

awareness of the importance of sleep and how to develop healthy sleep habits would be beneficial in this population.

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P025

EMBEDDING PAEDIATRIC PPIE IN NON-INVASIVE VENTILATION INTERFACE DESIGN

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Introduction Non-invasive ventilation (NIV) masks that fit well are difficult to find for children who are small or have atypical facial features. Poorly fitted masks create problems e.g. discomfort, non-adherence and facial deformity. Our project aims to design and produce masks that fit well. Children's voices are vital, but not often heard, in respiratory research projects.

Integral to the research, we aimed to construct a patient and public involvement and engagement (PPIE) program designed to:

1. Understand the problems children and families experience with NIV and establish their wants and needs
2. Provide an inclusive and creative environment for non-constrained thinking
3. Get actionable feedback and ideas for improvements from a diverse patient group

Method We created a method focussed on planning, innovation and participation (the PIP model). Session activities were designed to enable parents and children of all ages and abilities to participate. Examples include:

- Archery target activity – a method for realising the relative importance of patient's requirement (prioritisation).
- Graphic scribe recording – to reflect back to the children that they had been heard/understood and stimulate creative ideas.
- Use of technology – making short videos to help families understand concepts.

Results

- Our priorities and design brief changed as a result of the PPIE.
- The graphic scribe outputs formed part of the creative process whilst providing a unique and lasting resource.
- We are confident that we will produce NIV interfaces that are fit for real life purpose that people will want to trial.

Discussion

- For respiratory research to be truly successful, PPIE should be woven throughout a project, from concept to completion.
- It needs to be genuine and aligned with research aims.
- Time and effort spent enabling participation and creatively planning for inclusivity is rewarded by generating richer and more valuable information.

P026

DO MATERNAL AND PATERNAL COGNITIONS AND SLEEP-RELATED PRACTICES RELATING TO THEIR OWN AND THEIR CHILD'S SLEEP PREDICT THEIR CHILD'S PARENTALLY REPORTED AND ACTIGRAPHICALLY ASSESSED SLEEP?

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Introduction Various factors have been linked to child sleeplessness problems (CSP). These include parental cognitions about child sleep and bedtime behaviours parents use with their child. However, previous research has predominantly focused on mothers and how both parents think and behave in relation to their own sleep and broader sleep-related practices may also be important. The current study aimed to explore whether maternal and paternal cognitions and sleep-related practices (relating to their own and their child's sleep) and bedtime behaviours used with their child predicted subjective and objectively assessed child sleep.

Method Mothers and fathers from 44 families (with a 12–24 month old child) completed questionnaires assessing their sleep-related cognitions and practices relating to their own and their child's sleep. Parents provided details about their child's sleep (including if they perceived their child to have a CSP). Actigraphy and sleep diary data was collected on the child's sleep for 5 nights. Regression analyses were conducted to explore if parental cognitions and sleep-related practices (relating to their own and child's sleep) predicted perceptions of their child's sleep and the child's actual sleep.

Results Binary regression models predicting parental perception of a CSP, for both mothers and fathers, were significant. Specific and different bedtime behaviours used with their child were the only significant independent predictors of both maternal and paternal perceptions of a CSP. For mothers, use of physical comforting and for fathers settling by encouraging autonomy and using movement were significant predictors. A hierarchical linear regression to predict objective child sleep from maternal and paternal variables was not significant.

Discussion Use of different bedtime behaviours were related to mothers' and fathers' perceptions of CSP. Additional research is required to elucidate the reason for apparent differences between parents; perhaps mothers and fathers find different types of settling methods more acceptable or undesirable?

P027

THE EFFECTIVENESS OF OCCUPATION-BASED SLEEP PROGRAMME FOR PATIENT WITH INSOMNIA

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Sleep problems are a worldwide health issue, with an average prevalence rate ranging from 10% to 30%. The development of sleep intervention in occupational therapy is expanding, however, there is limited research evidence. Insomnia affects daytime occupational performance; and in return daytime occupational choice affects sleep. The Model

of Human Occupation focus on how to motivate, structure and perform one's occupation to achieve balance. The occupation-based sleep program focuses on strategies to maximize occupational balance through lifestyle coaching to promote patterning of occupation into routine and lifestyle. This study aims to evaluate the effectiveness of the occupation-based sleep program on sleep pattern, mood and occupational balance among community dwelling adults presents with insomnia. This study is a quasi-experimental design which compares therapy outcomes at pre, post and follow up, between intervention group and treatment-as-usual group. A total of 35 clients were recruited with 20 from intervention group and 15 from treatment-as-usual group. There is no significant difference on baseline characteristic between groups. When compared with treatment-as-usual group, there's significant improvement on sleep efficiency at post intervention. In addition, intervention group had significant improvement in insomnia severity, sleep efficiency, occupational balance and mood at follow up. In summary, occupation-based sleep interventions aim to 1) minimize influence of bodily function on sleep; 2) promote environment conducive to sleep; and 3) restructure activity with a focus on occupational balance. Further development of sleep management from an occupational therapy perspective will strengthen the role of sleep within clinical practice, education, and research domains.

P028

A MODEL FOR CITY-WIDE IMPLEMENTATION OF INTENSIVE BEHAVIOURAL INTERVENTION TO IMPROVE SLEEP IN VULNERABLE CHILDREN

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Introduction A lack of adequate sleep has a large impact on emotional and physical wellbeing, especially in vulnerable children and young people. A partnership involving a Children's Trust, City Council and a Sleep Charity evaluated a behavioural sleep intervention in vulnerable children. Support and education were provided to parent/carers and young people to improve sleep patterns.

Methods The intervention entailed basic sleep education, a one-to-one session with a sleep practitioner to create an individualised sleep programme and ongoing telephone support. NHS ethics 16/YH/0490.

Results 39 children participated, median age 8.56 years (1.82–15.75 years; 79.5% male). 75% had a diagnosis of ADHD or were awaiting assessment, 25% were Looked After or Adopted Children (of whom 10% also had ADHD). Parents' ratings of their child's ability to self-settle to sleep improved from 1.13/10–6.73/10 following intervention (MD 5.62, 95%CI 4.56–6.69, $p < 0.05$). Children gained an average extra 2.4 hours sleep a night. The average sleep hours were 6.27 hours at baseline and 8.62 following intervention (MD 2.35, 95%CI 1.64–3.06, $p < 0.05$). There was a statistically significant improvement in time taken to settle, time to fall asleep, number and duration of night-waking's.

The impact of sleep deprivation on the parents' wellbeing improved for all measures. The overall WEMWBS score improved significantly following the intervention (MD 8.84, 95%CI 5.32–12.36, $p < 0.05$). There was a reduction in the number of illnesses in both parent/carers and children following the intervention. Although some parents did not find the programme helpful, 100% said they would recommend it to others. 'Regular telephone calls and support' and 'Learning about sleep' were the main positive factors.

Discussion The success of the evaluation gave us confidence in the sleep delivery model. We have established a strategic group to support local implementation and produced a draft delivery model which we believe is replicable for other areas.

P029

SLEEP AND CIRCADIAN RHYTHM DISTURBANCES AND RELAPSE IN SCHIZOPHRENIA: A DIGITAL PHENOTYPING STUDY

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Introduction Disturbances in sleep and circadian rhythm (SCR) are frequently reported prior to and during episodes of relapse in schizophrenia, and may serve as an early marker of deterioration. However, this has never been demonstrated objectively. Novel approaches using mobile technologies are enabling the longitudinal sampling of sleep-circadian rhythms in the real-world. In this preliminary descriptive analysis, we asked whether SCR disruption captured by a remote-monitoring system accompanies symptomatic deterioration in schizophrenia.

Methods The Sleepsight study gathered light, geolocation, phone interaction and physical activity parameters from wearable and smartphone sensor-streams, passively, continuously, remotely and in real-time over 12 months, in 36 individuals with schizophrenia. Fluctuations in clinical status were also sampled via a daily smartphone sleep and symptom diary, and relapse events were determined through clinical record review.

Results 15 episodes of relapse were identified over the study period, in 12 individuals. Reduction in mean sleep duration was observed to accompany deterioration in 10 episodes, and preceded the onset of significant disturbance of mental state in six of these cases. The longitudinal mean sleep duration for one participant who experienced three relapse episodes over the study period is illustrated in figure 1. Markedly disrupted circadian rhythms including free-running rhythms and relative coordination with weak entrainment were observed in three participants, and were associated with poorer outcomes.

Discussion Sleep and circadian rhythm disturbances commonly accompany relapse in schizophrenia, and emerges prior to deterioration in over half of cases. Sleep-circadian