PATH ANALYSIS REVEALS THAT ASTHMA TREATMENT(AT) AND EVICTION DIET(ED) MODERATE THE MEDIATION EFFECT OF APNOEA HYPOPNEA INDEX(AHI) AND RESPIRATORY EFFORT(RE) ON BODY MASS INDEX(BMI)

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Background:

The use of AHI as the only poly graphic parameter to diagnose, and follow-up pediatric (ped) OSA-ast in obese children does not seem sufficient to correctly identify the exact profile of each patient and guide for adequate treatment. A significant number of children suffering from OSA do not ameliorate with current treatments.

Methods:

We effectuated a cohort study to evaluate the origin of the sleep disorders in 78 children aged 2–16 years old addressed in primary care, for an allergology consultation and concomitant severe persistent sleep disorders. A path analysis was conducted using Amos 28 to test the model (32 participants)

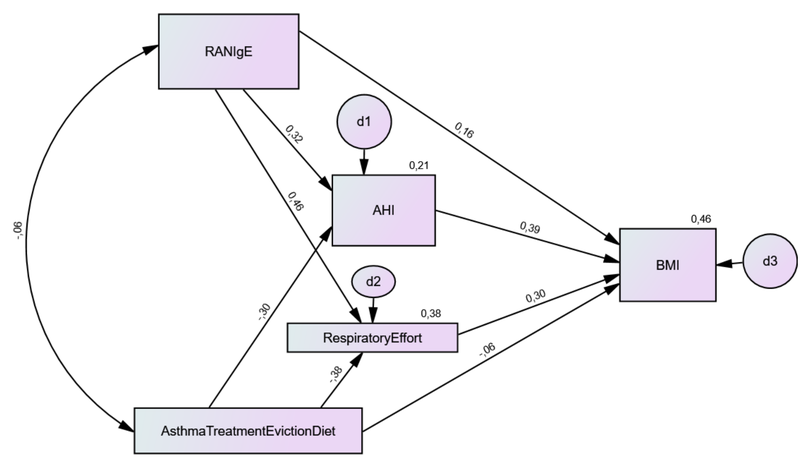

Figure 1. Standardized Estimates

Results:

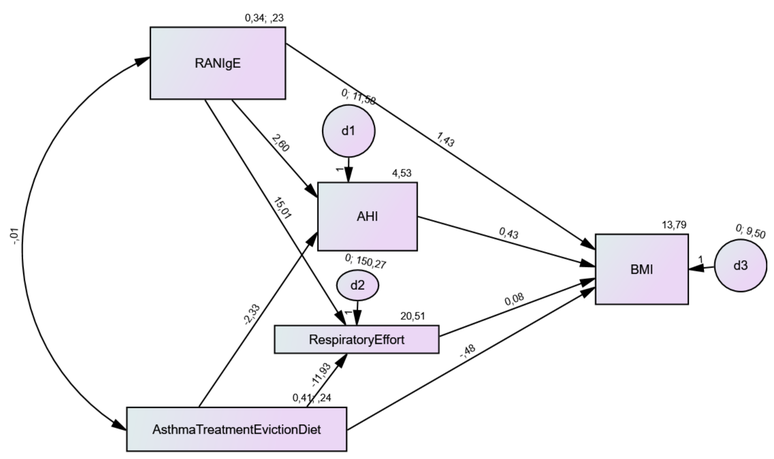

Figure 2. Unstandardized Estimates of Path Analysis with serial mediation in AMOS.

The model was recursive and over identified. Multivariate kurtosis: 6,946 and c.r. (critical ration):2.348, model fit: **chi-square**: .317, **DF:** 1, **p:** .574, **CFI:** 1,0, **RMSEA:** .000, **IFI:** 1.017, **NFI:** .992, **PCLOSE:** .588(90% CI: .000 to .391), **AIC:** 38.317**.** We have found a significant total and direct effect of RANIgE on RE (***p* .002**) and a significant total effect of RANIgE on BMI (***p* .022**). The direct and indirect effect of RANIgE on BMI are not significant. The significant total effect of RANIgE on BMI is mediated through the significant effect of RANIgE on RE. We have found a significant total and direct effect of AT or ED on RE (***p* .006**) and of AT or ED on AHI (***p* .025**). The total effect of AT or ED on BMI is significant (***p*.021**). The direct and indirect effect of AT or ED on BMI are not significant. Like the effect of RANIgE on BMI, the significant total effect of AT or ED on BMI is mediated through the significant effect of AT or ED on BMI.

Conclusions:

AT or ED and RANIgE act as moderators as their levels influence the levels of AHI and RE, which in their turn influence the levels of BMI. Mediated moderation occurs as the effect of being exposed to RANIgE is greater for high-risk subjects (not being under AT or ED), and the interaction effect of RANIgE exposure and AT or ED may then affect a mediating variable of PG (AHI, RE) that then affects BMI. Asthma treatment, allergies, and allergen eviction have a significant impact on sleep disordered breathing/OSA and the Body Mass Index and provide valuable insights for more personalized and comprehensive treatment plans for affected children and into potentially mitigating pediatric asthma and obesity. Sleep fragmentation results from an increase of both AHI/RE which mediate the pathway to asthma, OSA and obesity; allergies, asthma treatment and allergen eviction moderate (increase/decrease) the effect of AHI and RE on asthma, OSA and obesity.

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Acknowledgments

To all the patients and their parents

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