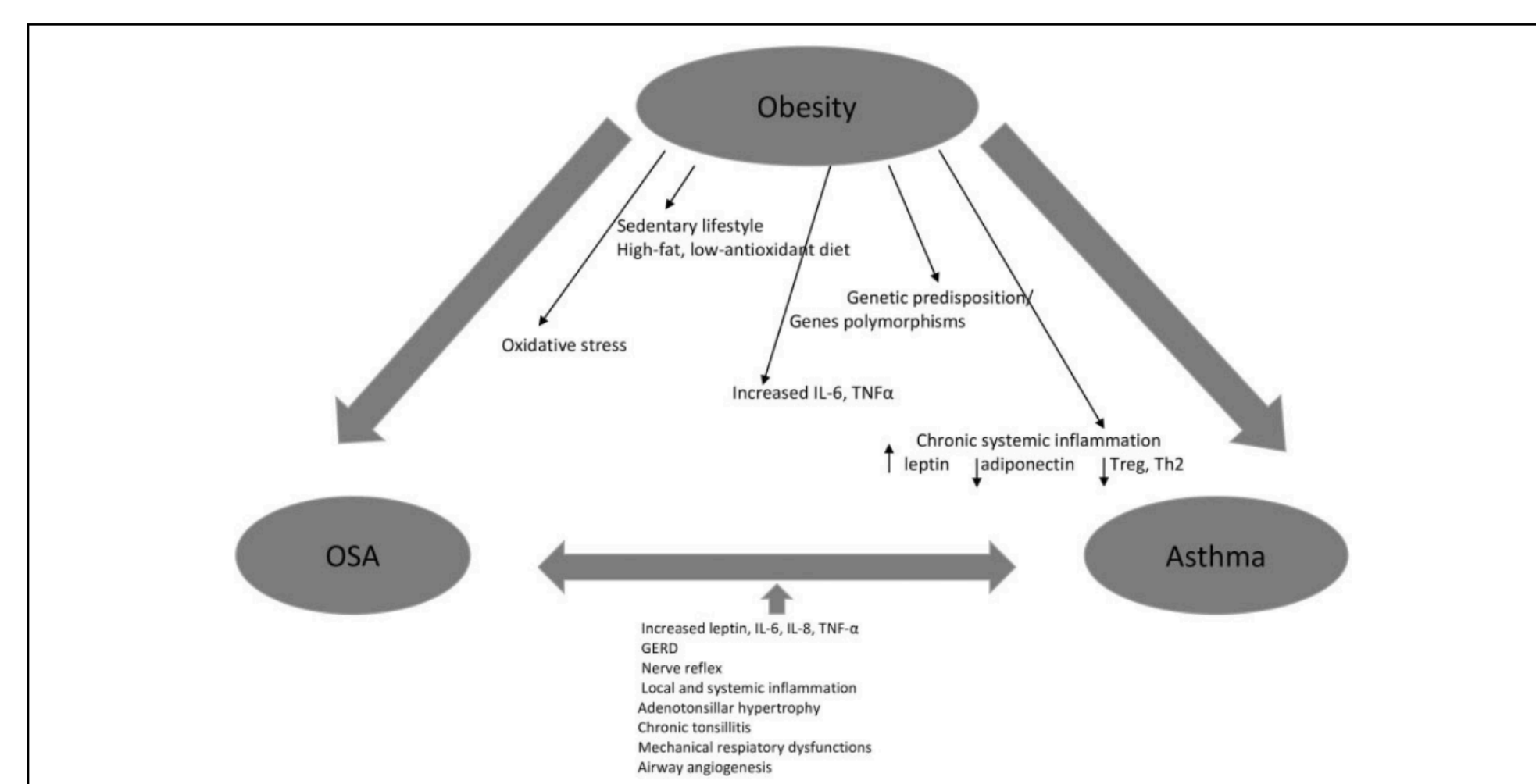


Evaluation of an Existing Screening Tool: Referral for Polysomnogram in a Pulmonary Clinic

Sydney Schneider, BSN, RN, DNP Student
University of Missouri - Columbia

INTRODUCTION

- Asthma is ranked as the most widespread chronic disease of childhood with one in eleven children currently diagnosed with the illness (Centers for Disease Control [CDC], 2018).
- In a cohort study reported by Redline et al. (1999) children with asthma had an almost 4-fold greater risk of sleep-disordered breathing than those without asthma.



PURPOSE STATEMENT and PICOT

The purpose of this quality improvement (QI) project was to evaluate an existing QI project that implemented a standardized screening tool (the PSQ-22) in late 2019 – early 2020 to increase referral to a polysomnogram.

In asthma patients 5-18 years of age (P), how has referral to a polysomnogram following a positive PSQ-22 screening (I) impacted polysomnogram attendance (O) at four and eight months after implementation (T)?

OBJECTIVES

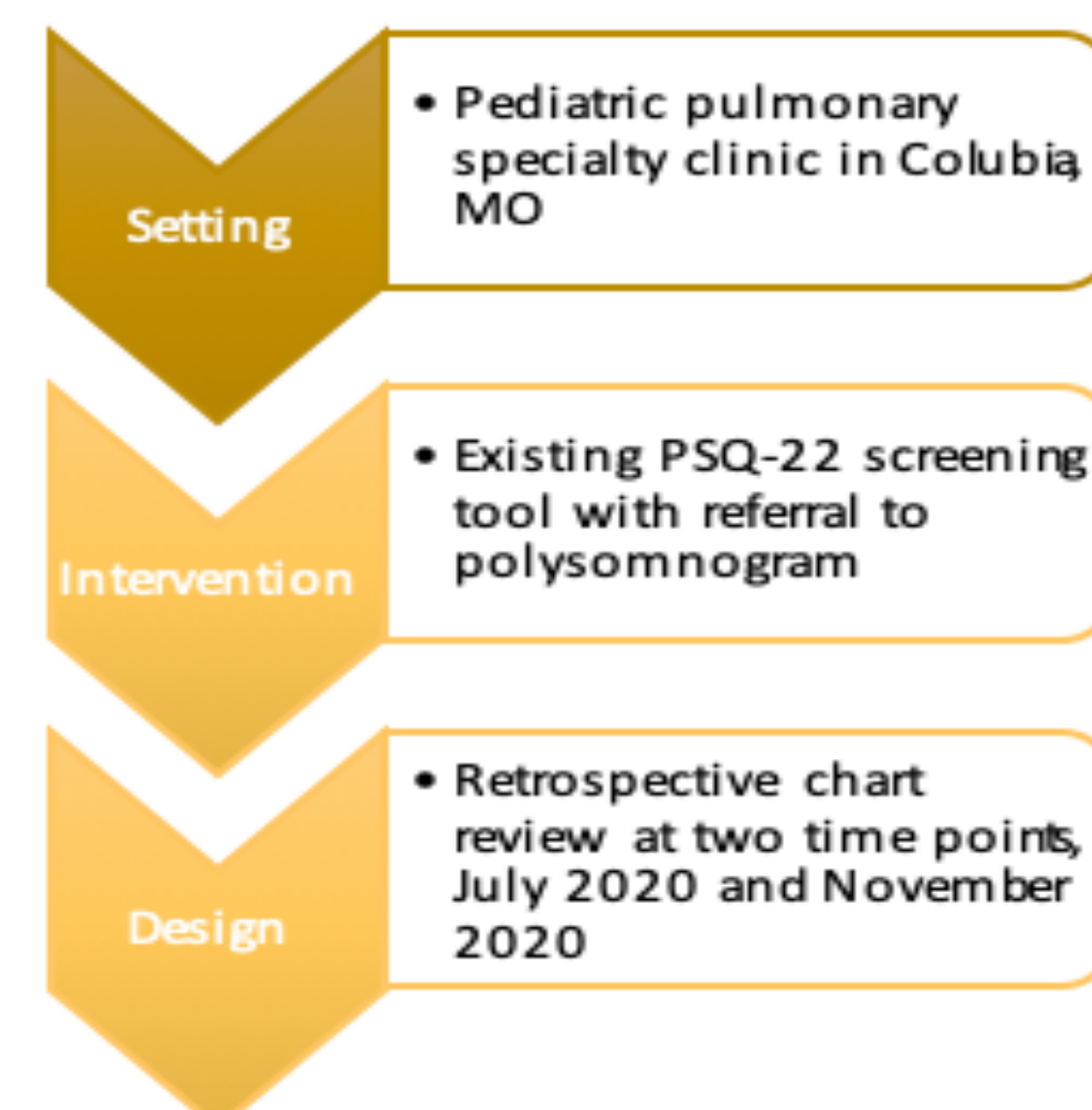
1. 10% of patients referred for a polysomnogram will obtain a polysomnogram within eight months of referral.
2. 15% of patients referred for a polysomnogram will be diagnosed with OSA

ACKNOWLEDGEMENTS

I would like to thank Dr. Janeth Todd (Committee Chair), Dr. Jan Sherman (Committee Member), and Dr. Tammy Rood (Site Committee Member) for their support and guidance with this project.
Contact: ss6f7@mail.missouri.edu
<http://nursing.missouri.edu/index.php>

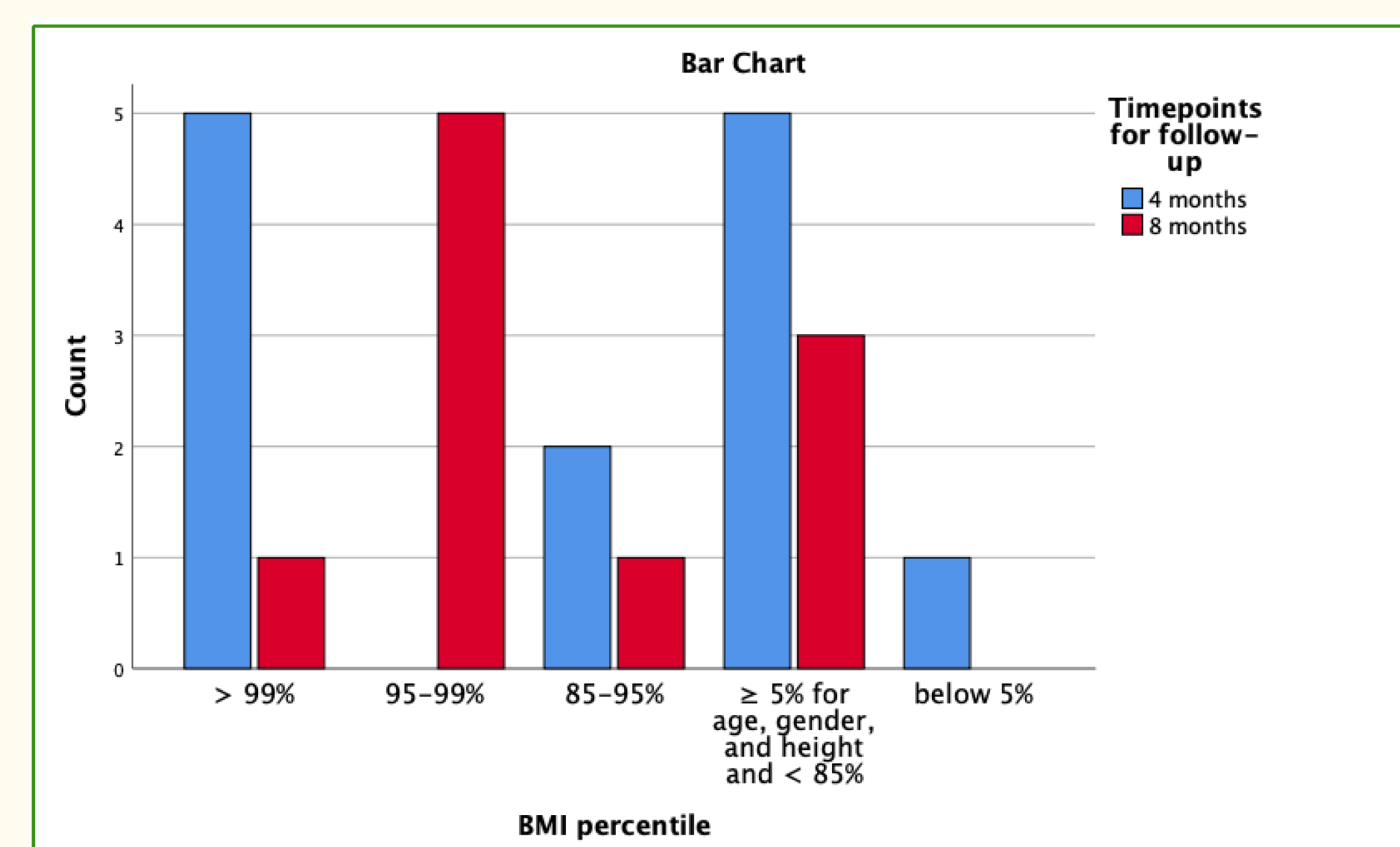
MATERIALS AND METHODS

- This quality improvement project utilized a longitudinal design to evaluate an existing standardized screening tool recently implemented in the winter of 2019-2020 at a pediatric pulmonary clinic.
- The target population was a purposive, convenience sample of pediatric asthma patients aged 5-18 years who had a positive PSQ-22 screening and were referred for a polysomnogram.
- Inclusion criteria limited to ages 5-18, English speaking, positive PSQ-22 screening, and referral to a polysomnogram.
- A follow-up review of the electronic medical record (EMR) was reviewed at four and eight months post-polysomnogram referral to see if 1) polysomnogram was ordered for elevated PSQ-22 score; 2) if the polysomnogram was completed; 3) polysomnogram results, including the presence of OSA; 4) what referrals were made; and 5) other measures of asthma control post polysomnogram.



- Using a confidence level of 95%, a maximum of 5% margin of error, a population size of 18, with a 50% response distribution, a minimum of 18 charts was required at timeline 1 (July 2020) and timeline 2 (October 2020) (Raosoft, 2004).
- Available charts for review: July 2021 (G1), n = 13 and November 2021 (G2), n = 10
- IBM SPSS Statistic version 24 was used for statistical analysis.
- Statistical significance was defined as $p < .05$.

RESULTS



BMI percentile for subjects in G1 and G2

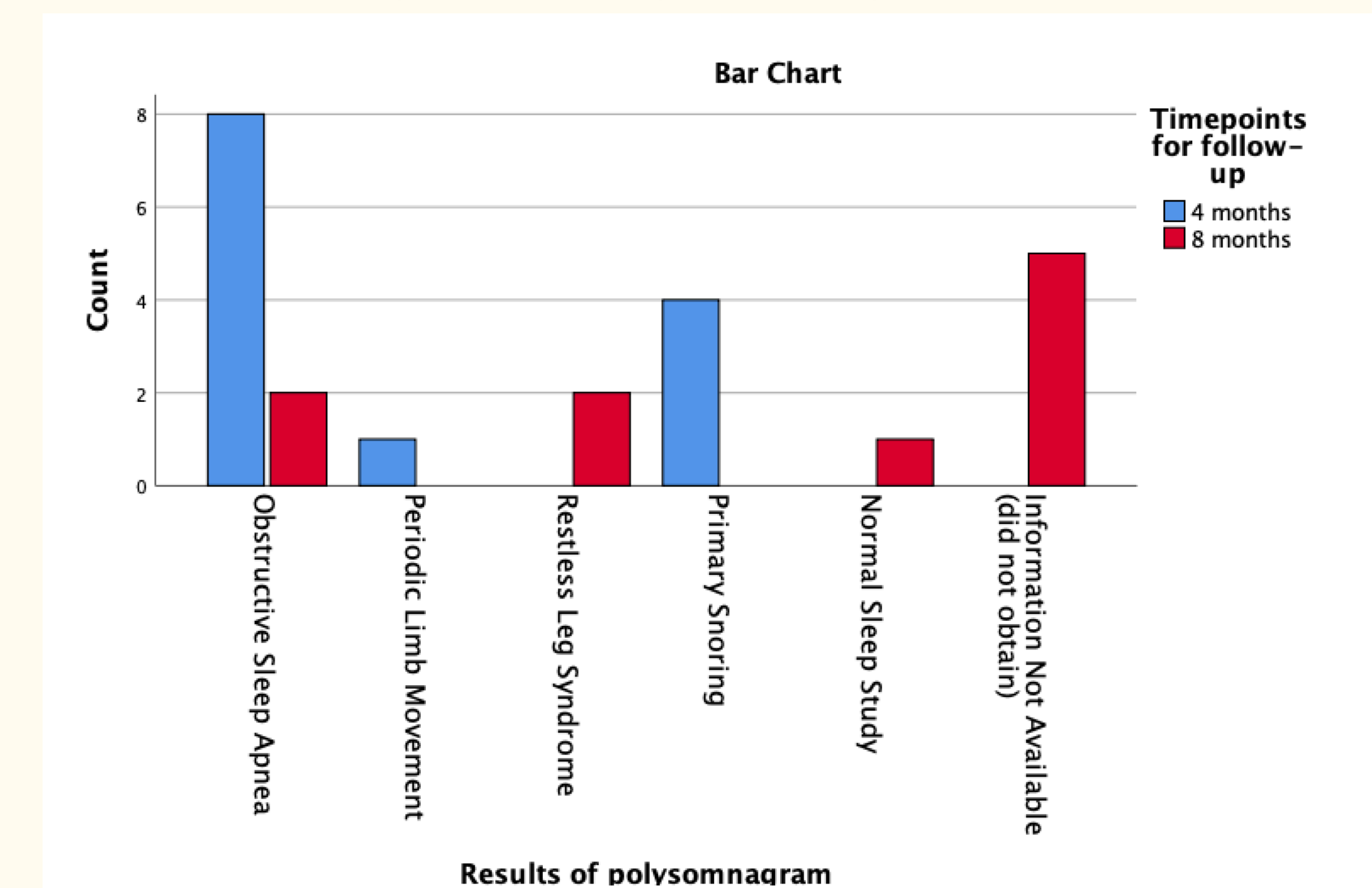
Demographics

- The mean age was 9.7 years ($SD = 3.82$) for G1 patients and 10.2 ($SD = 2.97$) for the G2 patients
- The predominant race was Caucasian (78.3%, $n = 18$) with 21.7% Black or African American ($n = 5$).
- The predominant gender in the sample 69.6% male ($n = 16$), with 30.4% female ($n = 7$)
- While not statistically significant, 60.8% of subjects were found to be above the 85th percentile for age, gender, and height which is a major consideration in this patient population ($p = .06$).

RESULTS

- 56.5% of subjects obtained a polysomnogram ($n = 13$) with 21.7% having a previous study completed ($n = 5$); 13% not obtaining one ($n = 3$); or 8.7% having one scheduled for a future date ($n = 2$).
- The results of the polysomnogram were 43.5% obstructive sleep apnea (OSA) ($n = 10$).
- 43.5% ($n = 10$) of the subjects were referred for further evaluation at the sleep clinic. This percentage is the highest out of all the available referrals.
- While not statistically significant, patients post referral had improved lung function measures by forced expiratory volume in one second (FEV1) scores, $p = .69$.

Diagnosis Following Polysomnogram



Results of polysomnogram

CONCLUSIONS

- ✓ Objective One: Met. 56.5% of patients who were referred to a polysomnogram obtained one within eight months of referral.
- ✓ Objective Two: Met. 43.5% of patients were further diagnosed with Obstructive Sleep Apnea.

Recommendations:

- Continue to use PSQ-22 to screen patients with asthma.
- Providers should focus on obtaining same information and diagnostic tests each visit.

REFERENCES

1. Centers for Disease Control and Prevention [CDC] (2018). *2016 Previous Most Recent Asthma Data*. Retrieved from https://www.cdc.gov/asthma/archivedata/2015/2015_data.html
2. Krajewska (Wojciechowska), J., Krajewski, W., & Zatoński, T. (2019). The association between ENT diseases and obesity in pediatric population: A systemic review of current knowledge. *Ear, Nose & Throat Journal*, 98(5). doi:10.1177/0145561319840819
3. Redline, S., Tishler, P., Schluchter, M., Aylor, J., Clark, K., & Graham, G. (1999). Risk factors for sleep-disordered breathing in children. *American Journal of Respiratory and Critical Care Medicine*, 159(5), 1527-1532. doi:10.1164/ajrcm.159.5.9809079