

Orofacial Myofunctional Therapy in the Treatment of Sleep Respiratory Disorders: Technology-based Strategies to Enhance Adherence

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Introduction:

One of the challenges faced by Orofacial Myofunctional Therapy (OMT) is patient adherence, despite recommendations regarding duration, frequency, and manual recording charts (1–3). In this study, the attrition behavior of patients with Obstructive Sleep Apnea and Primary Snoring (PS) treated with OMT was analyzed using survival curve estimation. OMT was conducted through a therapeutic model mediated by Telemedicine (TM) and Artificial Intelligence (AI) technologies, along with Cognitive Behavioral Therapy (CBT), Mindfulness, and Tiny Habits strategies (4–6).

Materials and Methods:

An observational study of a single cohort was conducted. Observation window: one year, location: Medellín, Colombia; Population: 769 patients over 18 years old who were treated with OMT at the “IPS NEUMOMED” sleep clinic: 57.5% women and 42.5% men; average age: 46.72 years; average Body Mass Index: 27.70 Kg/m². Sleep data: average AHI (Apnea-Hypopnea Index): 10.64/h; average snoring index: 243.9/h; CT90: 14.25%; average baseline Epworth Sleepiness Scale (ESE): 11.

Using the Kaplan-Meier estimator, a survival analysis was performed, establishing as censorship outcomes those patients who completed the OMT in a time equal to or less than the predefined period, and as an event when treatment abandonment was detected before its completion. The survival curve $S(t) = P(T > t)$ estimated the probability that a patient continues or abandons the OMT. The relationship between intervals greater than fifteen days (GAP) between levels and the probability of treatment abandonment was evaluated (7).

The treatment OMT was conducted through a therapeutic model mediated by Telemedicine (TM) and Artificial Intelligence (AI) technologies, along with Cognitive Behavioral Therapy (CBT), Mindfulness, and Tiny Habits strategies; was structured in six levels, with a total of 56 sessions, mediated by the Doctor Neumo® App, enriched with AI, and using strategies from Cognitive Behavioral Therapy (CBT), Tiny

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Habits, and Mindfulness. A team of speech therapists supervised using management software resources: Smart Therapy Management software (NEUMOMED Corp 2023) for real-time monitoring; video calls via Doxy.me (Doxy.me Company, 2020), ensuring privacy according to HIPAA 1996.

Results:

On average, patients took between 15 and 28 days to complete each level. 158 days were required to complete the entire treatment. The survival curve indicated that 59% of patients who maintained an interval of less than 15 days between levels showed greater adherence to treatment.

The estimator revealed a gradual decline in adherence as levels progressed. Patients who completed level 1 had an 84.2% probability of finishing level 2; 68.2% of completing level 3 after finishing level 2; 50.2% to complete level 4 after finishing level 3; 41.2% to complete level 5 after finishing level 4, and 34.4% to finish level 6.

Conclusions:

- This study suggests that the waiting interval between consultations (GAP) maybe a determining factor in adherence (8).
- The healthcare model used in this study, supported by telemedicine and artificial intelligence, reduces care and response times, favoring patient adherence to treatment.

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INTRODUCTION



One of the challenges of Orofacial Myofunctional Therapy is to **increase patient adherence levels**.

In the study we analyze how by reducing attention times this adherence increases, achieving this decrease thanks to the implementation of tools such as:



MATERIALS AND METHODS

A large study, for 1 year, carried out on

769 Patients



- Medellín, Colombia.
- Over 18 years old.
- Treated at the sleep clinic NEUMOMED.



- 57.5% women.
- 42.5% men.
- Average age: 46.72 years.
- Average Body Mass Index: 27.70 Kg/m2.



- Average AHI: 10.64/h.
- Average snoring index: 243.9/h
- CT90: 14.25%.
- Average baseline Epworth Sleepiness Scale (ESE): 11.

The Kaplan-Meier Estimator

is used to perform a survival analysis.

A team of speech therapists implemented the therapy, mediated by:



Doctor Neumo® App:
6 levels - 56 sessions.



Artificial Intelligences



Telemedicine



Mindfulness



Tiny Habits



Cognitive Behavioral Therapy

RESULTS

Less attention time, greater patient adherence.



80%
of patients **finish** each of the levels.



15 to 28
days to **complete** each level.



59%
↓ **15 days**
between levels

Greater adherence to treatment

Level 6 does not represent the end of treatment, there are some patients who feel better and end treatment at another level.

CONCLUSIONS

1

The waiting interval between consultations (GAP) maybe a determining factor in adherence.



2

The healthcare model used in this study, supported by telemedicine and artificial intelligence, reduces care and response times, favoring patient adherence to treatment.

