess whether the spacing between nutritional consultations directly influences weight loss or reductions in body measurements [2,3]. This gap justifies the present study, which is based on the hypothesis that a higher frequency of nutritional followup—reflected in fewer days between appointments—is associated with greater weight loss and a greater reduction in waist circumference in adults with overweight or obesity.

Methodology

Study Design

This retrospective observational study was conducted using systematized clinical records from the author's professional practice between 2010 and 2023. The data were obtained from outpatient consultations conducted in Argentina and Colombia, as well as from remote nutritional followup provided since 2020 to patients from other countries, including Chile, Spain, and the United States. All patients received the same individualized approach to nutritional care, with structured followup and anthropometric data collection, including guided self-monitoring when needed. Clinical records of patients with overweight or obesity who underwent nutritional treatment with the explicit goal of weight loss were analyzed.

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Population and Inclusion Criteria

The study included adult patients aged 30 to 65 years, with a body mass index (BMI) of 25 or higher at the beginning of treatment, at least three documented nutritional consultations, and a minimum followup duration of 90 consecutive days. Clinical records were excluded if they lacked initial or final weight or waist circumference data, involved pregnant women during the followup period, or did not meet the established continuity criteria.

Variables Analyzed

The following variables were assessed:

- Initial and final body weight (kg)
- Initial and final waist circumference (cm)
- Initial body mass index (BMI)
- Age (years)
- Sex
- Treatment duration (number of days from first to last recorded consultation)
- Average interval between visits (calculated as the mean number of days between nutritional consultations)
- Total number of nutritional consultations

Patients were classified into two groups based on the average interval between consultations:

- Group 1: ≤15 days between nutritional consultations
- Group 2: >15 days between nutritional consultations

Nutritional Intervention

The nutritional treatment followed a personalized approach focused on food education, habit formation, conscious decision-making, and ongoing professional support. Individualized meal plans were used, with an approximate reduction of 500 kcal/day from estimated requirements, adjusted according to body weight, clinical evolution, and reported physical activity levels. The intervention also encouraged increased daily physical activity and the gradual incorporation of planned exercise.

No universal meal plans or restrictive diets were used; instead, the emphasis was placed on individualization and strengthening the therapeutic alliance. None of the included patients received weight-loss medications or underwent bariatric surgery during the study period. The same therapeutic approach was applied to all patients, regardless of whether they were seen in person (in Argentina or Colombia) or through remote followup (for those residing in other countries). All patients received individualized care and continuous support under the same treatment principles.

Statistical Analysis

Statistical analysis was performed using Python (version 3.10) as the programming environment. The libraries used included pandas for data manipulation, NUMPY for numerical calculations, SCIPY for independent samples t-tests, and stats models for linear regression modeling.

Changes in body weight and waist circumference were compared between the groups based on consultation frequency (≤15 days vs. >15 days). Additionally, a multivariate linear regression model was applied to evaluate the association between average consultation interval and weight loss, adjusting for age, sex, initial BMI, and treatment duration.

A p-value < 0.05 was considered statistically significant. Before applying the regression models, statistical assumptions were verified: normality of residuals (via histogram and Shapiro-Wilk test), homoscedasticity (residuals vs. fitted values), and absence of multicollinearity (variance inflation factor, VIF < 5). All assumptions were reasonably met, supporting the validity of the multivariate analysis.

Table 1: Clinical Characteristics of Patients Included in the Study (n = 191).

Variable	Mean ± SD / %
Age (years)	47.2 ± 10.3
Female sex (%)	50.7
Initial BMI (kg/m^2)	32.5 ± 4.9
Initial weight (kg)	87.2 ± 15.6
Initial waist circumference (cm)	107.1 ± 11.2
Total number of consultations	20.1 ± 15.7
Treatment duration (days)	682.0 ± 642.1

Values are presented as mean ± standard deviation (SD) or percentage.

Table 2: Correlation Between Average Interval Between Consultations and Weight Loss.

Variable	Value
Pearson's r	-0.32
p-value	< 0.01

Table 3: Weight Loss According to Consultation Frequency.

Group	Mean weight loss ± SD (kg)
Group ≤15 days	6.17 ± 4.94 kg
Group >15 days	2.10 ± 7.03 kg

Table 4: Waist Circumference Reduction According to Consultation Frequency.

Group	Mean Waist Reduction ± SD (cm)
Group ≤15 days	7.38 ± 5.18 cm
Group >15 days	2.43 ± 7.13 cm

Appendix 1: Multivariate analysis: included variables and results (n = 191)

Table A1: Statistical significance of each variable included in the multivariate linear regression model

Variable	p-value
Consultation frequency	< 0.001
Sex	0.245
Age	0.012
Initial BMI	0.018
Treatment duration	0.083
Number of nutritional consultations	< 0.001

Table A2: Definition of variables and clinical interpretation of results

Variable	Definition	Result
Consultation frequency	Average interval between nutritional consultations	Significant association with weight loss (p < 0.001)
Number of consultations	Total number of documented consultations	Significant association with weight loss (p < 0.001)
Sex	Male or female	No significant association (p = 0.245)
Age	Patient's age in years	Significant association (p = 0.012)
Initial BMI	Body mass index at the start of treatment	Significant association (p = 0.018)
Treatment duration	Days between first and last consultation	No significant association (p = 0.083)

Ethical Considerations

All data used in this study were originally obtained during routine clinical care, as part of standard professional nutritional interventions, without any experimental design associated with the study.

The records had been systematized through clinical charts used for nutritional followup. Before being used for research purposes, the data were anonymized to ensure confidentiality, in compliance with Argentina's National Personal Data Protection Law No. 25.326 and the principles of the Declaration of Helsinki.

As this was a retrospective, observational study without new data collection or any modification of clinical practice, no additional informed consent or ethics committee approval was required, in accordance with national regulations for minimal-risk research in Argentina.

According to Resolution 1480/2011 from the Argentine Ministry of Health, retrospective studies using anonymized clinical data without direct intervention are considered low-risk and do not require formal ethics approval.

Although the ethical and legal framework applied was based on Argentine regulations—where the clinical data were initially systematized—all procedures complied with the principles of the Declaration of Helsinki and general international standards for retrospective research involving minimal risk. The same confidentiality and data protection principles were applied to all patients, including those who received remote nutritional care while residing in other countries.

Results

A total of 191 clinical records of adult patients with overweight or obesity who met the inclusion criteria were analyzed. The mean age was 47.2 ± 10.3 years, and 50.7% of the sample were women. The initial body mass index (BMI) was 32.5 ± 4.9 kg/m^2.

The average number of documented nutritional consultations was 20.1 ± 15.7, over a treatment period with a mean duration of 682.0 ± 642.1 days and a median of 460 days (range of treatment duration: 91–3334 days).

A statistically significant negative correlation was observed between the average interval between nutritional consultations and weight loss ($r = -0.32$; $p < 0.01$), indicating that longer intervals between visits were associated with less weight loss. This association remained significant

when a linear regression model was applied, adjusted for age, sex, initial BMI, and treatment duration ($p < 0.01$).

When comparing the groups defined by consultation frequency, the group with an interval of 15 days or less (Group 1) showed a mean weight loss of 6.17 ± 4.94 kg, while the group with an interval greater than 15 days (Group 2) showed a mean weight loss of 2.10 ± 7.03 kg ($p < 0.01$).

Regarding waist circumference reduction, Group 1 showed a mean decrease of 7.38 ± 5.18 cm, while Group 2 showed a reduction of 2.43 ± 7.13 cm ($p < 0.01$).

The corresponding figures illustrate the differences between groups and the correlation between consultation frequency and clinical outcomes.

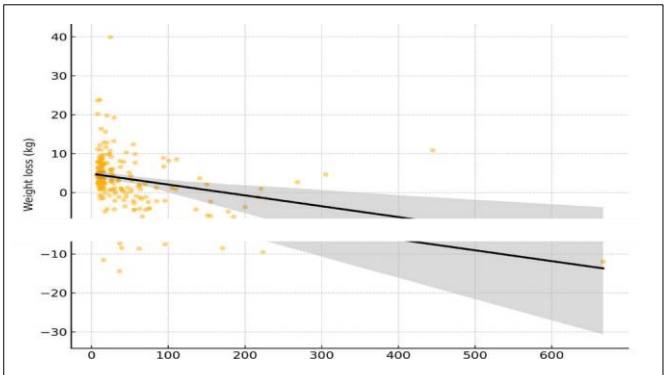

Figure 1: Relationship between the average interval between nutritional consultations and weight loss. A negative correlation was observed: the greater the number of days between consultations (i.e., lower frequency), the less weight loss achieved. The linear regression line is shown with its confidence interval, visually reinforcing the downward trend. The regression model yielded an adjusted R^2 of 0.11, indicating a weak but statistically significant association.

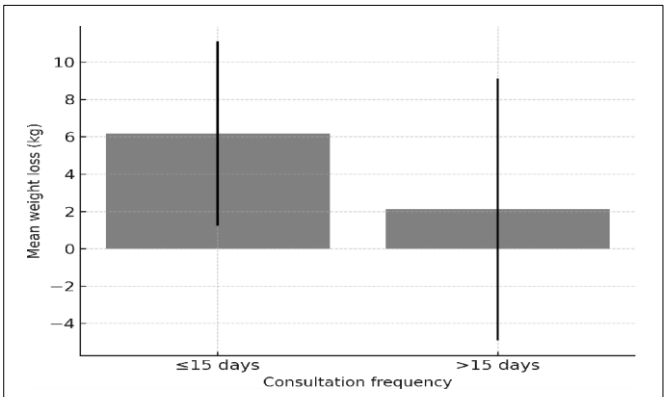

Figure 2: Mean weight loss by consultation frequency. The figure shows the average weight loss (in kg) according to consultation frequency. Patients with consultations every ≤15 days showed a significantly greater reduction than those with >15-day intervals ($p < 0.01$). Error bars represent standard deviation.

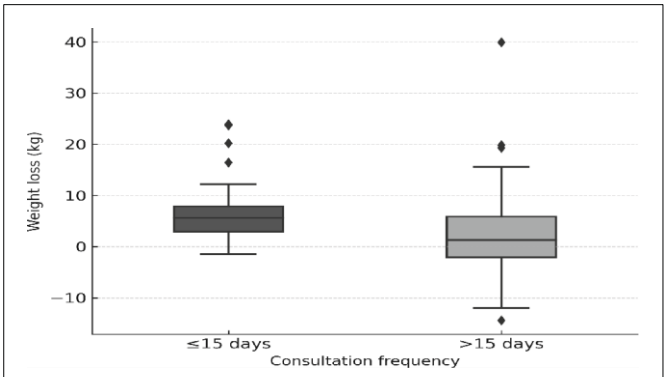

Figure 3: Distribution of weight loss by consultation frequency. The group with ≤15-day consultations showed a higher median weight loss and less variability, indicating a more consistent treatment response.

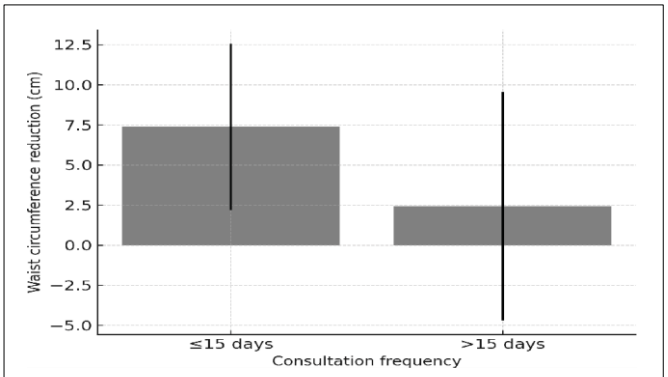

Figure 4: Waist circumference reduction according to consultation frequency. The group with consultations every ≤15 days showed a significantly greater average reduction in waist circumference compared to the group with >15-day intervals ($p < 0.01$). Error bars represent standard deviation.

Discussion

The results of this study demonstrate that a higher frequency of nutritional followup is associated with significantly greater weight loss and a more pronounced reduction in waist circumference. This association remained statistically significant both in the between-group comparison and in the multivariate regression model adjusted for age, sex, initial BMI, and treatment duration.

From a clinical standpoint, these findings highlight the value of frequent followup as an active therapeutic strategy in the treatment of excess weight. Patients who attended nutritional consultations every 15 days or less lost, on average, three times more weight than those who attended less frequently. A similar trend was observed for waist circumference—a clinically relevant indicator of cardiometabolic risk—underscoring the importance of consistent followup in clinical practice.

Even in studies involving remote interventions, more frequent contact with nutrition professionals has been associated with better outcomes, regardless of the intervention format [7]. This reinforces the hypothesis that followup frequency, beyond specific dietary approaches, is a central factor in patient success.

This study contributes to a relatively underexplored area: the clinical impact of followup frequency as an independent variable. While the existing literature has primarily focused on dietary content or behavioral strategies, the pace and consistency of professional followup have rarely been examined as core therapeutic components [8,10,13,15].

Drawing on the author's clinical experience with more than 4,000 patients, frequent followup has consistently facilitated better adherence[9], increased motivation, and enhanced engagement with therapeutic tools such as nutritional education, self-regulation[4], weekly planning, and relapse management [6]. Frequent contact enabled more dynamic and responsive strategies between visits, including daily meal tracking via messaging apps or the use of digital self-monitoring platforms [5,18-21]. These tools supported personalized adjustments and faster interventions. In contrast, when the intervals between consultations were longer, these strategies lost impact, making it harder to respond in a timely manner and weakening the therapeutic alliance, which has been recognized as a relevant factor in behavioral treatment success [11].

Many patients included in this study participated through corporate occupational health programs that promoted frequent followup as part of institutional care. Far from being perceived as obligatory, this structure fostered continuity and adherence among participants.

Frequent followup also strengthened the therapeutic relationship, which is known to be a key determinant of success in weight management. Regular contact with the professional functioned as a motivational factor, supporting patient commitment over time and reducing the likelihood of dropout.

In addition to enhancing motivation, maintaining regular contact allows for the structured integration of practical tools that gradually empower the patient. For instance, brief sessions can be used to introduce food diaries, reinforce portion control techniques, or review specific challenges from the previous week. This progressive, hands-on approach facilitates the real-life application of concepts discussed in session, making the treatment more dynamic and personalized. Rather than overwhelming patients with extensive guidelines all at once, frequent consultations allow for a step-by-step progression that promotes sustainable change.

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Importantly, the same followup strategies were effectively implemented with international patients through virtual care, preserving high levels of personalization and continuity of care.

These findings are also consistent with previous research emphasizing the importance of continued followup after weight loss to prevent weight regain [12]. In this context, frequent professional contact not only improves adherence and therapeutic engagement but also fosters a progressive nutritional re-education. This ongoing support helps consolidate sustainable changes, reinforces patient autonomy, and reduces the risk of relapse.

Although body composition and metabolic biomarkers were not included in this analysis, the findings remain clinically meaningful and statistically robust. The observed negative correlation between average days between consultations and weight loss, along with the significance of the total number of visits, strengthens the case for incorporating followup frequency into standard care models.

While the average treatment duration was relatively long (682 ± 642 days), all patients included in the study had at least 90 days of followup and a minimum of three documented consultations. This variation reflects real-world clinical practice and does not undermine the strength of the findings, since treatment duration was accounted for in the multivariate analysis.

Future prospective studies should investigate the role of followup frequency in other populations and settings, and explore underlying mechanisms that explain its impact on outcomes. New group-based treatment models are beginning to incorporate followup structure as a key element in intervention design [14,17]. Meanwhile, the results presented here call for a reassessment of current nutritional care programs—placing followup frequency not as a simple recommendation, but as an essential pillar of effective treatment for excess weight [16].

Limitations

This study presents several limitations inherent to its retrospective and observational design. As it was based on clinical records, it was not possible to quantify or control for other potentially influential variables, such as individual physical activity, which was encouraged as part of the comprehensive approach but not systematically recorded. Additionally, no measures of body composition or metabolic biomarkers were included, which could have provided a more complete characterization of the physiological changes. Moreover, a control group was not used, limiting the ability to establish a direct causal relationship. However, adjusted statistical models were applied, allowing for a methodologically sound interpretation of the findings, and the sample included only patients who met strict clinical criteria, which strengthens the internal validity of the analysis.

Conclusion

This retrospective study, based on real clinical data, demonstrates that a higher frequency of nutritional followup—especially every 15 days or less—is associated with significantly greater weight loss and a more pronounced reduction in waist circumference. This relationship remained significant even after adjusting for age, sex, initial BMI, and treatment duration. The findings highlight that frequent followup is not merely a technical procedure, but an active therapeutic tool that strengthens adherence, deepens the educational process, and sustains behavioral changes over time. In real-world clinical settings, weekly or biweekly followup enables more timely and effective interventions, directly impacting outcomes. This evidence reinforces the need to rethink the structure of nutritional care programs, prioritizing consistency and close patient engagement as pillars of treatment. Future prospective studies may validate and expand these findings in different populations and contexts. In the meantime, the results presented here suggest that not only what is prescribed, but how and how often followup is delivered, can make a substantial difference in therapeutic success.

Conflict of Interest:

The author declares no conflict of interest.

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