Blind Spots in Pediatric and Adolescent Sleep Medicine/Psychology

The Vienna Proposal on Children's Rights to Sleep (ChildRight2Sleep, CR2S)

Background

The Austrian Society for Sleep Medicine & Sleep Research (ASRA) and Future Health Lab Vienna have collaborated to develop the *Seven Recommendations for Action – What the Austrian Health System Needs Regarding Sleep*. In brief, over half of the Austrian population suffers from difficulty falling asleep or staying asleep. Sleep disturbances and sleep disorders such as sleep-related breathing disorders (e.g., obstructive sleep apnea) or chronic insomnia not only reduce performance and emotional well-being but can also lead to serious cardiovascular complications such as stroke or heart attack. The reduced performance caused by chronic insomnia alone, and the associated absences from work, result in annual costs to the Austrian economy of approximately 2.6 billion euros, corresponding to a 0.64% loss of gross domestic product (GDP)

Positioning Sleep in Pediatric & Adolescent Medicine/Psychology - The Framework

The *Seven Recommendations for Action* published in 2024 have two main themes: (i) They outline a fundamental health problem that has not yet been analyzed and worked up from a public health prevention perspective, and (ii) they present solutions. Stakeholders are invited to take up and develop these recommendations, thereby establishing a scope of action. As the ChildRight2Sleep (CR2S) initiative, we want to take up this invitation and relaunch it, specifically for:

- Children and adolescents
- Pediatric and adolescent patients with chronic disorders
- Pregnant women and (expectant) parents.

For these target populations, we are setting new priorities on the topics of sleep, transient sleep disturbances and chronic sleep disorders from a preventive medicine perspective and reviewing them in context with the current challenges in the healthcare system.

From a pediatric medicine and child psychology perspective, transient sleep disturbances and chronic sleep disorders impair the cognitive, emotional, social, academic, and neurological development of children and adolescents. Thus, sleep disorders significantly impact on the quality of life of both the affected individual and their caregivers, the individual's developmental trajectory, and their family/community environment. The need for *screening*, *primary/secondary/tertiary prevention measures* and *therapeutic non-pharmacological and pharmacological* interventions is therefore obvious. The analysis of why sleep medicine and sleep psychology have not yet been integrated into primary medical care points to many disruptive factors that can only be targeted by involving all relevant parties and stakeholders in developing an action plan focused on making sleep a national health priority. The goal of this position-paper is to identify misperception-based gaps affecting *health*, and to address such *"blind spots"* in the care of children and adolescents.

Since sleep disorders and sleep disorders are increasingly prevalent among families with lower socio-economic status and educational levels, from an epidemiological perspective, this raises questions about how to address this issue from a health policy perspective. The Child's Right to Sleep (CR2S) initiative, has been addressing this issue since 2022. CR2S is now supported by the Austrian Society for Sleep Medicine and Sleep Research (ÖGSM), as well as the German and Swiss Societies for Sleep Medicine and Sleep Research (DGSM, SSSCS). In Austria, an alliance has been formed with the help of the *Austrian Societies for Pediatrics and Adolescent Medicine*; *Child and Adolescent Psychiatry/Psychosomatics/Psychotherapy*; the *Professional Association of Austrian Psychologists*; and the *Austrian Midwives' Association*. ***This position-paper analyzes the differences between adult medicine and pediatric medicine and adapts the recommendations for action from the perspective of pediatric medicine/psychology.***

There is consensus among experts that

(1) the integration of sleep into a prevention concept is essential.

(2) the opportunity to review one's own sleep/wake behaviours provides a new approach to health, healthier living and should be taught in standard curricula (e.g., for medicine and psychology).

(3) the treatment of sleep disturbances and sleep disorders *prevents secondary diseases*, reduces costs, and generally leads to optimization of the healthcare system.

(4) children and their parents need a *prevention-based care approach* that includes bi-directional communication without blame or shame.

(5) regarding public health measures, the *communication concept* should be inclusive, and incl. all affected parties, advocacy groups/patient organizations, experts, and stakeholders.

Implementation Strategy

Creating the necessary prevention-based pediatric/adolescent sleep medicine/psychology understanding and expertise should be implemented and practiced in a bottom-up approach (see Fig. 1):

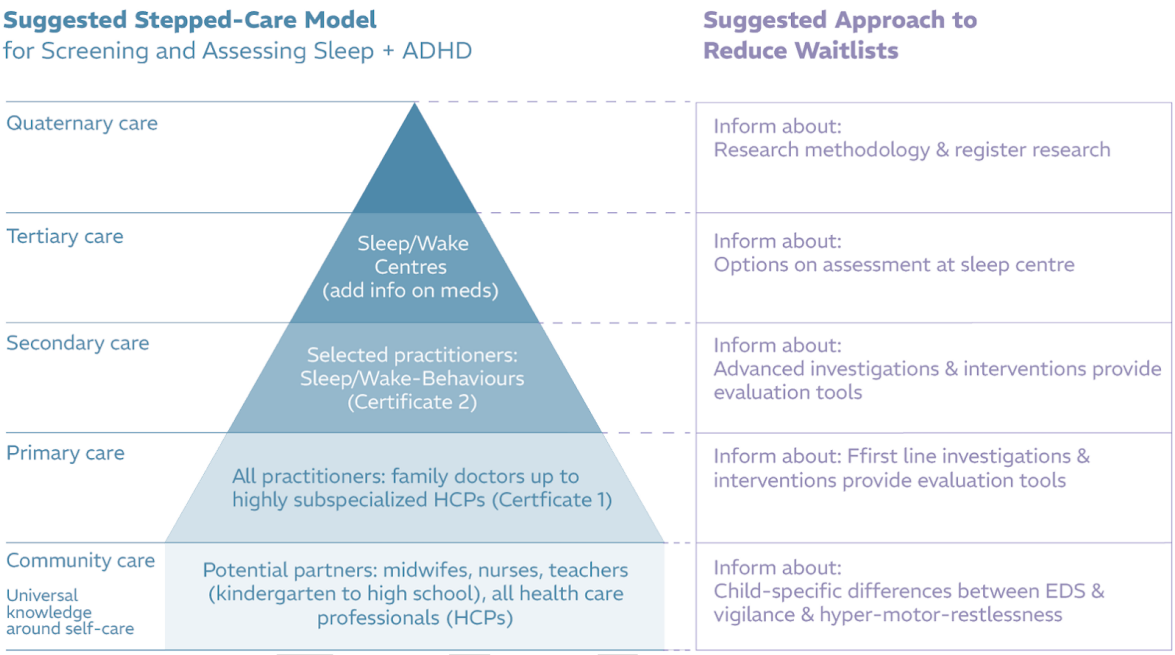

Figure 1: Stepped Care Model and its Communication Concept

(a) **Communication Concept:** Information on sleep must be prepared from a transdisciplinary and transcultural perspective, involve multi-professional teams, and be built on primary prevention as part of a public health campaign (motto: sleep = prevention) but also not miss the secondary and tertiary prevention aspects of improved sleep as an intervention.

(b) **(Non-specific) non-selective screening regarding** (i) impaired waking behaviours and/or disorders related to vigilance (fluctuations in attention and concentration, impaired working memory) and (ii) hypermotor restlessness at day and/or at night, as well as (iii) difficulty falling asleep and staying asleep and/or snoring **are fundamental screening based exploratory elements of the medical/psychological consultation**. This information invites a process of reflection on the possible causes of sleep problems (e.g., lifestyle, sociocultural environment, or disorders such as allergies) and can be combined with the assessment of lifestyle (e.g., with sleep/wake diaries) and thus the observed peculiarities and symptoms (e.g., snoring, nasal congestion, or motor restlessness during sleep) into a selective screening.

(c) **Selective *medical* screening takes place in private practice, by specialists, and subspecialists and** includes (i) **a clinical examination**, and (ii) **a routine blood count to rule out chronic inflammation, iron, and/or vitamin D3 deficiencies.** Selective screening enables initial therapeutic measures with recommendations focused on promoting healthy sleep or improving sleep quality (low-threshold services). If sleep problems persist after the screening and initial measures, further examinations should be carried out. This procedure (step-by-step diagnostics) serves to avoid duplication of diagnostics. **Selective *psychological* screening** is carried out by psychologists in private or clinical practice, who review with the affected person and/or their family the possible causes of sleep disturbances/disorders and in context with their lifestyle. The (various national) alliances of professional societies and bodies are asked to develop a shared pathway for conducting:

(i) **Sleep/wake-behaviour assessments:** There are specialist assessment schemes, e.g., for difficulty falling asleep and staying asleep, sleep-related breathing disorders, and circadian sleep-wake rhythm disorders, which can be used as a guideline. However, we recommend reviewing these for their feasibility and applicability from the perspective of the 7 theses of the CR2S-initiative (see below). It is important for pediatric and adolescent medicine/psychology to be aware that sleep disorders/diseases typically accompany any clinical neurodevelopmental and/or mental health condition, such as ADHD, anxiety disorders, or depression, and can thus exacerbate the underlying symptoms of these disorders. For this reason, it is recommended that symptoms related to psychosomatic, child and adolescent psychiatric, neurological, and developmental neurological disorders be included in the differential diagnosis, clarified, and, if necessary, treated. It should be noted that, as in adult medicine, daytime sleepiness is a main symptom of impaired waking behaviours, but in children and adolescents it often only manifests as vigilance fluctuations (fluctuations in attention and concentration) and motor restlessness.

(ii) **Therapeutic interventions**: The modulating role of sleep on wake behaviours has often been overlooked in recent decades. As a result, sleep disturbances/disorders were viewed as part of the underlying disease rather than as a treatable target of the overall clinical picture allowing secondary and tertiary prevention; sleep disorders therefore often remain untreated. To improve the safety and efficacy of these therapeutic interventions on sleep and wake disturbances with the appropriate (pharmaceutical- or non- pharmaceutical) interventions, an individual evaluation of the interventions implemented using a randomized clinical study design for n=1 (RCT n=1) is recommended.

(iii) **Precision medicine**: A structured approach that enables evaluation from a 360-degree perspective, thus precision medicine, is the combination of standardized and individualized outcome measures. Outcome measures need to capture sleep and wake behaviours in conjunctions and enable protocol-based evaluations. Here, we recommend that professional societies, pharmacists/pharmacologists, and the pharmaceutical industry, in collaboration with advocacy groups, conduct a

discussion on the core set of outcome measures for specific conditions and integrate personalized outcome measures. To rule out conflicts of interest, we recommend involving academic ethics committees and health economists as moderate partners.

Conclusion

The proposed approach is the framework of a public health campaign, which suggests sleep as a national health priority and builds on understanding, *sleep=prevention*. Sleep and wake disorders are weighted with equal relevance and sleep is included as both a differential diagnostic and treatable condition in a stepped care model at all tier-service levels. Further, the stepped care model allows children and adolescents to be guided from one level of care to the next as needed and to receive individual support, based on the principle that medical services must be implemented at primary, secondary, and tertiary levels of prevention and care. This will enable efficient prevention and patient treatment without loss of valuable time and avoid costly overdiagnoses. The implementation of a differential diagnostic consideration of sleep disorders/diseases and treatment according to a consensus protocol will enable a precision medicine approach and the creation of evidence.

The appropriateness of the measures proposed here

- must be constantly questioned (= evaluation),
- improved (= quality control), and
- adapted to current needs (= individualized treatment adaptation in the spirit of precision medicine).

Only in this way can we practice "awake pediatric sleep medicine and pediatric sleep psychology", meeting the demands of a constantly changing society, which, in addition to the rapid increase in case numbers and knowledge, also takes into a