P68 Accessible mobile interface design for reviewing obstructive sleep apnoearelated biometric data in a non-diagnostic mHealth tool [abstract only]

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support for parents means these are frequently inadequately managed leading to poorer outcomes for children with ADHD.

Sleep Buddy is a digital intervention co-developed by sleep experts and parents/carers of children with ADHD. It has personalised information and evidence-based advice to support primary caregivers to improve their child's sleep.

Methods The parallel-arm multi-centre RCT will compare the effects of Sleep Buddy access compared to usual care on children's sleep onset latency at 3 and 6 months. The aim is to recruit 334 children aged 6-12 with a diagnosis of ADHD who are experiencing sleep problems and their primary carers from NHS ADHD clinics, ADHD support groups, charities, social media, and foster care services across 4 research Hubs.

The primary outcome will be children's sleep onset latency at 3 and 6 months. Other secondary outcomes include child ADHD symptom severity, behavioural and emotional functioning, subjective sleep variables, cognitive variables, quality of life, parental well-being, and cost-effectiveness of the intervention.

A nested process evaluation, including 15-20 qualitative interviews, will assess the mechanisms of change and to inform the implementation planning.

Outcomes The internal pilot phase will evaluate our strategic approach to recruitment and retention and inform progression to the main phase. Initial recruitment figures and data will be presented.

Discussion The DISCA trial findings evaluating the clinical and cost-effectiveness of the Sleep Buddy intervention will provide new high-quality evidence on the Sleep Buddy intervention to support children with ADHD and sleep problems.

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P67 EXPLORING THE CORRELATION BETWEEN DESCRIBED SYMPTOMS, BODY MASS INDEX (BMI) AND RISK OF OBSTRUCTIVE SLEEP APNOEA SYNDROME (OSAS) IN CHILDREN REFERRED FOR A POLYSOMNOGRAPHY (PSG) FROM THE CHILDREN OF EXCESSIVE WEIGHT CLINIC (CEW) BETWEEN 2023-2024 IN ALDER HEY CHILDREN'S HOSPITAL

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The aim of this study was to investigate whether there was a correlation between paediatric sleep questionnaire (PSQ) score, BMI and AHI (as a measure of OSAS) in children referred to the sleep service in Alder Hey Children's Hospital for full PSG from the CEW clinic between 2023-2024. Also symptoms such as snoring, heavy breathing or morning headaches that were reported by parents were noted.

Method The study reviewed 15 patients age ranging from 5-17 years, median aged 13 years. All patients were in obesity class II or III according to BMI. All patients completed a paediatric sleep questionnaire (PSQ) and underwent an overnight PSG. Parameters of PSQ score, AHI and BMI were recorded for comparison.

Results 10 patients had an AHI within normal range (AHI<1), 4 patients had an AHI in the mild OSAS range (AHI >1 and <5), 1 patient had and AHI in the severe OSAS range (AHI>10). No statistically significant correlation was found between BMI and AHI (r = -0.082), or between BMI and PSQ score (r=0.193). A weak positive correlation was found between PSQ score and AHI (r = 0.234). The 1 patient with an AHI in the severe OHA range described symptoms of snoring, headache and occasional vomiting.

Conclusion There was no strong correlation between BMI and OSAS in this cohort of patients. There was a very weak correlation between PSQ and OSAS. This suggests both symptomatic history and BMI in the obese range are poor indictors of likelihood of OSAS.

P68 ACCESSIBLE MOBILE INTERFACE DESIGN FOR REVIEWING OBSTRUCTIVE SLEEP APNOEA–RELATED BIOMETRIC DATA IN A NON-DIAGNOSTIC MHEALTH TOOL

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Introduction Obstructive sleep apnoea (OSA) affects over one billion people globally but remains underdiagnosed due to limited access to formal sleep testing.[1] Consumer-grade wearables can collect overnight physiological data such as heart rate and blood oxygen levels, and their use in sleep monitoring is growing rapidly.[2] However, poor accessibility in current mHealth apps limits users' ability to interpret and act on sleep-related data, reinforcing gaps in diagnostic pathways.[3 4]

Methods Wireframes were designed in Figma and implemented in React Native. Physiological data and indices, including the Apnoea-Hypopnoea Index, Oxygen Desaturation Index (ODI), and Epworth Sleepiness Scale (ESS), were displayed through a modular dashboard. A central accessibility context enabled real-time adjustments to font size, colour contrast, orientation, and text-only summaries. Interfaces were evaluated for WCAG 2.1 compliance via Lighthouse audits and manual inspection (figure 1).

Results Six visual modes were implemented: Normal, High Contrast, Yellow Hue, Bold Font, Landscape, and Text-Only. All screens met WCAG 2.1 criteria, with average Lighthouse scores of 98/100 and confirmed layout responsiveness. Clinical input supported the inclusion of ODI and ESS to enhance primary care triage utility (figure 2).

Discussion This project demonstrates the feasibility of an inclusive mHealth interface for accessible sleep data review. Although non-diagnostic, the app helps users interpret wearable-derived data and initiate earlier conversations with clinicians. It directly addresses usability and equity gaps in early diagnostic pathways. Further usability testing is planned.

REFERENCES

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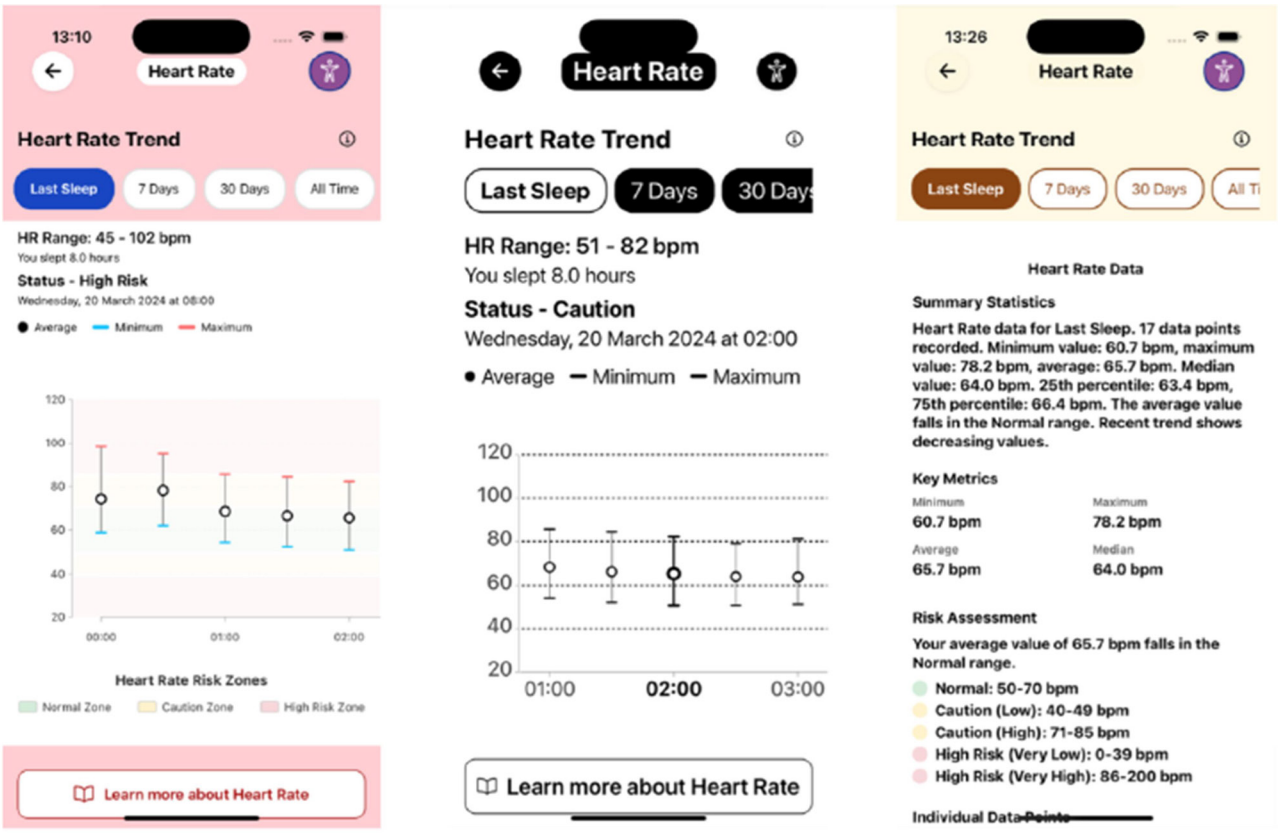
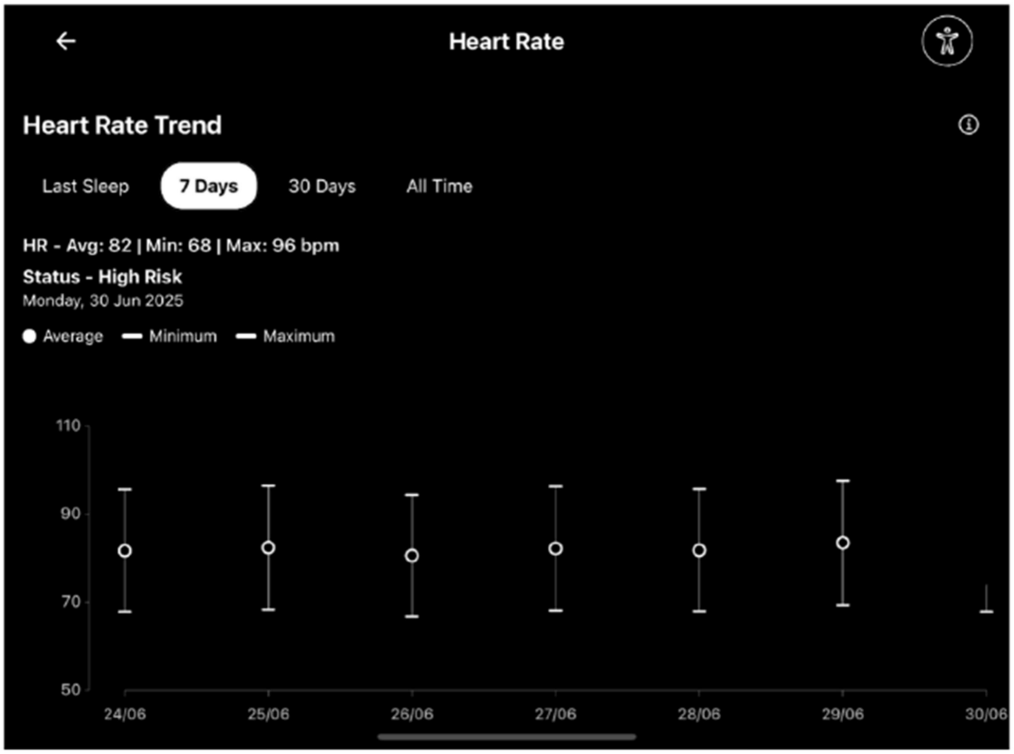
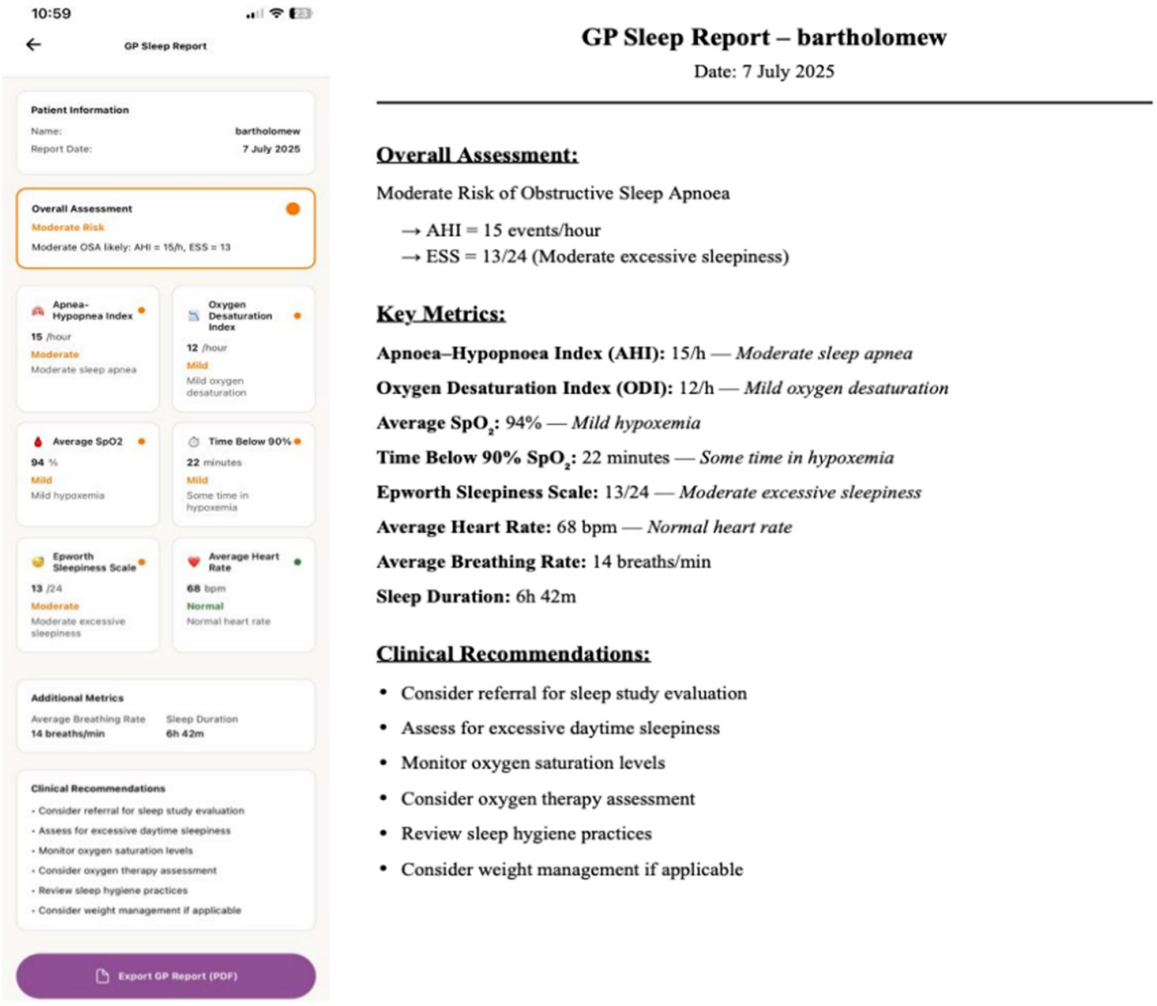


Abstract P68 Figure 1



Abstract P68 Figure 2 Heart Rate Trend screen displayed in five accessibility configurations using four representative screenshots: (a) Normal Mode, (b) Maximum Contrast Light Mode and Large Font Size, (c) Combined Yellow Hue, Bold Font, and Text-Only Summary Mode, and (d) Maximum Contrast Dark Mode and Landscape Mode. Each variation supports diverse visual or cognitive needs while preserving clarity in biometric data presentation



Abstract P68 Figure 3 Exportable GP Sleep Report generated from the app, presenting a clinical summary of key metrics (AHI, ODI, SpO2, ESS) and recommended next steps. Designed for ease of interpretation in primary care, the layout uses plain language and structured formatting to align with clinician workflows

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P69 EVALUATING CLINICIAN CONFIDENCE IN BLOOD GAS MEASUREMENTS AND SAMPLE BIAS IN PATIENTS WITH KNOWN OR SUSPECTED SLEEP-DISORDERED BREATHING

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Background As obesity and the risk of obesity hypoventilation syndrome increase, accurate assessment of respiratory physiology is vital. Blood gas analysis remains central to this but concerns about sample reliability or ease of acquisition may contribute to inefficiencies, including repeated testing. This audit explores current practice in a tertiary sleep-respiratory centre as a baseline ahead of introducing v-TAC, a mathematically arterialised venous blood gas method shown to correlate closely with ABG $PaCO_2$ values.[1]

Methods We reviewed blood gas sampling over two months (Aug–Sep 2024) in adult patients assessed or monitored for home NIV. Early repeat samples were used as a marker of clinician confidence in the results obtained. We recorded the number and type of blood gases (ABG, CBG, VBG) and the frequency of repeats within 15 minutes and 2 hours.

Results Of 1,247 samples, 509 were CBGs, 479 ABGs, and 174 VBGs. There were 80 repeat samples within 15 minutes (6.4%) and 35 within 2 hours (2.8%). Repeats were most common with ABGs, likely due to perceived sampling or analyser error (e.g. suspected venous admixture). Median $PaCO_2$ values for ABG and CBG were 6.18 and 5.87 kPa respectively, showing a small but consistent bias, in keeping with previous matched data.[1]

Discussion Nearly 9% of samples were repeated within short intervals, suggesting incomplete clinician confidence in the initial result. CBGs were repeated less often but demonstrated systematic underestimation of $PaCO_2$. While most patients with OSA do not require blood gas analysis, when performed it is essential that results are accurate and acceptable. These findings highlight the need for reliable, less invasive alternatives. Our audit provides a foundation for v-TAC implementation in the assessment of patients with suspected obesity-related hypoventilation.