38 INVESTIGATION OF THE RELATIONSHIP BETWEEN THE USE OF CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) THERAPY AND WEIGHT CHANGE IN OVERWEIGHT AND OBESE PATIENTS WITH SLEEP APNOEA

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Obstructive Sleep Apnoea Hypopnea Syndrome (OSAHS) is a disorder characterised by events of partial or complete cessation in breathing during sleep and an excessive daytime somnolence. The pathophysiology of the condition is multifactorial. Obesity is one of the major risk factors for OSAHS. The relationship between both is not yet fully understood, but it is well evidenced that losing weight can improve OSAHS symptoms. Continuous Positive Airway Pressure (CPAP) is a first line of treatment in moderate to severe OSAHS, however, its effect on weight loss remains unclear. The aim of this service evaluation was to investigate if there is any relationship between compliance with CPAP and weight change in order to assess the need for weight loss clinic. To achieve the aim, we performed a retrospective analysis of data sets of 77 overweight and obese OSAHS patients who were treated with CPAP for a minimum 5 years was performed. Correlation between CPAP compliance and weight loss was assessed with a Pearsons correlation. 38/77 participant's weight increased from baseline to visit 5, 36/77 experienced weight loss and 3 subjects remained weight neutral. 50/77 patient's data sets demonstrated compliance greater than 95% across 5 years, a further 27 subjects had compliance less than 95%. Assessment for a correlation between compliance and percentage change in body weight after 5 years of treatment demonstrated no correlation r = 0.045 (p 0.69).This report backs up similar findings that CPAP compliance alone does not promote weight change, a multidisciplinary approach to weight loss management may improve long term patient outcomes.

39 ADHERENCE TO NON-INVASIVE VENTILATION IN OBESE CHILDREN WITH OBSTRUCTIVE SLEEP APNOEA OR OBESITY HYPOVENTILATION SYNDROME

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Introduction This study aimed to describe the cohort of obese children who were on respiratory support for obstructive sleep apnoea (OSA) or nocturnal hypoventilation in a tertiary respiratory centre and their adherence at 1 year.

Methods Clinical and cardiorespiratory polygraphy data were reviewed for children with a body mass index (BMI) >25kg/m^2 established on NIV for OSA (AHI>1ev/Hr) or OHS (BMI>30kg/m^2 and criteria for nocturnal hypoventilation)[1] from 2013–21. Children with neuro-disability were excluded. Nocturnal hypoventilation was defined as transcutaneous carbon dioxide (TCO_2) >6.7kPa ≥ 25% total sleep time (TST).[1] Studies less than 4 hours TST were excluded. Day time hypercapnia was defined as TCO_2 >5.99kPa ≥10 minutes.[1] NIV compliance was >4 hours/night use for >70% of nights.[2]

Abstract 39 Table 1 Baseline characteristics of children established on respiratory support (n=13)

Baseline characteristics of children established on respiratory support (n=13)

	Median (range)
Age at NIV initiation (years)	10.8 (5.1-15.6)
BMI (kg/m^2)	36.2 (28.6-47.3)
Apnoea hypopnoea index events/h	6.2 (0-56.5)
OAHI events/h	2.9 (0-56.4)
CAHI events/h	0.7 (0-5.1)
Mean oxygen saturations	97% (91-98%)
Oxygen desaturation index (3%) dips/h	12.3 (0-58.5)
Transcutaneous carbon dioxide (> 6.7kPa 25% TST)	n=5 (25-87%)

Results Data was obtained from 16 children (9 males, 7 females) of whom 2 children had a BMI of 25-30kg/m^2, and 14 > 30Kg/m^2. Baseline polygraphy data was available on 13/16 children, 8 children had OSA only, 3 had OSA and nocturnal hypoventilation and 2 had and isolated OHS. 5 children (3M, 2F, age 9.0 (4.5-16) years) had nocturnal hypoventilation and also had the highest BMI of the cohort, BMI median 36.2 (28.6-47.3) kg/m^2. Daytime hypercapnia was present in 4/9 children with measurements, but only 2 had nocturnal hypoventilation. No child had a TCO_2 increase >10mmHg from wake to sleep. Children were established on NIV continuous (n=11) and bilevel (n=5). Only 2/14 children with adherence data were adherent to respiratory support at 1 year. (Table 1).

Discussion Assessment for complications of excess weight should include day and night-time TCO2 monitoring as OHS was evident from 5 years. Adherence to NIV is poor and intensive multi-disciplinary input may improve this.

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40 OBJECTIVELY MEASURED SLEEP POSITION IN EARLY AND LATE PREGNANCY

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Introduction Whilst it has long been recognised that posture has a profound impact on maternal haemodynamics, few studies have extrapolated these practices to maternal sleep. Recently, findings from several countries have shown that self-report of maternal going-to-sleep in the supine position increases the odds 2-8-fold for 3rd trimester stillbirth. However, none of the prior research has been able to objectively assess sleep position and it is unclear how many pregnant women spend time supine. The goal of the present study was to objectively assess sleep position and respiratory disturbance in pregnant women and to determine how these variables change across pregnancy.

Methods Pregnant women were recruited from a large academic medical centre prior to 19 weeks' gestation and invited to undergo home sleep testing using the WatchPAT device. Home sleep testing was repeated in late pregnancy. The proportion of supine sleep time was calculated and OSA was defined as an apnoea-hypopnoea index (AHI) ≥5 events/hour.

Results Overall, 174 women were studied at a mean gestational age of 15.3±3.0 weeks (early pregnancy) and home sleep testing was repeated at a mean gestational age of 35.5 ±1.9 weeks (late pregnancy). Sleep duration decreased as pregnancy progressed (6.8hr vs 6.0 hr, p<0.001) while both the AHI and the oxygen desaturation index increased (2.2 vs. 5.4, p<0.001 and 0.5 vs 1.8, p<0.001 respectively). The proportion of women spending some time in the supine sleep position was 36% in early pregnancy, rising to 50% in late pregnancy (p=0.03). of note, 16% of women spent at least half the night supine in early pregnancy and 20% of women did so in late pregnancy.

Discussion Half of women spend some time in the supine sleep position in late pregnancy. Given the emerging associations between supine sleep and stillbirth, maternal sleep practices offer a modifiable risk factor.

41 DEPRESSIVE SYMPTOMS IN PREGNANCY: THE ROLE OF SLEEP TIMING

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Introduction Insufficient and disrupted sleep in pregnancy is significantly associated with antenatal and postnatal depression, which affects up to 20% of perinatal women. Sleep timing is another important sleep variable that represents sleep preferences besides sleep duration, and mid-point of sleep strongly correlates with chronotype and dim light melatonin onset. In the general population delayed sleep mid-point contributes to poor cardiometabolic and psychological function. Emerging data in pregnancy suggest that later sleep mid-point is related to gestational diabetes, gestational hypertension and pre-eclampsia. However, it is currently unknown whether sleep timing plays a role in depressive symptoms in pregnancy.

Methods Pregnant women at least 28 weeks' gestation were recruited from a large academic medical centre and invited to complete surveys about their sleep, including typical bedtimes and wake-times, as well as demographic information. Presence of depressive symptoms was determined by a current diagnosis of depression or a score ≥10 on the Edinburgh Postnatal Depression Scale (EPDS). Sleep mid-point was calculated as halfway between sleep onset and rise time.

Results Overall, 1599 women were included, of which 30% had depressive symptoms. Demographics are shown in table 1. Women with depressive symptoms had similar bedtimes to controls (11:00pm vs. 10:54pm, p<0.17) but longer time in bed (8.9hr vs. 8.6hr, p=0.04). Mid-point was significantly later in women with depressive symptoms compared to controls (03:28hr vs. 03:14hr, p=0.005). In a regression adjusting for sleep duration and BMI, mid-point was significantly associated with depressive symptoms with an adjusted odds of 1.12 (95%CI 1.1-1.2).

Discussion This study provides initial evidence of a link between self-reported late sleep midpoint and depressive symptoms in pregnancy. These findings suggest that sleep timing is important for maternal health and further studies investigating the potential role of chronotype and circadian timing in perinatal depression should be explored.

Abstract 41 Table 1

	Depressive symptoms (n=482)	Controls (n=1117)
Age (years)	29.8±6.0	30.4±5.7
Gestational age (weeks)	33.2±4.4	33.8±4.4
BMI (kg/m^2)	34.0±8.7	31.5±7.2*
Race		
Caucasian	71%	72%
African	18%	14%
Asian	2%	8%
Other	9%	6%
Nulliparous (%)	24%	32%*

*p<0.01

42 FREQUENCY AND SEVERITY OF OBSTRUCTIVE SLEEP APNEA IN BLACK COMPARED TO WHITE PREGNANT WOMEN

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Introduction Black individuals experience a higher prevalence of sleep disruption, including obstructive sleep apnoea (OSA), compared to Whites, which is believed to contribute to a higher incidence of cardiovascular disease. Among pregnant women, Blacks experience a higher burden of poor pregnancy outcomes such as gestational hypertension, pre-eclampsia, gestational diabetes, foetal growth restriction, and premature birth. In pregnancy, OSA has been associated with the latter adverse outcomes. Nonetheless, it is currently unknown whether differences exist in the presence and severity of OSA between Black and White pregnant women

Methods Pregnant women in mid-to-late pregnancy were recruited from a large academic medical centre and invited to undergo home sleep testing using the WatchPAT device. OSA was defined as an apnoea-hypopnoea index (AHI) ≥5 events/hour. The frequency and severity of OSA was compared between Black and White pregnant women.

Results 191 women enrolled (42 Black). Demographic information is shown in table 1. Sleep duration was shorter in Blacks compared to Whites (350 minutes vs 375 minutes,

Abstract 42 Table 1

	Black (n=42)	White (n=149)
Median Age (years)	30 (18-42)	32 (20-45)
Median Gestational Age (weeks)	33 (17-39)	36 (17-39)*
Median Pre-pregnancy BMI (kg/m^2)	34 (17-63)	26 (17-65)*
Pre-pregnancy Obesity (≥30kg/m^2) (%)	71%	31%*
Median BMI at Sleep Study (kg/m^2)	38 (22-64)	30 (21-70)*
Obesity at Sleep Study (≥30kg/m^2) (%)	90%	49%*
Nulliparous (%)	41%	43%*
Hypertensive Disorders of Pregnancy (%)	46%	18%*

*p<0.01