

# Social Interaction of Children with Down Syndrome in Special Needs Nurseries (TASKA OKU): A Narrative Review

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## Abstract

This review aims to synthesize current research on the social interaction of children with Down syndrome (DS) in special needs nurseries (TASKA OKU). It seeks to identify common challenges, strengths, intervention strategies, and gaps in the literature, with the goal of informing practice and guiding future research. Children with DS often encounter distinctive challenges in social development, including delays in social cognition, peer exclusion, and vulnerability to bullying. At the same time, they show relative strengths such as affective empathy and attentiveness to others' emotions. These mixed profiles create complex needs in nursery settings, where teacher attitudes, peer relationships, family support, and inclusive practices strongly shape outcomes. This narrative review draws upon 20 high-quality papers identified through systematic searches across databases such as Semantic Scholar and PubMed. Studies were screened for relevance, with preference given to systematic reviews, meta-analyses, and empirical studies focusing on early childhood settings. While delays in cognitive empathy and communication hinder peer relationships, affective empathy and emotional awareness can be strong assets. Social participation is often restricted by limited inclusive practices, low peer status, and heightened risks of social isolation. Interventions mediated by parents, teachers, and peers show small to moderate improvements in social and communication skills, though effects are not always sustained long-term. Environmental factors such as parental stress, socioeconomic conditions, and classroom inclusivity play a critical role in moderating outcomes. It underscores the importance of context sensitive, family and teacher mediated interventions, as well as supportive inclusive environments. Significant gaps remain in understanding long-term intervention effects, syndrome-specific mechanisms of empathy development, and culturally adapted practices. This review contributes by clarifying these gaps and pointing toward targeted strategies to enhance social participation for children with DS.

**Keywords:** Down Syndrome, Social Interaction, Special Needs Nurseries, Taska Oku, Early Intervention, Peer Relationships

## Introduction

Social interaction forms a cornerstone of early childhood development, shaping children's ability to build relationships, communicate effectively, and participate meaningfully in society (Zöggeler-Burkhardt et al., 2023). For children with Down syndrome (DS) often face unique challenges in social interaction, particularly within special needs nurseries. The literature reveals that while children with DS may experience delays in certain aspects of social development, they also demonstrate strengths in affective empathy and attentiveness to others' feelings, sometimes even surpassing peers with other intellectual disabilities (Simon & Nader-Grosbois, 2024). Social participation and peer relationships are frequently limited for children with DS in group care settings, with increased risks of social isolation and bullying compared to typically developing peers (Berchiatti et al., 2021; Cheng & Lai, 2023). Interventions, especially those involving parent or teacher mediation, have shown promise in improving social and communication skills, as well as fostering more meaningful friendships (Koly et al., 2021; Cordier et al., 2023; Kei et al., 2023).

However, the effectiveness of these interventions can be influenced by factors such as teacher attitudes, classroom inclusivity, and the availability of social support for families (Steen & Wilson, 2020; Genovesi et al., 2024; Davis et al., 2023). Despite progress, research highlights the need for more context-specific, culturally adapted interventions and a deeper understanding of the mechanisms underlying social development in DS, particularly in early childhood and nursery settings (Koly et al., 2021; Cordier et al., 2023; Freire et al., 2023).

This narrative review focuses on synthesizing evidence related to the social interaction of children with DS in special needs nurseries. It examines patterns of interaction, peer relationships, intervention strategies, and family or environmental factors. By providing an overview of strengths, challenges, and gaps, this review offers timely insights for practitioners, policymakers, and researchers seeking to improve inclusive early education practices.

## Methodology

This narrative review was conducted to synthesize the current state of knowledge on the social interaction of children with Down syndrome in special needs nurseries. A comprehensive literature search was performed across major electronic databases, including Scopus, Web of Science, PubMed, Semantic Scholar, and Google Scholar. To ensure broad coverage, additional manual searches were conducted through the reference lists of key articles and relevant review papers. *Sources of information:* which electronic databases were used, were searched through the references of retrieved articles also done, examples of databases commonly included when performing literature search for medical topics include MEDLINE/PubMed, EMBASE, Cochrane database of systematic reviews, Web of Science, etc. The search strategy combined keywords and Boolean operators to maximize sensitivity and specificity. Core terms included: *"Down syndrome"* OR *"trisomy 21"*, *"social interaction"*, *"peer relationships"*, *"early childhood"*, *"special needs nursery"* OR *"special education setting"*, and *"intervention"*. Filters were applied to limit the results to peer-reviewed articles published between 2010 and 2024, in the English language. Both quantitative and qualitative designs were eligible for inclusion.

Studies were included if they met the following criteria:

1. Focused on children with Down syndrome aged 0–8 years.
2. Investigated social interaction, communication, empathy, or peer relationships in early educational or nursery contexts.
3. Assessed the role of interventions, parental or teacher involvement, or environmental influences on social development.

Studies were excluded if they:

1. Concentrated solely on medical, genetic, or biological aspects of Down syndrome.
2. Involved only older children, adolescents, or adults.
3. Did not provide sufficient methodological detail or if social interaction was not a primary outcome of interest.

The database search initially identified 945 records. After removing duplicates and records with missing abstracts, 425 studies were retained for preliminary screening. Of these, 295 were excluded due to low relevance or insufficient focus on social interaction, leaving 130 full-text articles for eligibility assessment. Following detailed evaluation, 110 articles were excluded because they either did not specifically address Down syndrome, examined populations outside the age range, or lacked methodological rigor. Ultimately, 20 studies met all criteria and were included in this review as can be seen in Figure 1. These encompassed cross-sectional studies, intervention trials, systematic reviews, and meta-analyses, collectively providing a robust overview of the social interaction experiences of children with Down syndrome in nursery settings.

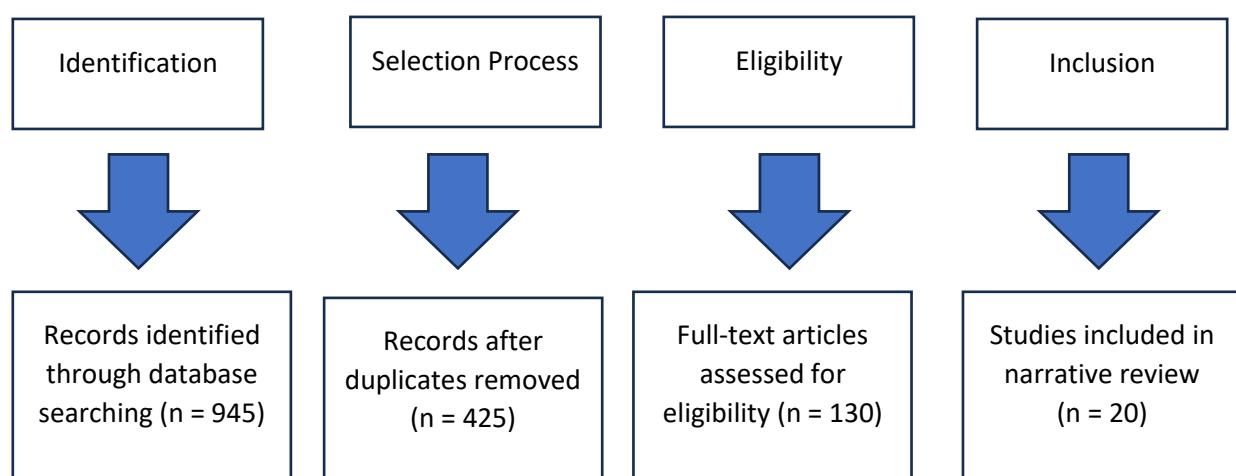


Figure 1. PRISMA-based Flow Diagram of Document Selection Process for Narrative Review

### Finding and Discussion

The research consistently shows that children with Down syndrome in special needs nurseries face both unique challenges and strengths in social interaction. While delays in cognitive empathy and social cognition are common, affective empathy and attentiveness to others' feelings can be areas of relative strength (Simon & Nader-Grosbois, 2024). The risk of social isolation and bullying is higher for these children, underscoring the importance of supportive peer and teacher relationships (Berchiatti et al., 2021; Cheng & Lai, 2023; Steen & Wilson, 2020). Interventions, particularly those that are parent- or teacher-mediated and involve peers, have demonstrated small to moderate improvements in social and communication skills, but the evidence base is still developing, especially for context-specific and culturally

adapted programs (Koly et al., 2021; Cordier et al., 2023; Kei et al., 2023). The quality of the research is generally robust, with several systematic reviews and meta-analyses providing a high level of evidence.

However, limitations include small sample sizes, heterogeneity in intervention approaches, and a lack of long-term follow-up data (Cordier et al., 2023; Kei et al., 2023; Freire et al., 2023). There is also a need for more research focused specifically on Down syndrome, as much of the literature combines DS with other intellectual or developmental disabilities, potentially obscuring syndrome-specific findings (Koly et al., 2021; Simon & Nader-Grosbois, 2024; Cordier et al., 2023). This body of research is important for informing best practices in special needs nurseries (Jamil et al., 2023; Jamil et al., 2024; Othman et al., 2025; Mahmood et al., 2024; Talling et al., 2020) and guiding the development of interventions that can enhance social participation and well-being for children with Down syndrome. It also highlights the critical role of family and environmental supports in shaping social outcomes (Cheng & Lai, 2023; Steen & Wilson, 2020; Genovesi et al., 2024).

### **Synthesis Analysis**

#### *Patterns of Social Interaction in Children with Down Syndrome*

The literature consistently highlights that children with Down syndrome (DS) present a unique profile of social strengths and challenges. Affective empathy and responsiveness to others' emotions are frequently identified as relative strengths, distinguishing them from peers with non-specific intellectual disabilities. At the same time, delays in cognitive empathy and social cognition hinder their ability to navigate more complex social situations. This dual profile suggests that while children with DS are often perceived as sociable, they remain at heightened risk of social exclusion and misinterpretation of peer cues. A persistent theme across studies is the paradox of warmth and approachability coexisting with vulnerabilities to bullying, social isolation, and peer rejection.

#### *Peer Relationships and Inclusion in Nursery Settings*

Research indicates that peer relationships within nursery environments are often fragile for children with DS. Social participation tends to be limited, and children with DS frequently occupy lower social status in group settings. These difficulties are compounded by barriers such as communication delays, reduced expressive language, and limited inclusive practices within classrooms. Teacher attitudes and engagement emerge as critical moderating factors. Positive teacher-child relationships foster more supportive peer networks, while negative or neutral attitudes exacerbate exclusion. There remains debate over whether inclusive classrooms adequately address these challenges or unintentionally heighten risks of marginalization when supports are insufficient.

#### *Intervention Approaches to Enhance Social Interaction*

Evidence on interventions highlights the promise of parent- and teacher-mediated strategies. Programs that involve structured parent-child interaction, teacher training in social facilitation, and peer-mediated activities consistently show small to moderate improvements in communication and friendship outcomes. Interventions that integrate peers into structured play and group activities are particularly effective in improving reciprocity and sustained engagement. However, controversies exist regarding sustainability: while short-term gains are evident, long-term follow-up studies reveal uncertainty about whether

improvements persist without continued support. Furthermore, many intervention trials include heterogeneous populations of children with neurodevelopmental disorders, raising questions about whether findings are fully generalizable to DS-specific contexts.

#### *Family and Environmental Influences*

The social development of children with DS is not confined to the classroom. Family stress, socioeconomic conditions, and the availability of community supports play decisive roles. Parental stress, often heightened by caregiving demands and social stigma, can indirectly limit opportunities for children to engage socially. Conversely, strong family support networks and access to professional services provide protective effects, enabling richer social experiences. The literature also underscores the cultural context: interventions developed in high-income countries may not translate effectively into diverse cultural or resource-limited settings. This highlights a gap in research tailored to localized contexts, particularly in regions where inclusive education practices are emerging.

#### *Gaps, Controversies, and Future Directions*

Despite progress, several gaps remain unresolved. Longitudinal data are limited, leaving unclear whether early interventions translate into lasting improvements in adolescent or adult social functioning. Mechanisms underlying empathy development in DS are insufficiently understood, constraining the precision of intervention design. Another gap is the lack of DS-specific intervention studies, as many combine DS with broader intellectual disability populations. Controversies persist over how best to balance inclusion and specialized support: some scholars argue that inclusion fosters normalization and peer acceptance, while others caution that poorly resourced inclusive settings may increase vulnerability to exclusion.

#### *Implications for Practice and Policy*

The synthesis suggests that improving social interaction in nurseries requires multi-level action. For practitioners, training in inclusive pedagogy and targeted social facilitation techniques is essential. For policymakers, resource allocation must prioritize smaller teacher-child ratios, parental support programs, and culturally adapted interventions. Future research should invest in DS-specific, contextually sensitive longitudinal studies that capture both immediate and enduring social outcomes.

#### **Limitations**

Several limitations should be acknowledged in this narrative review. First, although a comprehensive literature search was conducted across multiple databases, the review is not a systematic review; therefore, it lacks the full rigor of systematic screening, quality appraisal, and quantitative synthesis. This may introduce selection bias, as the inclusion of studies relied partly on author judgment regarding relevance and quality.

Second, the heterogeneity of study designs poses challenges for synthesis. The included literature spans cross-sectional studies, systematic reviews, and intervention trials with varying methodologies and outcome measures. This variability makes direct comparison difficult and limits the ability to draw firm conclusions about effectiveness or generalizability. In particular, intervention studies often involved mixed populations of children with

neurodevelopmental disorders rather than focusing solely on Down syndrome, which may obscure syndrome-specific findings.

Third, the evidence base is constrained by methodological weaknesses in primary studies, such as small sample sizes, lack of longitudinal follow-up, and limited cultural diversity. Most studies were conducted in high-income countries, restricting the transferability of findings to low- and middle-income contexts where resources and social structures differ significantly. Fourth, this review was restricted to English-language publications, which may have excluded relevant studies published in other languages, thereby introducing potential language bias. Similarly, restricting the publication window to 2010–2024 may have overlooked earlier but still relevant contributions.

Finally, while efforts were made to present a balanced synthesis, narrative reviews are inherently subject to interpretive bias. The thematic organization and integration of evidence reflect the author's perspective and may differ from other possible interpretations.

Future research should address these limitations by conducting DS-specific longitudinal studies, incorporating culturally adapted interventions, and applying systematic review methodologies to strengthen the evidence base. Doing so would provide a more robust understanding of how to optimize social interaction outcomes for children with Down syndrome in nursery settings.

### **Conclusion**

This narrative review set out to synthesize evidence on the social interaction of children with Down syndrome in special needs nurseries (or Taska OKU in the Malaysian context), with a focus on understanding their interaction patterns, peer relationships, intervention strategies, and environmental influences. The findings reveal a complex profile: while children with Down syndrome often demonstrate warmth, affective empathy, and attentiveness to others, they face persistent challenges including delayed cognitive empathy, communication barriers, and heightened risks of social exclusion and bullying. Evidence suggests that parent- and teacher-mediated interventions, particularly when involving peers, can produce small to moderate improvements in social and communication skills, although the sustainability of these gains remains uncertain. Family support, teacher attitudes, and inclusive classroom practices further emerge as critical determinants of social outcomes, underscoring the need for multi-level approaches.

Nonetheless, gaps persist in the literature, particularly regarding long-term intervention effects, syndrome-specific mechanisms of social development, and culturally tailored practices. Addressing these gaps requires robust longitudinal and context-sensitive studies that focus exclusively on Down syndrome populations. Future research should prioritize DS-specific intervention models, cross-cultural validation, and scalable practices that can be adapted in diverse educational settings. Such efforts are essential to advancing inclusive early education and improving social participation outcomes for this population.

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### Contribution/Originality

This review offers a focused synthesis of literature on the social interaction of children with Down syndrome in special needs nurseries, addressing a gap often overlooked in broader studies of intellectual disabilities. It highlights both strengths and challenges in social development, identifies gaps in long-term and culturally adapted interventions, and provides recommendations to guide future research and inclusive early education practices.

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