Sleep Disorders as a Hidden Social Challenge: A Qualitative Study of Special Education Teachers' Insights on Students with Intellectual Disabilities

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ABSTRACT:
Sleep plays a pivotal role in learning, behaviour, and social participation; however, its impact within special education classrooms in Saudi Arabia remains insufficiently explored. This qualitative study investigated the perspectives of ten special education teachers in Riyadh regarding the effects of sleep disturbances on students with intellectual disabilities. Semi-structured interviews were conducted and analysed using reflective thematic analysis. Findings indicated that sleep disturbances were perceived as significantly constraining students' academic engagement, particularly in mathematics and Arabic, through reduced attention, working memory difficulties, and inconsistent task completion. Teachers also described heightened irritability, emotional dysregulation, aggression, and withdrawal, alongside diminished peer interaction and social participation. Beyond student-level effects, participants identified systemic challenges, including limited professional training, insufficient institutional guidance, and inconsistent family sleep routines. Overall, sleep disturbances were positioned not merely as health-related concerns but as structurally embedded educational barriers within inclusive classroom contexts. The findings highlight an implementation gap in Riyadh schools and suggest that strengthening teacher preparation, enhancing school–family collaboration, and integrating sleep-related considerations into educational planning may improve both learning outcomes and overall well-being for students with intellectual disabilities.

Keywords: Sleep disorders, Intellectual disabilities, Special education, Teacher perspectives, Behaviour

1. Introduction

Sleep is a fundamental neurobiological process that underpins cognitive functioning, emotional regulation, and behavioural stability. Adequate sleep supports memory consolidation, attentional control, and executive functioning capacities that are central to successful learning and classroom engagement (BaHammam et al., 2006; Galland et al., 2015; Abdel-Aaty, 2020). Conversely, insufficient or disrupted sleep has been consistently associated with reduced academic performance, increased behavioural dysregulation, and impaired social

functioning among school-aged children. Increasingly, sleep is recognised not merely as a health variable, but as a critical determinant of educational participation and equity.

Students with intellectual disabilities (ID) represent a particularly vulnerable group with regard to sleep disturbances. Neurodevelopmental differences, sensory sensitivities, co-occurring medical conditions, and medication use increase the likelihood of irregular sleep–wake cycles, insomnia, and sleep fragmentation in this population (Richdale & Schreck, 2009; Korb et al., 2023). These vulnerabilities extend beyond clinical concerns; they directly influence learning processes, classroom participation, and peer relationships. Research indicates that sleep disturbances in children with developmental disabilities are associated with heightened aggression, inattention, emotional instability, and reduced adaptive functioning (Brylewski & Wiggs, 1999; Bayoumi, 2019; Al-Namri et al., 2022). Despite this growing body of knowledge, most investigations have examined sleep disturbances from medical or parental perspectives, with comparatively limited attention to how these issues manifest within everyday school environments.

Understanding sleep disturbances in Saudi Arabia requires consideration of broader socio-cultural dynamics. Emerging evidence suggests that Saudi children and adolescents frequently experience insufficient sleep duration and delayed bedtimes, influenced by early school start times, evening-oriented social routines, and prolonged screen exposure (BaHammam et al., 2006; Nasim et al., 2019; AlEidan et al., 2023). For students with intellectual disabilities who already face neurodevelopmental vulnerabilities such contextual factors may intensify sleep-related challenges and amplify their educational consequences within school settings.

Although sleep disturbances are well documented in clinical and family-based research, there remains a notable gap in understanding how teachers perceive, interpret, and respond to sleep-related difficulties within special education classrooms. Teachers occupy a unique observational position: they witness the daily manifestations of cognitive fatigue, behavioural dysregulation, disengagement, and peer withdrawal. Special education teachers operate within highly demanding professional environments characterised by complex instructional responsibilities, behavioural management, individualised educational planning, and sustained collaboration with families and multidisciplinary teams (Conley & You, 2016; Hofmann et al., 2023). These layered responsibilities position them at the intersection of academic instruction and student well-being. Within such contexts, sleep-related difficulties may not only affect student functioning but also disrupt classroom routines, increase instructional strain, and intensify the practical challenges teachers face in managing diverse learning needs. Yet their experiential knowledge has rarely been systematically examined, particularly within the Saudi context.

To date, no known qualitative studies in Saudi Arabia have explored special education teachers' perspectives on sleep disturbances among students with intellectual disabilities, despite evidence that sleep-related training receives minimal attention in professional preparation programmes (Meltzer et al., 2009; Romiszewski et al., 2019).

Conceptually, sleep disturbances can be understood through an ecological lens (Bronfenbrenner, 1979), wherein biological vulnerabilities interact with family routines, school structures, and broader cultural norms. Within this framework, sleep is not solely an individual health concern but a multi-systemic educational factor shaped by home–school dynamics. When unaddressed, sleep difficulties may generate cascading effects: cognitive fatigue may reduce academic engagement; academic frustration may heighten behavioural dysregulation; and repeated classroom disruptions may increase teacher workload and strain instructional systems (Ahmed, 2023; Harper et al., 2023). Despite these potential cascading mechanisms, little qualitative research has explored how such processes are experienced and negotiated within Saudi special education settings.

Within Saudi Arabia's ongoing educational reforms under Vision 2030, which promote inclusive

education and expanded special education provision (Kingdom of Saudi Arabia, 2016; Alquraini & Rao, 2017), examining contextual factors that affect student participation and learning such as sleep disturbances becomes increasingly important for sustainable and effective classroom practice.

To address this gap, the present study explores the perspectives of special education teachers in Riyadh regarding the impact of sleep disturbances on students with intellectual disabilities. By foregrounding teachers' lived professional experiences, this study seeks to illuminate how sleep-related challenges are constructed, observed, and managed within everyday classroom practice. In doing so, it contributes an educational lens to a field traditionally dominated by clinical discourse and supports ongoing inclusive education reforms and quality-of-life objectives aligned with Saudi Vision 2030.

Accordingly, the study is guided by the following research question:

How do special education teachers in Riyadh perceive, interpret, and negotiate the impact of sleep disturbances among students with intellectual disabilities within classroom environments?

1.1 Research Context

Sleep practices among children and adolescents in Saudi Arabia are influenced by a combination of institutional schedules, family structures, and socio-cultural rhythms that differ in important ways from many Western contexts where most sleep research has been conducted. In major urban centres such as Riyadh, daily life often extends into the evening hours, with social, commercial, and family activities continuing late at night. These patterns coexist with early school start times, creating a structural tension between socially patterned bedtimes and institutionally required wake times. Empirical research conducted in Saudi Arabia has consistently documented insufficient sleep duration, delayed sleep timing, and irregular sleep patterns among school-aged children and adolescents (BaHammam et al., 2006; Nasim et al., 2019; AlEidan et al., 2023; Bin Eid et al., 2022). Studies have further associated sleep curtailment with prolonged daily screen exposure, nighttime digital engagement, caffeine intake, and family-based routines that extend into late evening hours (Alshoaibi et al., 2023; Al-Hazzaa et al., 2012; Merdad et al., 2014). Within collectivist family systems, shared household schedules and extended-family interactions may further shape children's sleep regularity and bedtime consistency. For students with intellectual disabilities, whose sleep regulation may already be affected by neurodevelopmental differences, sensory sensitivities, co-occurring medical conditions, and medication use (Korb et al., 2023; Harper et al., 2023), these contextual dynamics may intensify vulnerability to sleep disturbances. In such settings, sleep challenges are not isolated individual phenomena but are embedded within broader ecological systems that include family routines, school structures, and socio-cultural expectations. Accordingly, examining sleep disturbances within Saudi special education classrooms requires situating teachers' observations within this broader socio-cultural environment. Understanding how sleep-related difficulties are experienced in Riyadh's educational context provides insight into how structural schedules, family practices, and neurodevelopmental vulnerabilities intersect to influence students' academic engagement, behaviour, and social participation.

2. 2. Materials and methods

2.1 *Participants*

Across the educational institutions in Riyadh, the study utilised purposive sampling to acquire participants. The Ethical approval was secured (1447-01-23), and in early 2025, the second and third authors reached out to the Saudi Ministry of Education to recruit participants. The Saudi Ministry of Education nominated 17 special education teachers. Fifteen teachers responded and expressed willingness to participate. Upon applying the inclusion criteria, five teachers were excluded as they did not specialise in intellectual disabilities or had not previously taught students with intellectual disabilities. The final sample therefore, consisted of ten participants. The participants were purposively selected due to their expertise in working with this group of students, and the researcher's aim was to

gain in-depth and rich information on the study's topic.

Table 1 provides further details about the participants, including their qualifications, years of professional experience, and the number of students they taught.

Table 1.
Characteristics of participating special education teachers

Name	Qualification	Years of Experience	Number of Students
Sultan	**Bachelor's**	**6**	**6**
Ahmed	**Bachelor's**	**7**	**6**
Nawaf	**Master's**	**6**	**9**
Adel	**Bachelor's**	**11**	**6**
Abdullah	**Bachelor's**	**7**	**9**
Al-Duwiyan	**Bachelor's**	**15**	**7**
Al-Shamrani	**Bachelor's**	**15**	**5**
Saad	**Bachelor's**	**11**	**6**
Al-Quthami	**Bachelor's**	**9**	**7**
Talal	**Bachelor's**	**8**	**4**

2.2 *Data collection and verification*

To collect in-depth data concerning the impact of sleep disorders on students' instructional impairment within the school context, individual semi-structured interviews were carried out. For example, teachers were asked, 'How do you view the relationship between sleep disorders in students with intellectual disabilities and their academic performance?' Participants were also asked, 'Have you noticed a connection between sleep disorders and increased undesirable behaviours such as aggression or anger in the classroom? If yes, can you give an example, and how do you manage these behaviours?' Further, they were asked, 'What impact do sleep disorders have on student interactions?' Before conducting the interviews, three experts in special education and intellectual disabilities reviewed the interview questions. Consent forms in Arabic, outlining the study's objectives, the voluntary nature of participation, and assurances of confidentiality, were presented to participants. The interview questions were formulated in clear language to enhance understanding and ease of access. Prior to each interview, all participants were asked to sign a consent form and were reminded of the research purpose and their rights, including the option to withdraw at any time. All interviews were conducted in Arabic and lasted between 36 to 65 minutes. Since all interviews were conducted in Arabic, particular attention was given to translating participants' quotes into English for reporting purposes. A forward and back translation process was employed (Crane et al., 2009), and two bilingual researchers reviwed the excerpts to ensure accuracy and preserve cultural nuances.

2.3 *Data analysis*

The interviews were analysed using reflective thematic analysis, defined as "a method for identifying, analysing, and reporting patterns within data" (Braun & Clarke, 2006, p. 79). This approach acknowledges the researcher's active role in knowledge production, with themes developed through iterative engagement with the data and reflexive consideration of underlying assumptions (Braun & Clarke, 2019). Reflective thematic analysis was considered appropriate given the limited research exploring sleep disturbances within school environments for students with intellectual disabilities and the exploratory aims of the study.

All interviews were transcribed verbatim and cross-checked against the original audio recordings to ensure accuracy and fidelity. Coding and theme development were conducted collaboratively by the

second and third authors, whose professional backgrounds in special education informed interpretative depth. To enhance trustworthiness, the research team engaged in collaborative coding, regular peer debriefing sessions, and sustained reflexive dialogue throughout the analytical process (Nowell et al., 2017; Starks & Brown Trinidad, 2007). Reflective analytic notes were maintained to document evolving interpretations and support transparency in theme development. This process resulted in a set of interrelated themes that captured teachers' perspectives on the impact of sleep disturbances on students with intellectual disabilities.

3. Findings

Five interrelated main themes emerged from the data: (1) Teachers' Knowledge and Training Needs, (2) Academic Performance and Learning Challenges, (3) Behavioural and Emotional Consequences, (4) Peer and Social Interaction, and (5) Systemic and Practical Challenges. These themes converged on a central overarching theme: the pervasive and multifaceted influence of sleep disturbances on the educational experiences and daily functioning of students with intellectual disabilities. Inadequate sleep not only impaired students' learning and behaviour but also placed additional demands on teachers and disrupted classroom dynamics (see Figure 1 for thematic structure).

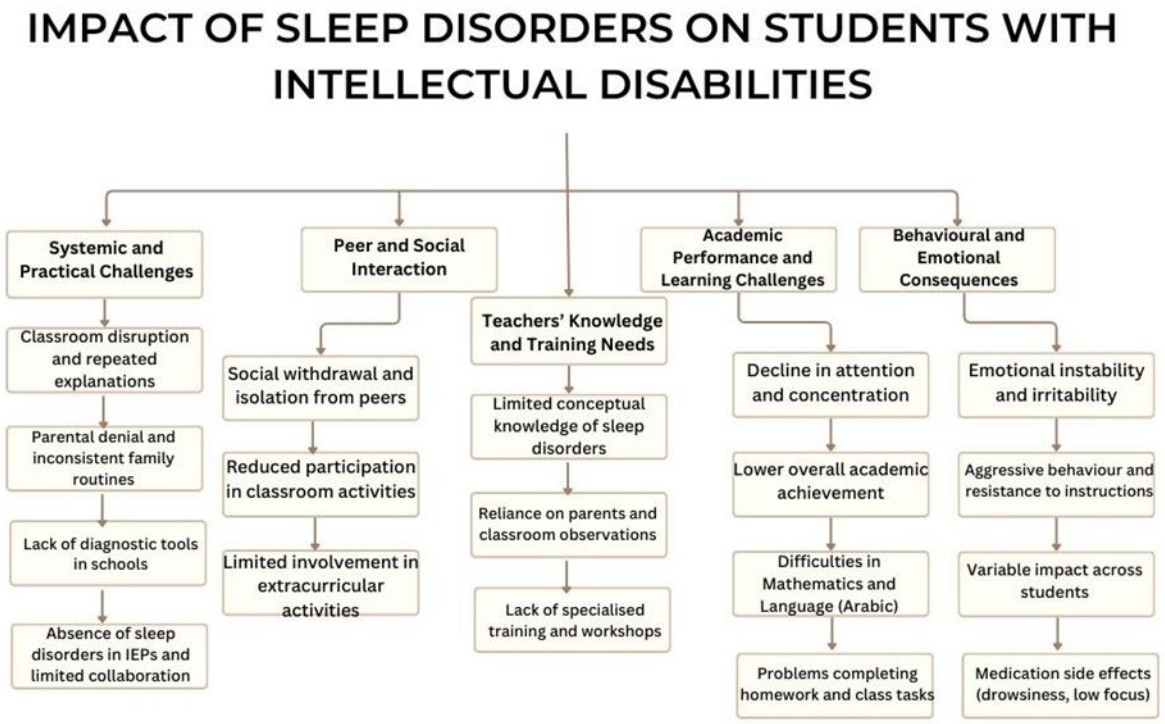

Figure 1. Overview of the Thematic Structure of Study Findings.

3.1 Teachers' knowledge and training Needs

Participants showed limited formal knowledge of sleep disorders and their educational implications. While all acknowledged sleep's general importance for cognitive and behavioural functioning, most lacked understanding of specific classifications or diagnostic criteria, relying primarily on informal observations and parental reports rather than specialised training.

Nawaf explained: *"I know that sleep is important, and I notice its effects, but I don't know the classifications of sleep disorders, nor how to differentiate between them."* Adel added: "*Honestly, we need more workshops on this topic."* Saad noted: *"We hear about sleep disorders, but no one has taught us how to deal with them practically."* Al-Qathami emphasised: *"If there were courses teaching us how to distinguish between real sleep disorders and just regular staying up late, that would be great."*

Nearly all participants stressed the urgent need for targeted professional development, noting that sleep problems are common in developmental disabilities yet rarely addressed in depth during training.

Collectively, these accounts position teachers as key observers of sleep-related difficulties without adequate professional frameworks for systematic identification or intervention.

3.2 Academic performance and learning challenges

There was unanimous consensus among participants that poor sleep impaired students' academic performance and engagement. Teachers described frequent inattention, daydreaming, mental exhaustion, and difficulties with working memory and information retention. Mathematics and Arabic were most commonly identified as the subjects most affected, given their reliance on sustained focus and abstract reasoning.

Ahmed stated: "*Mathematics requires high mental focus, and a student with sleep deprivation cannot absorb the steps to solve problems*."

Al-Shamarani observed: "*The working memory is so heavily impacted by sleep loss, there is a predictable drop in performance on assessments."*

Sultan added: "*With sleep issues, the students were always behind their classmates academically."*

Homework completion was consistently compromised, with students showing reduced motivation, incomplete submissions, or frequent errors. Al-Qathami shared a representative example: *"One of my students… could solve basic math problems… But after some time, he stopped solving even the easy problems… we discovered that he had sleep problems, nightmares, and disorders, which led to his decline in performance."*

Collectively, these accounts positioned sleep disturbances as a structural constraint on students' capacity to sustain attention, consolidate learning, and maintain consistent academic progress within classroom contexts.

3.3 Behavioural and emotional consequences

Sleep disturbances were strongly associated with irritability, emotional lability, and aggression. Teachers described students as more easily provoked, prone to crying episodes, refusing participation, or displaying sudden outbursts. Behavioural challenges were often context-dependent, intensifying when sleep loss coincided with other stressors or pre-existing regulatory difficulties.

Sultan described: "*When they don't sleep enough, they can be agitated, aggressive, or unstable… They get angry quickly."*

Nawaf added: "*Some students become irritable, refuse to follow instructions, and may raise their voices in class."*

Ahmed noted that some students become easily provoked and may withdraw or cry when overwhelmed during classroom activities.

Teachers also highlighted variability in medication effects. Some students appeared calmer but noticeably drowsy and less interactive during instructional time, suggesting a complex interplay between sleep regulation, behaviour, and pharmacological management.

Collectively, these accounts framed sleep disturbance not merely as a behavioural trigger, but as an amplifier of underlying emotional and self-regulatory vulnerabilities within classroom contexts.

3.4 Peer and social interaction

Participants consistently linked poor sleep to social withdrawal and reduced peer engagement. Students were described as isolating themselves during breaks, avoiding group activities, or appearing tense and insecure in interactions.

Al-Shamarani noted: *"They may not want to communicate at all, adding to their other issues."*

Sultan observed: *"Some students completely isolate themselves from the group and do not talk to anyone, even during breaks."*

Abdullah added that some students appear tense and limit themselves to observing peers rather than actively participating.

Classroom participation was reported to be more affected than extracurricular activities, although overall engagement remained reduced. Teachers described students arriving visibly drowsy, refusing to move, or remaining disengaged during structured tasks. Some educators shared practical strategies, such as repositioning desks to reduce leaning and sleepiness.

Collectively, these accounts suggest that sleep-related fatigue constrained students' relational readiness, limiting their ability to initiate, sustain, and benefit from peer interaction within classroom environments.

3.5 Systemic and practical challenges

Teachers described substantial classroom disruptions, including repeated lesson explanations, managing hyperactivity, and adapting instruction for cognitively fatigued students. Participants frequently expressed frustration with inconsistent family routines and limited institutional support for addressing sleep-related concerns. Participants emphasised the importance of incorporating sleep considerations into Individualised Education Plans (IEPs) and strengthening school–family collaboration.

Al-Shamarani emphasised: *"Continuous follow-up with the family is essential… Sleep disorders need to be addressed in individual educational plans."*

Ahmed highlighted: *"The biggest challenge is re-explaining the lesson multiple times."*

Saad added that some parents were reluctant to acknowledge sleep problems, making coordinated intervention difficult.

Participants' open-ended reflections further pointed to limited community awareness, the absence of practical screening or diagnostic tools within schools, and insufficient professional guidance for teachers. Taken together, these accounts position sleep disturbances not merely as individual student difficulties, but as structurally embedded challenges spanning family practices, institutional infrastructures, and professional preparedness within the educational system.

4. 4. Discussion

This study provides one of the first qualitative examinations in Saudi Arabia of how special education teachers interpret and negotiate the impact of sleep disturbances among students with intellectual disabilities within classroom environments. Rather than treating sleep problems solely as clinical or family-based concerns, the findings reposition them as structurally embedded educational constraints that shape cognitive engagement, behavioural regulation, peer interaction, and instructional practice.

Participants consistently described sleep deprivation as constraining students' ability to sustain attention, retain new information, and apply learned material particularly in cognitively demanding subjects such as mathematics and Arabic. Interpreted through Information Processing Theory (Atkinson & Shiffrin, 1968), these accounts suggest that insufficient sleep compromises encoding efficiency, working memory stability, and retrieval processes, thereby limiting the transformation of instructional input into durable learning outcomes. While prior research has established links between sleep, memory consolidation, and attentional control (Galland et al., 2015; Abdel-Aaty, 2020), the present findings extend this scholarship by demonstrating how such impairments are experienced in situ within everyday classroom demands. For students with intellectual disabilities already characterised by heightened neurodevelopmental vulnerability (Richdale & Schreck, 2009; Korb et al., 2023) sleep disturbances appear to function not merely as additive stressors but as multiplicative constraints that exacerbate existing cognitive fragilities.

Beyond cognitive consequences, teachers described patterns of irritability, emotional lability, withdrawal, and episodic aggression. Rather than framing these responses as isolated misconduct, the findings suggest that sleep deprivation destabilises

regulatory systems already compromised in developmental disabilities. This interpretation aligns with research linking sleep disturbances to emotional dysregulation (Brylewski & Wiggs, 1999; Bayoumi, 2019) while advancing it by positioning behavioural disruption as a downstream manifestation of compromised physiological and cognitive regulation within structured educational contexts. Notably, teachers reported that behavioural difficulties intensified when sleep loss intersected with contextual stressors, reinforcing Harper et al.'s (2023) argument that sleep hygiene, emotional control, and environmental demands are dynamically interrelated processes rather than independent variables.

Importantly, sleep disturbances also emerged as relational constraints. Teachers' observations of withdrawal, reduced peer initiation, and limited participation suggest that fatigue diminishes students' relational readiness the capacity to engage reciprocally in social exchanges. Prior research has identified associations between sleep and social functioning (Al-Namri et al., 2022), yet the present findings illuminate how sleep-related disengagement subtly reshapes classroom interaction patterns and peer dynamics. Within inclusive settings, such relational constraints may undermine not only individual participation but also collective classroom cohesion.

Viewed through Bronfenbrenner's (1979) ecological systems framework, sleep disturbances can be understood as multi-level phenomena negotiated across interconnected systems. Teachers' accounts of inconsistent family routines, limited school-based screening mechanisms, and gaps in professional preparation reflect tensions within family sleep practices, home–school coordination, and broader cultural rhythms and policy priorities. In this sense, sleep regulation is not solely an individual responsibility but an outcome shaped by overlapping structural influences. Within the Saudi context where late-evening social patterns coexist with early school schedules (BaHammam et al., 2006; Nasim et al., 2019; AlEidan et al., 2023) these systemic interactions may intensify sleep-related vulnerabilities among students with intellectual disabilities.

As Saudi Arabia advances inclusive education under Vision 2030 (Kingdom of Saudi Arabia, 2016; Alquraini & Rao, 2017), the findings highlight sleep disturbances as an overlooked barrier to equitable participation. While sleep interventions are well documented within health-oriented literature, their integration into school-based practice remains limited. The reported absence of structured training in identifying and responding to sleep-related difficulties (Meltzer et al., 2009; Romiszewski et al., 2019) reveals an implementation gap between knowledge production and classroom application. Addressing this gap requires cross-sector collaboration and recognition of sleep regulation as a foundational component of inclusive educational design.

4.1 Strengths and limitations

This study represents, to our knowledge, the first qualitative exploration in Riyadh and more broadly in Saudi Arabia of special education teachers' perspectives on the impact of sleep disturbances among students with intellectual disabilities in school settings. This contextual originality constitutes a key strength, offering novel insights into an under-researched dimension of Saudi inclusive education. The application of reflective thematic analysis, combined with the research team's contextual familiarity, enabled iterative engagement with participants' narratives, thereby enhancing analytical rigour, credibility, and transferability.

Several limitations should be acknowledged. First, the sample was drawn exclusively from Riyadh, which may limit the transferability of findings to other Saudi regions where school resources, cultural practices, or teacher preparation differ. Second, reliance on teachers' perceptions while providing valuable insider insights often absent in prior research would be strengthened by triangulation with parent and student voices in future work. Third, the modest sample size (n=10) requires cautious interpretation and precludes generalisation beyond the studied context. Finally, despite rigorous forward- and back-translation procedures, subtle cultural nuances in participants' Arabic responses may have been partially attenuated in English reporting.

4.2 Implications

The findings suggest several practical implications for inclusive education policy and classroom practice in Saudi Arabia.

First, sleep-related considerations should be more explicitly integrated into teacher preparation programmes and ongoing professional development initiatives. Structured guidance on identifying and responding to sleep-related difficulties may mitigate classroom disruption, strengthen instructional stability, and enhance students' capacity for sustained engagement.

Second, stronger school–family collaboration is essential. Clear and consistent communication channels can promote stable bedtime routines and facilitate early identification of sleep concerns. Collaborative monitoring and shared responsibility between educators and families may improve continuity between home and school contexts.

Third, national educational policies should explicitly recognise sleep regulation as an educationally relevant factor influencing access, engagement, and equitable participation for students with intellectual disabilities. Incorporating sleep-related considerations into Individualised Education Plans (IEPs), where appropriate, may support more responsive and inclusive educational planning.

Finally, greater cross-sector collaboration between educational and health professionals could foster more holistic and culturally responsive approaches to addressing sleep disturbances within school systems. Such integration aligns with Vision 2030's emphasis on quality, equity, and sustainable inclusive education reform.

5. Conclusion

This study demonstrates that sleep disturbances function not merely as health-related concerns but as structurally embedded educational constraints within special education classrooms in Riyadh. Teachers' accounts reveal how insufficient sleep permeates cognitive processing, emotional regulation, peer interaction, and instructional stability, thereby limiting students' meaningful participation in inclusive educational environments.

Despite these classroom-level consequences, sleep-related difficulties remain inconsistently managed in school systems, and school–family coordination appears fragmented. In light of Saudi Arabia's expanding commitment to inclusive education under Vision 2030 (Kingdom of Saudi Arabia, 2016), recognising sleep regulation as an educationally relevant factor is essential to advancing equitable participation for students with intellectual disabilities.

Future research should extend this work by incorporating parental and student perspectives to capture the broader ecological dynamics of sleep-related challenges. Longitudinal and intervention-based studies may further clarify how culturally responsive, sleep-focused strategies can be systematically embedded within educational practice.

Ultimately, addressing sleep disturbances in school contexts represents not only an instructional priority but also a matter of educational equity. Integrating sleep awareness into inclusive systems aligns directly with Vision 2030's objectives of quality, participation, and improved quality of life for individuals with disabilities.

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