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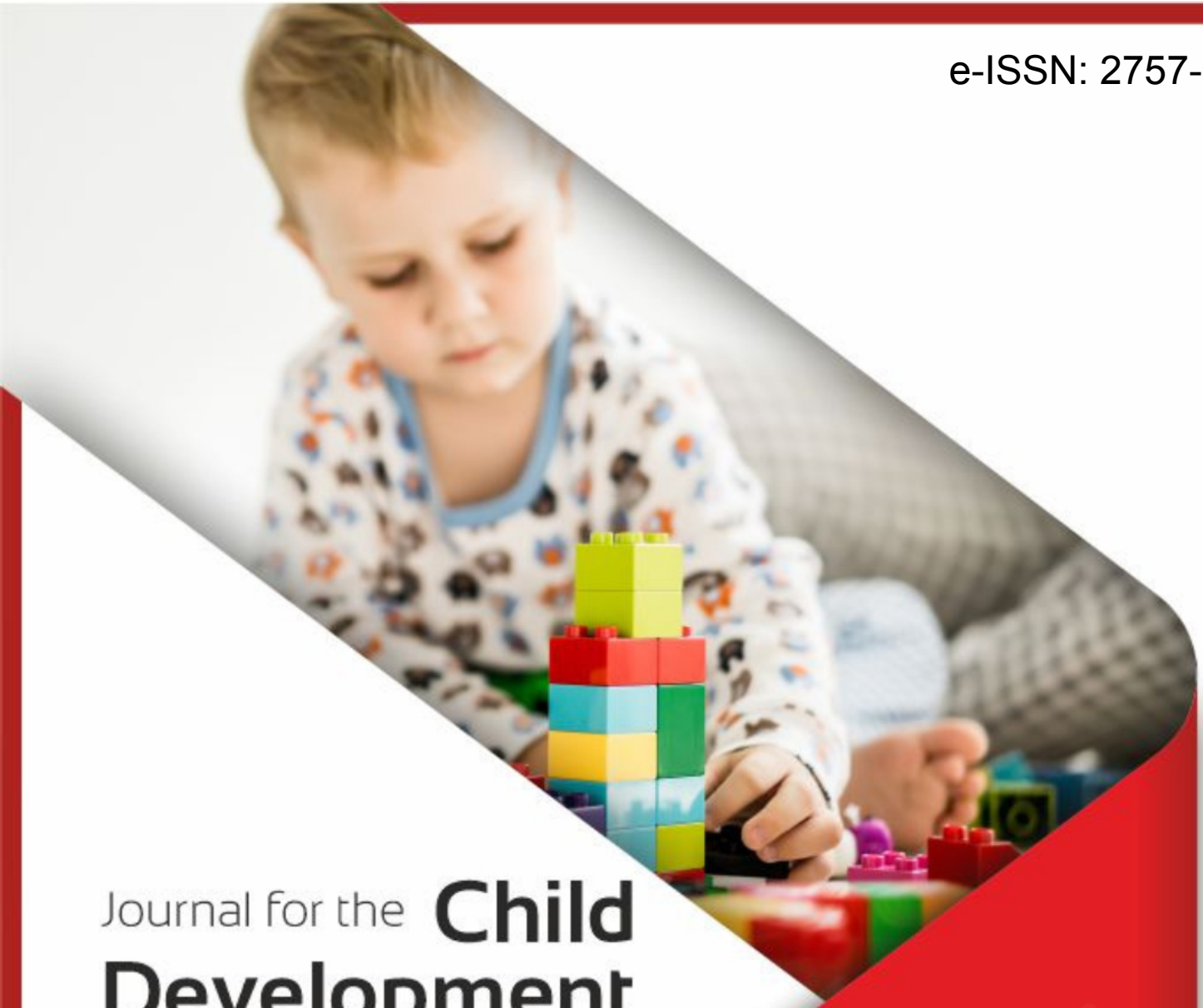

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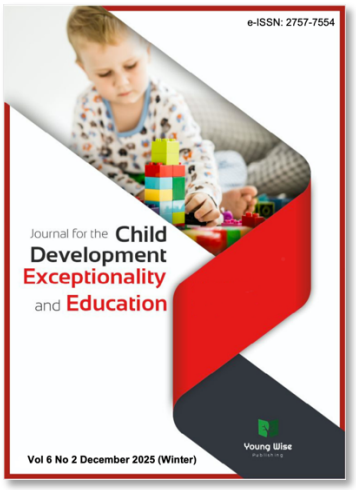

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Research Article

Postpartum comfort and mother-infant bonding: Implications for early child development and family-based intervention[1]

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Abstract

This descriptive cross-sectional study aimed to examine postpartum comfort levels and mother-infant bonding among mothers admitted to the Obstetrics Unit of Ege University Medical Faculty Hospital (EUMFH), and to identify factors influencing these outcomes. The sample consisted of 153 mothers who met the inclusion criteria and gave birth within the preceding three days. Data were collected using the Mother-Infant Introductory Information Form, the Postpartum Comfort Scale (PCS), and the Mother-Infant Bonding Scale (MIBS). The mean total PCS score was 95.37±39.05, indicating a moderate-to-low postpartum comfort level. Positive bonding scores averaged 1.86±0.91 and negative bonding scores averaged 0.79±0.61. Statistically significant differences were found between postpartum comfort and maternal age ($p<0.001$), number of pregnancies ($p<0.001$), number of living children ($p<0.001$), intentionality of pregnancy ($p<0.001$), and type of anesthesia ($p<0.05$). Mothers aged 38–47 years reported the lowest comfort levels. Primigravid mothers demonstrated significantly higher comfort and positive bonding scores compared to multigravid mothers. These findings underscore the importance of individualized care in the postpartum period to optimize maternal comfort and strengthen mother-infant attachment.

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Introduction

The postpartum period — referred to clinically as the puerperium — commences immediately after placental delivery and encompasses the subsequent six to twelve weeks during which the maternal organism returns to its pre-gestational state. This phase constitutes a physiologically and psychosocially complex transition for both the mother and the newborn, involving rapid hormonal shifts, uterine involution, initiation of lactation, and the assumption of new caregiving roles (Karakaplan & Eryılmaz, 2007; Esencan & Şimşek, 2017).

Despite its clinical significance, the postpartum period remains a phase during which mothers frequently experience unmet physical and emotional needs. Postpartum haemorrhage, puerperal infection, and venous thromboembolism represent the leading physiological risks, while postpartum depression, role adjustment difficulties, and disrupted mother-infant attachment constitute major psychosocial concerns (WHO, 2010; ACOG, 2018). Ensuring maternal comfort during this period is therefore not only a therapeutic priority but also a prerequisite for optimal infant care and healthy attachment formation.

[1] This study was produced from first author master thesis titled "An Investigation of Mothers' Comfort Levels and Mother-Infant Bonding in the Postpartum Period" at 2023.

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Katharine Kolcaba's Comfort Theory (1991, 2003) provides a comprehensive theoretical framework for understanding and measuring patient comfort in nursing practice. The theory conceptualizes comfort across four contextual dimensions — physical, psychospiritual, sociocultural, and environmental — and three taxonomic states: relief, ease, and transcendence. Kolcaba operationalized these dimensions through the General Comfort Questionnaire (GCQ), which was subsequently adapted for Turkish postpartum populations as the Postpartum Comfort Scale (PCS) by Karakaplan and Yıldız (2010).

Mother-infant bonding, a concept rooted in Bowlby's Attachment Theory (1969) and further elaborated by Ainsworth, refers to the enduring emotional tie formed between the mother and her newborn during the sensitive period following birth. Contemporary developmental science has established that the quality of this early bond extends well beyond the neonatal phase, exerting a profound influence on children's long-term developmental trajectories. Secure early attachment predicts superior cognitive outcomes in infancy and childhood, including higher scores on standardized language, memory, and executive function assessments (Kok et al., 2015; Belsky & Fearon, 2002). Neuroimaging research further demonstrates that secure maternal bonding is associated with healthier prefrontal cortical development — a region critical for learning, attention regulation, and problem-solving — highlighting a direct neurobiological pathway through which postpartum bonding shapes cognitive development (Kim et al., 2020).

Beyond cognition, early mother-infant bonding is a cornerstone of children's social-emotional development. Children who experience warm, responsive early caregiving develop greater emotional regulation capacities, demonstrate more prosocial behaviours, and show lower rates of behavioural dysregulation across childhood (Bretherton, 1992; Sroufe et al., 2005). Conversely, insecure or disrupted attachment in infancy is a robust predictor of anxiety, aggression, social withdrawal, and externalizing behavioural problems in the preschool and school-age years (DeKlyen & Greenberg, 2008). The transition to formal schooling itself is significantly shaped by early bonding quality: children with secure attachment histories demonstrate better preschool social competence, more constructive peer relationships, greater classroom engagement, and smoother adaptation to the structured demands of the early educational environment (Pianta et al., 1997; O'Connor & McCartney, 2007). These findings collectively position the postpartum period — and the quality of bonding established therein — as a critical determinant not only of infant health but of children's educational readiness and school adjustment.

Given this confluence of evidence, it is imperative that postpartum clinical care extend beyond the immediate physiological management of the mother to encompass a developmental perspective, recognizing that interventions promoting maternal comfort and mother-infant bonding during the first days of life may yield long-term benefits for the child's cognitive, social-emotional, and educational outcomes.

While prior studies have examined postpartum comfort (Birgili, 2020; Derya et al., 2021; Erkaya et al., 2017) and mother-infant bonding (Kırca & Savaşer, 2017; Engin & Kuzlu Ayyıldız, 2021) independently, the relationship between these two constructs — and the demographic and obstetric factors that jointly influence them — remains incompletely understood in Turkish tertiary-care settings. The present study was therefore designed to address this gap.

Objectives

The present study aimed to: (1) determine postpartum comfort levels of mothers hospitalized in the Obstetrics Unit of EUMFH; (2) identify sociodemographic, obstetric, and neonatal factors associated with postpartum comfort and mother-infant bonding; and (3) discuss implications for early child development and family-centred intervention.

Method

Study Design and Setting

A descriptive, cross-sectional design was employed. The study was conducted in the Obstetrics Unit of Ege University Medical Faculty Hospital (EUMFH), İzmir, Türkiye — a tertiary referral centre operating 34 single-room wards with a capacity for 44 patients and an average daily delivery rate of eight births. The typical postpartum hospitalization duration is one day following vaginal delivery and two days following Caesarean section.

Participants

The target population comprised all women who delivered at EUMFH during the preceding year (N = 1,850). Using the known-population sampling formula with a 95% confidence interval and a 5% margin of error, the minimum required sample size was calculated as 318. A power analysis conducted using G*Power 3.1.9.2, based on an effect size of d = 0.62 (derived from Semerci, 2019), indicated that 138 participants were required to achieve $\alpha = 0.05$ and $1-\beta = 0.95$. Due to time constraints, 153 mothers were enrolled via purposive sampling, yielding adequate statistical power.

Inclusion criteria: ≥18 years of age; Turkish as primary language; literate; no psychiatric diagnosis or perceptual impairment; delivered within the preceding three days; verbal informed consent. Exclusion criteria: high-risk pregnancy; multiple gestation; severe maternal or neonatal complications; preterm birth (<37 weeks); conception via assisted reproductive technology.

Data Collection Instruments

Three instruments were used:

Mother-Infant Introductory Information Form (MIIF). A researcher-developed 23-item questionnaire covering sociodemographic (9 items), obstetric history (11 items), and neonatal characteristics (3 items).

Postpartum Comfort Scale (PCS). Developed by Karakaplan and Yıldız (2010); 34-item, 5-point Likert-type scale measuring physical, psychospiritual, and sociocultural comfort. Scores range from 34 to 170; higher scores indicate greater comfort. Cronbach's $\alpha = 0.78$ in the present study.

Mother-Infant Bonding Scale (MIBS). Turkish adaptation (Karakulak, 2009) of Taylor et al.'s (2005) original scale. Eight items, 4-point Likert format. Higher total scores indicate greater bonding difficulties. Cronbach's $\alpha = 0.80$ in the present study.

Data Collection Procedure

Data were collected through face-to-face interviews in the Obstetrics Unit. A pilot test was carried out with 10 eligible mothers to assess item clarity; these participants were excluded from the main analysis. Verbal informed consent was obtained from all participants prior to data collection.

Statistical Analysis

Data were analyzed using SPSS Statistics version 23. Normality was confirmed through skewness and kurtosis values (both within ±2.0). Parametric tests were employed: independent samples t-test (two-group comparisons), one-way ANOVA with post-hoc LSD, Scheffe, or Tukey tests (multi-group comparisons), and Pearson correlation analysis. Significance threshold: $p < 0.05$.

Ethical Considerations

The study was approved by the Medical Research Ethics Committee of Ege University and the relevant institutional authority of EUMFH. Written permissions for scale use were obtained from scale developers and authors of Turkish adaptations. Verbal informed consent was obtained from all participants.

Results

Sociodemographic and Obstetric Characteristics

The sample comprised 153 postpartum mothers. The majority were aged 28–37 years (52.3%), held a university degree or above (41.8%), and were not employed outside the home (66.0%). Regarding economic status, 71.2% reported income roughly equal to expenditure. The vast majority (94.8%) had married by choice, and 91.5% lived in households of 3–5 persons.

Regarding obstetric history, 37.3% were primigravid, 64.1% delivered by Caesarean section (CS), and 35.9% vaginally. Among CS deliveries, spinal anesthesia was most common (46.4%), followed by general (9.8%) and epidural (7.8%) anesthesia. Most pregnancies (81.7%) were planned. Infant sex was approximately equal (50.3% female). Early breastfeeding initiation (within the first hour) was reported by 69.3% of mothers.

Postpartum Comfort Scale Scores

The mean total PCS score was 95.37±39.05 (scale range: 34–170), indicating below-mid-range postpartum comfort. CS mothers scored 95.62±39.42 and vaginal delivery mothers 94.93±38.75; this difference was not statistically significant ($p > 0.05$).

Significant differences in total and subscale PCS scores were observed for:

Maternal age ($p < 0.001$): Mothers aged 38–47 years reported significantly lower physical, psychospiritual, and sociocultural comfort than younger groups (LSD post-hoc).

Number of pregnancies ($p < 0.001$): Primigravid mothers demonstrated higher comfort on all subscales vs. multigravid mothers (Scheffe post-hoc).

Number of living children ($p < 0.001$): Mothers with one living child reported significantly higher comfort than those with two or more children (Scheffe post-hoc).

Intended pregnancy ($p < 0.001$): Planned-pregnancy mothers reported significantly higher comfort on all dimensions.

Prior birth experience ($p < 0.001$): First-time mothers had higher PCS scores than experienced mothers.

Type of anesthesia ($p < 0.05$): Epidural anesthesia was associated with significantly higher physical ($p = 0.034$), psychospiritual ($p = 0.040$), and total postpartum comfort ($p = 0.042$) compared to other modalities.

No significant PCS differences were observed for marital consent, infant sex, or miscarriage history (all $p > 0.05$).

Mother-Infant Bonding Scale Scores

The mean positive bonding score was 1.86±0.91 and the mean negative bonding score was 0.79±0.61, reflecting moderate positive and low negative bonding levels.

Significant predictors of bonding scores included:

Maternal age (positive bonding, $p = 0.005$): Mothers aged 38–47 years demonstrated significantly lower positive bonding than those aged 18–27 years. No age-related difference in negative bonding ($p > 0.05$).

Number of pregnancies ($p < 0.001$): Primigravid mothers had higher positive and lower negative bonding scores (Tukey post-hoc).

Number of living children ($p < 0.001$): Mothers with one living child had higher positive and lower negative bonding scores (Scheffe post-hoc).

Intended pregnancy ($p = 0.005$): Planned-pregnancy mothers had higher positive bonding.

Type of anesthesia (positive bonding, $p = 0.026$): Epidural anesthesia was associated with higher positive bonding (Scheffe post-hoc).

Prior birth experience ($p < 0.001$): First-time mothers demonstrated higher positive and lower negative bonding scores.

No significant bonding differences were found by marital consent, infant sex, or miscarriage history (all $p > 0.05$).

Discussion

This study provides a comprehensive examination of postpartum comfort and mother-infant bonding in a Turkish tertiary-care obstetric setting. The mean PCS total score of 95.37±39.05 is consistent with findings from Birgili (2020) (mean: 110.42±9.12) and Derya et al. (2021) (subscale scores ranging 31.94–45.97), both indicating moderate postpartum comfort levels. The observed score approximates the midpoint of the PCS scale range (34–170), suggesting that a substantial proportion of mothers experience suboptimal postpartum comfort — a clinically actionable finding.

No significant difference in postpartum comfort was found between CS and vaginal delivery groups ($p > 0.05$), consistent with Erkaya et al. (2017) and Ünal and Şenol (2022). This finding suggests that mode of delivery per se may not be the predominant determinant of postpartum comfort when other variables are accounted for.

Advanced maternal age (38–47 years) was significantly associated with lower comfort and reduced positive bonding. Older mothers may face compounded physiological recovery challenges and heightened psychological burden, consistent with evidence that advanced reproductive age is associated with increased obstetric complexity and reduced psychosocial resilience (Çankaya et al., 2017). From a developmental perspective, impaired bonding in older mothers

warrants particular clinical attention, as reduced positive bonding at this stage may translate into downstream effects on the child's cognitive and social-emotional development.

The finding that multigravid mothers reported significantly lower comfort and weaker bonding aligns with the physical depletion hypothesis: each successive pregnancy may incrementally reduce maternal physiological reserve and psychosocial coping capacity. Critically, weaker bonding in multigravid families has implications for the developmental environment of all children in the household, not only the newborn, as maternal emotional availability is a shared resource across siblings.

The association between intended pregnancy and higher comfort and bonding scores reinforces the importance of reproductive autonomy in shaping postpartum psychological outcomes. This parallels findings from Birgili (2020) and Kırca and Savaşer (2017). The developmental implications are significant: children born from planned pregnancies are more likely to enter a family context characterized by higher maternal responsiveness — a key driver of early cognitive stimulation, language development, and emotional security.

Epidural anesthesia was associated with significantly higher postpartum comfort and positive bonding, corroborating Orak and Beydağ (2023), who demonstrated that general anesthesia was associated with the lowest postpartum comfort scores in both the first 24 and 48 postoperative hours. Epidural anesthesia may facilitate earlier maternal engagement with the newborn — including skin-to-skin contact, breastfeeding initiation, and responsive caregiving — during the sensitive bonding window immediately following delivery.

Primiparity was consistently associated with superior postpartum comfort and stronger bonding. First-time mothers may approach the postpartum period with greater anticipatory motivation and fewer competing caregiving demands. Given that secure early bonding in first-time mothers has been linked to stronger child cognitive outcomes (Belsky & Fearon, 2002) and smoother preschool social adjustment (Pianta et al., 1997), supporting primiparity-associated bonding quality represents a high-value clinical investment.

Conclusion and Implications for Practice

This study demonstrates that postpartum comfort and mother-infant bonding are differentially influenced by maternal age, gravidity, parity, intended pregnancy status, prior birth experience, and type of anesthesia. Mode of delivery did not independently predict comfort or bonding outcomes. These findings have implications that extend beyond immediate obstetric care to encompass early child development, family-based educational intervention, and the integration of health and education systems.

Implications for Parental Education Programs

Structured parental education programs — initiated antenatally and continued throughout the postpartum hospitalization period — represent a first-order intervention to promote maternal comfort and strengthen mother-infant bonding. Such programs should address the physiological and psychosocial demands of the postpartum period, provide evidence-based guidance on responsive caregiving and breastfeeding, and equip parents with knowledge of infant developmental cues. The present findings suggest that mothers at highest risk — those who are older, multigravid, or experiencing unintended pregnancies — should be prioritized for intensive educational support.

From a child development standpoint, parental education programs that explicitly frame early bonding as a developmental investment may increase parental motivation and engagement. Educational curricula should incorporate evidence linking responsive early caregiving to children's cognitive readiness, language acquisition, and social-emotional competence, thereby supporting the developmental aspirations of parents alongside their immediate wellbeing.

Implications for Early Intervention

For mothers demonstrating indicators of suboptimal postpartum comfort or impaired bonding — particularly those in high-risk demographic subgroups identified in this study — proactive early intervention is warranted. Early psychosocial interventions, including nurse-led comfort enhancement protocols, postpartum bonding support groups, and home visiting programs, have demonstrated efficacy in improving maternal wellbeing and attachment quality. Given the robust evidence linking early bonding quality to children's preschool adjustment (O'Connor & McCartney, 2007) and

long-term social-emotional outcomes (Sroufe et al., 2005), investment in early postpartum intervention yields developmental dividends well beyond the neonatal period.

Future research should evaluate the effectiveness of structured postpartum comfort and bonding intervention programs on children's developmental outcomes at ages 3, 5, and beyond — thereby translating the clinical and developmental rationale articulated here into evidence-based practice guidelines.

Health–Education Integration

The findings of this study highlight the need for systematic integration between postpartum health services and early childhood education and development frameworks. Postpartum nursing teams are ideally positioned to serve as early bridges between maternal health care and early childhood development pathways. Collaboration between obstetric units, developmental pediatrics, and early childhood education professionals — through shared care protocols, referral networks, and family support services — can ensure that mothers and infants at developmental risk are identified early and connected with appropriate community-based resources.

At a policy level, the evidence presented here supports the embedding of developmental screening, parental education, and bonding assessment within standard postpartum hospital care protocols, and the co-location of early childhood development support within obstetric and postnatal healthcare settings. Integrating the child development lens into postpartum care represents not only a clinical imperative but also an educational equity strategy, given the well-established links between early bonding quality and children's school readiness and long-term educational trajectories.

Limitations and Future Directions

The study was conducted in a single tertiary-care centre, limiting generalizability to community or primary-care settings. The cross-sectional design precludes causal inference. Data were collected during acute postpartum hospitalization (days 0–3), which may not reflect longer-term comfort and bonding trajectories. Future studies should employ longitudinal designs, larger and more diverse samples, and include direct assessment of child developmental outcomes.

Biodata of Author

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Review Article

Giftedness and mirror neurons[1]

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Abstract

This article explores the strong connection between giftedness and hyperactivity of mirror neurons (hypermirroring). It challenges the widespread prejudice — still prevalent even among educators and psychologists — that high cognitive ability is frequently accompanied by emotional underdevelopment. Drawing on neuroscience, the author argues that many characteristics of gifted individuals, including heightened empathy, emotional intensity, rapid observational learning, overexcitabilities (Dabrowski), asynchronous development, and sensory hypersensitivity, can be largely explained by an exceptionally active mirror neuron system. This system enables gifted people to automatically and intensely "mirror" the actions, emotions, and intentions of others, leading to superior social intuition and emotional intelligence on one hand, but also to emotional overload, hyper-empathy, and vulnerability to emotional contagion on the other. The discussion further links hypermirroring to misophonia, presenting it as over-mirroring of orofacial actions rather than a simple sound-processing disorder. Supporting evidence from key studies (Kumar et al., 2021; Stoeckl-Drax, 2020, 2021) is presented, including fMRI and EEG findings. The author concludes that cognitive giftedness and high emotional intelligence are often complementary rather than contradictory. Proper understanding of the mirror neuron mechanism can help parents, educators, and professionals better support gifted children and adults, moving beyond outdated stereotypes toward more effective educational and emotional interventions.

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Introduction

A few years ago, I was invited to a meeting whose purpose was to determine whether a girl, whom a psychologist working in the public service had recommended should skip two grades at once, would indeed be "approved" by representatives of the Ministry of Education to do so. The acceleration assessment, to which I referred the girl's parents, was a last resort because all other solutions the parents and the school had tried had failed. The girl, who was in a gifted class, was extremely unhappy with both her studies and the social environment in the class and was frequently absent from school.

Despite the unequivocal recommendation that skipping a grade would improve the girl's emotional and social situation, the "authorities" refused to allow her parents to register her in the recommended class. The meeting, scheduled for August 31 of that year, was intended – from the Ministry of Education's perspective – to persuade the parents to give up the double skip, while for the parents it was an attempt to convince the Ministry's representatives to accept the psychologist's recommendation. I will not bore you with the details of the meeting; the decision will be presented soon.

[1] This work is based on four of me Hebrew publications (Web1, Web 2, Web3, Web 4)
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The point I found most interesting in the meeting was the main reason for the opposition presented to us by "the other side." The professional, a high-ranking public official, justified her opposition to the grade skip with the following sentence: "I myself have a gifted daughter, and as we know, gifted children are not developed emotionally."

This prejudiced view is unfortunately still widespread today, even among professionals in education and psychology. I will not uproot it entirely, but I will try to help readers see things from a different angle – the perspective of neuroscience – and perhaps convince them that cognitive giftedness does not contradict high emotional intelligence; in many cases, the opposite is true.

Gifted children, gifted adolescents, and adults with high cognitive abilities often show high sensitivity not only to themselves but also to others, along with strong social awareness. This fact may be related to a particularly active mirror neuron system that functions at an exceptional level. Mirror neurons are brain cells that are activated both when performing an action and when observing someone else performing it. They enable understanding, empathy, and social learning. They reflect the actions of others and help decode intentions and emotions (such as pain or joy) through automatic mental simulation, thus forming the basis for human communication and imitation. They also enhance learning, which occurs to a large extent through imitation, by "lighting up" when we observe another person's actions or emotions. This enhanced ability allows for deeper emotional connection and intense, rapid learning, but it can also lead to oversensitivity, which often works against the child, teenager, or woman.

The main connections between giftedness and mirror neurons are actually links between different – emotional and cognitive – components, all of which have been researched and some even measured, according to various definitions of giftedness. All these components have been explained in many ways. However, since the discovery of mirror neurons at the end of the 20th century, most of them can be explained under the "umbrella" of mirror neurons. Here are the central links between giftedness and mirror neurons:

Emotional Intensity and Empathy: Gifted children and adolescents may activate an enhanced mirror neuron system, leading to exceptionally high empathic ability – that is, the ability to feel others' emotions deeply. This sometimes results in high social involvement. For example, we often find gifted children – especially gifted girls – who channel their high abilities in understanding others into social issues and/or intense interpersonal relationships, rather than into realizing their high cognitive potential.

The main reason for gender differences in this area is emotional, especially social and reward-based, not that girls have higher emotional abilities. There is actually great similarity between the personality characteristics of gifted boys and gifted girls. Gifted girls often do not receive social rewards for exceptional cognitive achievements, whereas they are praised for social activities and receive sympathy from their peers and adults. The focus on intense interpersonal relationships is also characteristic of gifted girls and can often be seen among gifted adolescent girls who enjoy mature relationships at a young age.

Rapid Learning: Giftedness is often associated with efficient sensory-motor processing. Mirror neurons, located in areas such as the inferior frontal gyrus and the superior temporal sulcus, allow gifted individuals to learn complex behaviors through observation alone, greatly accelerating skill acquisition. Mirror neurons "fire" not only when we act but also when we see someone else perform it. Learning through vision occurs through the repetition of actions, the generalization of movement patterns, techniques, and action sequences, and the understanding of abstract concepts. In gifted individuals, this system is more efficient than in those with lower cognitive abilities, as they do not need to repeat actions and skills as often (such as playing music, learning a language, or solving mathematical problems). Sometimes one or two observations are enough.

More Efficient Sensory-Motor Processing: Many gifted individuals exhibit faster processing between sensory and motor brain areas, including the inferior frontal gyrus and the superior temporal sulcus, which contain mirror neurons. This enables faster conversion of visual/auditory information into motor/cognitive action, less "neural noise" (the system focuses on relevant patterns and ignores distractions), and the creation of stronger and faster neural connections following observation.

Learning and Internalization of Complex Patterns and Systems: Mirror neurons are also involved in understanding intentions, goals, and logical sequences. Gifted individuals tend to "feel" the internal structure of a problem or system when they observe someone solving it. This allows them to generalize to new examples quickly, create creative solutions based on what they have seen, and learn meta-skills – how to think, solve problems, and learn – all through observation. This rapid learning and internalization often form the basis for creativity.

Emotional Intensity: The ability of many gifted individuals to feel deep emotions with high intensity is not limited to others; it is also expressed in what is called "emotional learning," which mainly manifests as intense feelings arising from learning itself. This is evident in the extremely high concentration of gifted individuals, in the emotional intensity some feel when learning subjects they love, and in their ability to invest "everything they have" in a beloved subject – sometimes at the expense of other areas – from a young age.

Asynchronous Development: Rapid development of the mirror neuron system may proceed faster than that of other cognitive or emotional areas, contributing to the asynchronous development typical of gifted children, who demonstrate advanced social awareness but struggle to manage complex emotions.

Overexcitabilities: The intensity resulting from enhanced mirror neurons may manifest as sensory or emotional overexcitability (part of Dabrowski's Overexcitability Theory), in which the gifted person experiences the world (sounds, smells, social emotions) with much greater intensity.

Social Challenges: While mirror neurons help in reading others, over-activation can lead to emotional contagion — a state in which a gifted child "absorbs" the stress or emotions of the environment. This can cause fatigue, difficulties in emotional regulation, or emotional exhaustion.

In summary, mirror neurons are like a built-in "fast learning engine" in the brain. In gifted individuals, this engine is enhanced, focused, and more efficient. This enables them to learn quickly through observation, imitation, and intuitive understanding of patterns, but it can also bring emotional overload. A mirror neuron system that responds with great intensity can serve as a central engine for advanced socio-emotional cognitive development and the rapid learning observed in many gifted individuals, while also contributing to the intense nature characteristic of them.

End note: if you are still curious about the girl I described at the beginning, the "authorities" approved the grade skip because there was a problem appealing a recommendation written by "their own" psychologist. However, as a compromise — and so that the girl could start the school year the next day — the parents agreed to the demand that their daughter study in a science class rather than in a gifted class.

Giftedness and Hyperactivity of Mirror Neurons

Hypermirroring (hyperactivity of mirror neurons) is a neurological concept from the third decade of the 21st century. It refers to over-activity or over-representation within the mirror neuron system. In this state, the individual reflects the actions, sounds, or emotions of others with much higher intensity than what is considered "normal."

Research on hyperactivity of mirror neurons falls into two main areas: the role of this hyperactivity in the sensory-emotional condition known as misophonia, and its connection to an exceptionally high level of emotional empathy, or what is referred to in the literature as "emotional giftedness" in children. I will present two articles on the connection between the hyperactivity of mirror neurons and giftedness.

As far as I know, the link between hyperactivity of mirror neurons and giftedness was first presented by the German pediatric neurologist Dr. T. Stoeckl-Drax (Stoeckl-Drax, 2020) at an international conference. Children and adolescents with hyperactivity of mirror neurons were characterized by:

- Executive function difficulties at school, and attention problems mainly at school (not at home)
- Being highly sociable
- Having exceptional empathy abilities
- Possessing good intuition and being very sensitive to others
- Needing "alone time" and "downtime," and sometimes becoming overwhelmed in large groups
- Loving animals and greatly enjoying role-playing games with friends.

The last two points in this list are identical to characteristics of giftedness according to many definitions.

In this work, Stoeckl-Drax presents data on children with high social awareness and high emotional involvement. She bases her research on EEG data — measurement of the brain's electrical activity — and links the hyperactive mirror neuron system to excellent social abilities.

A further article by Stoeckl-Drax (Stoeckl-Drax, 2021) is also based on cases she encountered in her work as a neurologist at a child development institute. It introduces two new concepts that connect the hyperactivity of mirror neurons with giftedness. Both concepts already appear in the title of the article: "EEG Signature" and "Mu Rhythm" [the Greek letter μ].

Hypermirroring is characterized by increased emotional empathy and high social involvement. These characteristics are related to changes in connectivity between neurons in the brain. Stoeckl-Drax used qEEG (quantitative electroencephalogram), which measures and analyzes the brain's electrical activity. She then compared the raw data, converted into color maps, that identified specific brain areas functioning at higher or lower levels than a "normative" database for these children.

The children and adolescents were referred to her clinic due to attention and learning difficulties, as well as feeling overwhelmed in certain situations. At the same time, they demonstrated high empathic and social skills and did not fit any DSM definition.

Factor analysis revealed one factor related to high emotional empathy, increased social awareness, and involvement, which did not correlate with all the other factors (attention, sensitivity, and auditory processing). Analysis of functional connectivity between low and high levels of social involvement showed changes within the mirror neuron network and between the mirror neuron network and the mentalization network, especially in the alpha1 [α1] and gamma [γ] frequency ranges.

Stoeckl-Drax therefore proposes a brief assessment of emotional giftedness based on a single EEG test. This test can provide information about the hyperactivity of mirror neurons and, consequently, about emotional giftedness in children. A by-product of this EEG examination would be information about the mu rhythm, which would be particularly high in the central areas C3 and C4 – regions related to the sensorimotor cortex – in children with hyperactivity of mirror neurons.

In summary, while the many attempts made over decades to explain differences in cognitive intelligence, and later in emotional intelligence, through genetics have largely failed, the development of neuroscience is doing so with considerable success. We can only hope that the prejudiced view – according to which high cognitive intelligence often co-occurs with low emotional intelligence – will soon be uprooted. This will allow us to focus on solving the problems of many gifted children, problems that largely stem from a mismatch between their educational and emotional environment and their needs.

Hyperactivity of Mirror Neurons and Misophonia: A Phenomenon Common Among Gifted Individuals, But Not Only...

There are studies on the hyperactivity of mirror neurons in the sensory-emotional phenomenon known as misophonia. Misophonia is a condition characterized by strong negative emotions of anger and anxiety in response to certain everyday sounds, such as those produced by others while eating, drinking, or even breathing. The high frequency of these sounds, which result from such actions, causes misophonia to significantly disrupt the lives of those who suffer from it and their loved ones.

I define misophonia as a phenomenon rather than a disorder, primarily because it is not listed as a disorder in the DSM. However, it may be included in the next edition of this manual, as misophonia has been diagnosed for over a decade based on research criteria, such as those of Schröder and colleagues (Schröder et al., 2013). In 2022, a consensus definition was also accepted (Aazh, 2023). Whether the reason for its exclusion from the DSM is that it is a relatively new phenomenon and the intervals between DSM editions are relatively long, or whether it stems from disagreement in the scientific community about the "box" in which to frame it – whether it belongs to psychiatry, this is not the place to elaborate on the financial/insurance significance of defining an increasing number of phenomena as "disorders" with

each new edition of the DSM neurology, or the motor system – in the meantime, we do not stray from "scientific truth" if we refer to it simply as a phenomenon[3]

According to the article by Kumar and colleagues (Kumar et al., 2021), misophonia is not merely a disorder in sound processing, but rather hyper-mirroring of orofacial actions –those related to the mouth and face area, such as chewing or the clicking sounds made by others. The study found increased connectivity between the auditory/visual cortex and the ventral premotor cortex, suggesting that sound is only the medium through which the actions of others are perceived as exaggerated.

The research hypothesis of Kumar and colleagues was that the mirror neuron system underlying orofacial movements may underlie misophonia. To test this hypothesis, fMRI was used to analyze brain connectivity patterns in the resting state – when a person is not performing an active task – among 33 subjects (16 women and 17 men). In addition, sound-induced responses were examined in 42 subjects (29 of them women). The examination was conducted among people suffering from misophonia and a control group.

The results showed that, compared to the control group, the misophonia group did not exhibit a difference in auditory cortex responses to trigger sounds, but three differences were observed:

- Resting-state fMRI connectivity was stronger both between the auditory cortex and the visual cortex, and between the auditory cortex and the ventral premotor cortex[4] (responsible for orofacial movements)
- Stronger functional connectivity was observed between the auditory cortex and the orofacial motor area during the perception of sounds in general.
- Stronger activation of the orofacial motor area was observed, especially in response to trigger sounds.

These results support a model of misophonia based on hyperactivity of mirror neurons for the orofacial actions of others, in which sounds serve as the "medium" through which the actions of others are reflected in an exaggerated manner.

Thus, misophonia is not a negative reaction (abreaction) to the sounds themselves, but rather an expression of activity in parts of the motor system involved in producing these sounds. This new framework for understanding misophonia can explain behavioral and emotional responses and is of great importance for planning and implementing psychological and other interventions. This understanding can help in treating gifted individuals – for example, in response to the stereotyping often heard as "gifted people are just too sensitive," or even phrases like "stop being such a drama queen" – but not only them. For example, among artists, the phenomenon of sensory hypersensitivity is very common, as is synesthesia – the mixing of senses, a neurological phenomenon in which stimulation of one sense automatically triggers an experience in another sense, such as hearing sounds as colors, tasting words, or seeing numbers in colors. Regarding synesthesia, it is already known that unique cross-connections in the brain represent an enhanced sensory experience, not a disease. However, this is not yet the case with hypersensitivity. Therefore, understanding this phenomenon may help many children and adults, and it is especially important to explain it to professionals who treat children, some of whose difficulties in learning, social settings, and at home are caused by it.

Hyper-Empathy Among Gifted Individuals: Another 'Side Effect' of Overactivity of Mirror Neurons

Hyper-empathy refers to an exceptionally high ability – sometimes overwhelming – to sense and absorb others' emotions. This phenomenon can lead to emotional burnout, distress, and difficulty maintaining personal boundaries. Although it is not an official medical diagnosis in the DSM-5, it is characterized by "emotional contagion," in which people experience the pain or stress of others as if it were their own.

The main aspects of hyper-empathy include:

- Emotional overload caused by "absorbing" the emotions of others, leading to exhaustion and sometimes difficulty distinguishing between one's own emotions and those of others.

3 This is not the place to elaborate on the financial/insurance significance of defining an increasing number of phenomena as "disorders" with each new edition of the DSM.

4 The ventral premotor cortex is an area in the frontal lobe (part of Brodmann area 6) that is essential for the planning, learning, and execution of complex movements, with an emphasis on sensory-guided movements (visual/tactile). It is directly involved in spatial perception, eye-hand coordination, and contains nerve cells that respond to external stimuli.

- Physical symptoms, such as elevated heart rate, difficulty breathing, nausea, or muscle tension resulting from another person's distress.
- Behavioral effects, such as difficulty saying "no," a sometimes compulsive urge to solve other people's problems ("hero complex"), and disproportionately intense reactions to media content (films, videos, news, or sad stories).
- Self-neglect resulting from excessive focus on others, leaving insufficient energy to address one's own needs. This can also intensify anxiety and even lead to depression.

Already in 1983, when Howard Gardner published his book on Multiple Intelligences (Gardner, 1983), he included two types of emotional intelligence among the seven intelligences: interpersonal intelligence and intrapersonal intelligence. Interpersonal intelligence is the ability to understand other people – to identify their motives, intentions, desires, and emotions – and to interact with them effectively. Intrapersonal intelligence is the ability to understand oneself, including one's own emotions, fears, desires, and motives, and to use this awareness to manage one's life.

Heightened sensitivity, a prominent characteristic of gifted individuals, can manifest as interpersonal intelligence, intrapersonal intelligence, or a combination of both. That is, when a gifted person has overactive mirror neurons, they may be highly aware of themselves, their needs, and desires, and understand them well – but at the same time, they can not only understand others but actually feel them and identify with them deeply. This duality often makes certain behaviors among gifted individuals difficult to understand.

For example: Among girls with hyper-empathy who are perceived as very loving and surrounded by friends who seek their closeness, there is a strong need for "alone time" – a need already identified by Barbara Kerr (Kerr, 1987), and further recognized by several child and adolescence researchers specifically as a characteristic of gifted girls (e.g., Zorman & David, 2000), as a constructive domain that supports adolescent development (Larsen, 1997), or beneficial for concentration, emotional renewal, creativity, self-understanding, and preparation for social life (Galanaki, 2012). Since then, it has been recognized as essential for the self-regulation of people with hyper-empathy (see Aron et al., 2012; Bas et al., 2021; Thomas, 2024; Thomas & Nelson, 2025).

Another example is Alice Miller's famous book The Drama of the Gifted Child (200 [1996]), which discusses the "compliant child" – a pattern found not only among cognitively gifted children but especially common among them (e.g., Battmer, 2023; Neihart, 1999).

Conclusion

Hyper-empathy is not necessarily a disadvantage; it is a specific ability that can be leveraged in many areas, especially in relationships — both social and professional. For instance, the ability to understand others and identify with them, which usually appears at a young age, greatly helps in making and maintaining friendships and in gaining long-term social appreciation. This ability is extremely important in almost all professions. The myth of the "lonely gifted person" sitting at an empty table producing literary, musical, or mathematical works was debunked decades ago. Moreover, there are professions in which hyper-empathy is essential – particularly in all fields related to physical and mental health, where the ability to understand the other person, make them feel contained, empathized with, and valued is crucial for the therapist.

Nevertheless, hyper-empathy must be managed wisely: do everything possible to avoid neglecting the "self," create as much space as possible between draining tasks, and make room for enjoyable physical activity and "alone time."
For parents, teachers, and mental health professionals working with gifted individuals: It is important to understand that no child, teenager, boy, or girl chooses to have hyper-empathy. They are born with it — for better and for worse — just like eye color. It is impossible to become "less sensitive" or to "stop thinking about unpleasant things" by external command. The key concept here is self-regulation, which should be encouraged and developed. Only through proper guidance can we help the gifted person with hyper-empathy achieve the highest possible level of physical and mental well-being.

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Research Article

Workload and job stress among special assistant teachers in inclusive schools: Examining the moderating role of work competence

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Abstract

This study aims to analyze the effect of workload on job stress and examine the role of work competence as a moderating variable. Inclusive education requires qualified educational personnel who are capable of addressing the diverse needs of students with special educational needs (SEN). Among these professionals, Special Assistant Teachers (SATs) play a critical role in supporting students' academic, behavioral, and social development. However, the multifaceted responsibilities associated with this role often increase workload and may contribute to elevated levels of job stress. While previous studies have identified workload as a significant predictor of occupational stress, limited research has examined the moderating role of work competence among SATs in inclusive educational settings. Therefore, this study aimed to investigate the effect of workload on job stress and examine whether work competence moderates this relationship. A quantitative correlational design was employed involving 40 Special Assistant Teachers working in inclusive schools. Participants were selected using purposive sampling. Data were collected through standardized questionnaires measuring workload, job stress, and work competence. The data were analyzed using descriptive statistics, reliability and validity testing, simple linear regression, and Moderated Regression Analysis (MRA). The results revealed that workload had a positive and significant effect on job stress ($\beta = .621$, $t = 4.292$, $p < .001$), explaining 32.7% of the variance in job stress. Furthermore, the moderation analysis demonstrated that work competence significantly moderated the relationship between workload and job stress ($\beta = -.045$, $t = -3.210$, $p = .003$). The negative interaction coefficient indicates that higher levels of work competence weaken the positive effect of workload on job stress. These findings suggest that work competence functions as an important personal resource that buffers the adverse psychological consequences of excessive workload. Strengthening professional competence through continuous training and professional development programs may therefore contribute to reducing job stress and enhancing the effectiveness of inclusive education services.

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Introduction

Inclusive education has emerged as a global educational movement that promotes equal access to quality education for all learners, regardless of their physical, cognitive, social, emotional, or cultural differences (UNESCO, 2020). The fundamental principle of inclusive education is to create learning environments that accommodate diversity by adapting teaching methods, curricula, learning resources, and assessment practices to meet the needs of all students. As

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emphasized by UNESCO and various international educational policies, inclusive education is not merely an educational approach but also a manifestation of social justice and educational equity (UNESCO, 2020; De Schauwer, 2023). Consequently, educational institutions worldwide are increasingly expected to provide effective support systems that facilitate the successful inclusion of students with special educational needs (SEN) (Fernández-Batanero et al., 2022).

The successful implementation of inclusive education depends largely on the availability of qualified educational personnel who possess the knowledge, skills, and professional competencies necessary to support diverse learners (Fernández-Batanero et al., 2022). Among these professionals, Special Assistant Teachers (SATs) play a crucial role in ensuring that students with special educational needs receive appropriate academic, behavioral, and social support. In the Indonesian educational context, Special Assistant Teachers are responsible for assisting, guiding, teaching, and assessing students with special educational needs across different educational settings (Movkebaieva et al., 2013). Their role extends beyond instructional support and includes collaboration with classroom teachers, communication with parents, and the implementation of individualized learning programs (De Schauwer, 2023).

Despite the increasing commitment to inclusive education, numerous challenges continue to hinder its effective implementation. One of the most significant challenges is the limited availability of qualified Special Assistant Teachers and the uneven distribution of professional development opportunities. Recent reports indicate that the number of teachers who have received specialized training in inclusive education remains insufficient compared to the growing demand for inclusive educational services (Fernández-Batanero et al., 2022). Furthermore, Special Assistant Teachers frequently encounter multiple instructional, administrative, and emotional demands, which may increase occupational pressure and negatively affect their psychological well-being (Almutairi et al., 2024).

Previous studies have identified workload as one of the most influential factors affecting teachers' psychological well-being (Koca, 2024; Lesener et al., 2020). Workload refers to the overall quantity, complexity, and intensity of tasks that employees are required to perform within a given period (Longo et al., 2022). Excessive workload has been consistently associated with occupational stress across various professional contexts because it requires sustained physical, cognitive, and emotional effort (Bakker & Demerouti, 2017). In educational settings, high workload has been linked to emotional exhaustion, reduced job satisfaction, burnout, and decreased professional effectiveness (Almutairi et al., 2024; Saleh et al., 2024).

One factor that may help explain individual differences in teachers' responses to workload is work competence. Work competence refers to the combination of knowledge, skills, attitudes, and professional capabilities that enable individuals to perform their occupational responsibilities effectively (Movkebaieva et al., 2013). Teachers possessing higher levels of competence are generally better prepared to cope with professional demands, solve instructional problems, and maintain effective performance under stressful conditions (Fernández-Batanero et al., 2022; Zhang et al., 2023). Consequently, competence may serve as an important personal resource that protects teachers from the negative psychological consequences of excessive workload.

The potential protective role of competence can be explained through the Job Demands–Resources (JD-R) Theory and the Conservation of Resources (COR) Theory. The JD-R Theory proposes that occupational well-being is determined by the balance between job demands and available resources (Bakker & Demerouti, 2017). Job demands require sustained effort and are associated with physiological and psychological costs, whereas resources facilitate goal achievement, reduce strain, and promote professional growth (Lesener et al., 2020). Similarly, the Conservation of Resources Theory argues that individuals who possess sufficient personal resources are better able to cope with stressful situations and maintain psychological well-being (Hobfoll, 1989). Within these theoretical frameworks, work competence can be conceptualized as an important personal resource that enables teachers to manage demanding work environments more effectively.

Although previous studies have demonstrated that workload contributes to occupational stress and that competence promotes employee well-being, relatively limited research has examined the moderating role of work competence among Special Assistant Teachers working in inclusive educational settings (Guglielmi et al., 2023; Zhang et al., 2023). Most

existing studies have focused on general teaching populations or employees in non-educational sectors. Consequently, empirical evidence regarding the psychological experiences of Special Assistant Teachers remains limited, particularly in developing-country contexts such as Indonesia.

Therefore, this study aims to examine the effect of workload on job stress among Special Assistant Teachers working in inclusive schools and to investigate the moderating role of work competence in this relationship. By integrating concepts from the Job Demands–Resources Theory and the Conservation of Resources Theory, this study contributes to the growing literature on occupational stress in inclusive education and extends current understanding of the role of personal resources in reducing the negative effects of job demands.

Based on the theoretical framework and previous empirical findings, the following hypotheses are proposed:

H1: Workload has a positive and significant effect on job stress among Special Assistant Teachers in inclusive schools.

H2: Work competence moderates the relationship between workload and job stress, such that the positive effect of workload on job stress becomes weaker among teachers with higher levels of work competence.

Job Stress among Special Assistant Teachers

Job stress is a psychological, emotional, and physiological response that emerges when employees perceive that job demands exceed their available resources, capabilities, or coping capacity (Beehr & Newman, 1978; Hobfoll, 1989). In occupational psychology, job stress is commonly understood as a condition of imbalance between work demands and individual resources. When this imbalance persists over time, individuals may experience emotional exhaustion, anxiety, reduced motivation, decreased concentration, and lower work performance (Guglielmi et al., 2023).

In educational settings, job stress has become a major concern because teachers' psychological well-being is closely related to instructional quality, classroom management, and student outcomes (Saleh et al., 2024). Teachers who experience prolonged stress may show reduced professional engagement, increased absenteeism, lower job satisfaction, and a greater intention to leave the profession (Almutairi et al., 2024). For Special Assistant Teachers in inclusive schools, job stress may be even more complex because their responsibilities involve not only instructional activities but also emotional support, behavioral assistance, communication with parents, and collaboration with classroom teachers (De Schauwer, 2023).

Special Assistant Teachers work directly with students with special educational needs, whose characteristics and learning needs vary considerably. These teachers are expected to provide individualized support, adapt instructional strategies, monitor student progress, and assist students in both academic and social participation (Fernández-Batanero et al., 2022). Such responsibilities require continuous emotional regulation, patience, flexibility, and professional sensitivity. Therefore, job stress among Special Assistant Teachers should be understood as a multidimensional phenomenon involving physical, psychological, and behavioral symptoms (Beehr & Newman, 1978).

Workload

Workload refers to the overall demands that individuals must fulfill in performing their occupational responsibilities. It includes the quantity of tasks, task complexity, time pressure, work intensity, and the cognitive and emotional effort required to complete job-related duties (Koca, 2024). Workload can be understood from both objective and subjective perspectives. Objective workload includes measurable aspects such as the number of tasks, working hours, deadlines, and administrative responsibilities, whereas subjective workload refers to how individuals perceive the difficulty, pressure, and burden associated with their work (Longo et al., 2022).

In the context of inclusive education, workload is particularly relevant because Special Assistant Teachers often perform multiple roles simultaneously. Their workload may include assisting students with special educational needs, preparing individualized learning plans, documenting student development, coordinating with classroom teachers, communicating with parents, and adapting learning materials (De Schauwer, 2023). In addition, they often face emotional demands when dealing with students' behavioral, social, or communication challenges.

A high workload may increase psychological strain when teachers feel that job demands exceed their capacity. Excessive workload may lead to fatigue, emotional exhaustion, reduced concentration, and decreased professional effectiveness (Almutairi et al., 2024). Therefore, workload is frequently identified as a key predictor of job stress in

educational and organizational research (Lesener et al., 2020).

Work Competence

Work competence refers to the integration of knowledge, skills, attitudes, and professional behaviors that enable individuals to perform their duties effectively (Movkebaieva et al., 2013). Competence is not limited to technical ability but also includes cognitive, social, emotional, and adaptive capacities. In contemporary work environments, competence is increasingly viewed as a dynamic resource that develops through education, professional training, experience, reflection, and organizational support (Fernández-Batanero et al., 2022).

For Special Assistant Teachers, work competence includes the ability to understand the characteristics of students with special educational needs, design individualized learning strategies, implement adaptive teaching methods, communicate effectively with stakeholders, and collaborate with other professionals (De Schauwer, 2023). Competence also includes emotional regulation, problem-solving, classroom management, and the ability to respond flexibly to students' diverse needs.

Teachers with higher levels of competence tend to have stronger confidence in managing their responsibilities. They are more capable of organizing tasks, setting priorities, solving instructional problems, and responding to challenging situations. As a result, competence may help reduce the psychological burden associated with high workload (Zhang et al., 2023). Conversely, teachers with limited competence may perceive similar job demands as more threatening, stressful, and difficult to manage (Guglielmi et al., 2023).

Job Demands–Resources Theory

The Job Demands–Resources (JD-R) Theory provides a useful framework for explaining the relationship between workload, competence, and job stress (Bakker & Demerouti, 2017). According to the JD-R Theory, every occupation contains job demands and job resources. Job demands refer to physical, psychological, social, or organizational aspects of work that require sustained effort and are therefore associated with physiological or psychological costs. Examples include workload, time pressure, emotional demands, role ambiguity, and administrative burden (Lesener et al., 2020). Job resources, on the other hand, refer to aspects of work that help individuals achieve work goals, reduce job demands, and stimulate personal growth and development. Resources may be organizational, social, or personal. Personal resources include self-efficacy, resilience, optimism, professional competence, and coping ability (Hobfoll, 1989).

In this study, workload is conceptualized as a job demand because it requires sustained physical, cognitive, and emotional effort. Work competence is conceptualized as a personal resource because it enables teachers to manage their duties more effectively and reduce the negative psychological consequences of excessive demands (Bakker & Demerouti, 2017). When teachers possess strong competence, they are more likely to perceive workload as manageable and less likely to experience severe job stress.

Workload and Job Stress

Workload has been widely recognized as one of the most important predictors of job stress (Koca, 2024). When employees are required to complete many tasks within limited time and under complex conditions, psychological pressure tends to increase. In teaching professions, workload may arise from instructional duties, administrative tasks, curriculum demands, documentation, communication with parents, and emotional labor (Almutairi et al., 2024).

For Special Assistant Teachers, workload may be more demanding because they work with students who require individualized support. They must adapt learning strategies, monitor student development, manage behavioral challenges, and collaborate with various stakeholders. These responsibilities may increase emotional exhaustion and psychological strain, particularly when institutional support is limited (De Schauwer, 2023).

According to the JD-R Theory, high workload may lead to stress when job demands are not balanced by sufficient resources (Bakker & Demerouti, 2017; Lesener et al., 2020). Therefore, it is reasonable to assume that Special Assistant Teachers who experience higher workload will also experience higher levels of job stress.

H1: Workload has a positive and significant effect on job stress among Special Assistant Teachers in inclusive schools.

The Moderating Role of Work Competence

Although workload can increase job stress, the strength of this relationship may depend on teachers' level of competence.

Competence enables teachers to understand work demands, organize responsibilities, select appropriate strategies, and respond adaptively to challenging situations (Movkebaieva et al., 2013). Teachers with higher competence may be more capable of managing workload without experiencing excessive psychological pressure.

In inclusive education, competence allows Special Assistant Teachers to design individualized learning programs, manage students' diverse needs, communicate effectively with parents, and collaborate with classroom teachers (Fernández-Batanero et al., 2022). These abilities may reduce uncertainty and help teachers perceive demanding tasks as manageable rather than threatening. Thus, competence may weaken the positive relationship between workload and job stress.

From the perspective of JD-R Theory, competence functions as a personal resource that buffers the negative effects of job demands (Bakker & Demerouti, 2017). When competence is high, the impact of workload on stress is expected to be lower. Conversely, when competence is low, workload may have a stronger effect on job stress because teachers may feel less capable of handling their responsibilities (Zhang et al., 2023).

Therefore, this study proposes that work competence moderates the relationship between workload and job stress.

H2: Work competence moderates the relationship between workload and job stress, such that the positive effect of workload on job stress becomes weaker among teachers with higher levels of work competence.

Method

This study employed a quantitative correlational research design to examine the relationship between workload and job stress and to investigate the moderating role of work competence among Special Assistant Teachers working in inclusive schools. Quantitative research is considered appropriate because it allows researchers to test hypotheses and evaluate relationships among variables using statistical procedures (Creswell & Creswell, 2018). The study was designed to determine whether work competence influences the strength of the relationship between workload and job stress.

Participants

The target population consisted of Special Assistant Teachers (SATs) employed in inclusive schools. These teachers were selected because they are directly involved in supporting students with special educational needs and frequently encounter complex instructional, administrative, and emotional demands. Participants were recruited using purposive sampling. This sampling technique was employed to ensure that respondents met specific inclusion criteria relevant to the objectives of the study (Etikan et al., 2016).

The inclusion criteria were as follows: Currently employed as a Special Assistant Teacher in an inclusive school. Having at least one year of professional experience. Actively involved in supporting students with special educational needs. Willing to participate voluntarily in the study.

Data were collected through a survey administered both online and offline. Prior to participation, respondents were informed about the purpose of the study and assured that all information would remain confidential and be used exclusively for research purposes.

Data Collection Tools

This study included three variables: workload as the independent variable, job stress as the dependent variable, and work competence as the moderating variable.

Workload refers to the overall demands imposed on Special Assistant Teachers within a specific period of time, including task quantity, task complexity, and time pressure associated with supporting students in inclusive educational settings. Workload is conceptualized as a job demand that requires sustained physical, cognitive, and emotional effort (Bakker & Demerouti, 2017). The workload scale was adapted from Nurhasanah et al. (2022) and consisted of three dimensions: Work targets, Operational conditions and Work standards. Responses were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Job stress refers to the physiological, psychological, and behavioral responses experienced by Special Assistant Teachers when perceived work demands exceed available resources and coping capacities. The measurement was based on the framework proposed by Beehr and Newman (1978), consisting of three dimensions: 1. Physiological symptoms,

2 Psychological symptoms, and 3. Behavioral symptoms ..

Beehr and Newman (1978) defined job stress as a condition arising from interactions between employees and their work environment that disrupt psychological and physiological functioning. Participants responded using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Work competence refers to the knowledge, skills, motivation, and professional abilities required to effectively support students with special educational needs in inclusive educational settings. Competence is regarded as a personal resource that enhances an individual's ability to cope with occupational demands and maintain effective performance (Hobfoll, 1989; Bakker & Demerouti, 2017). The competence scale was adapted from Movkebaieva Zulfija et al. (2013) and included the following dimensions: 1. Motivational orientation, 2. Informational competence, and 3. Operational competence Responses were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Prior to the main data collection, the instruments were subjected to validity and reliability testing to ensure their psychometric adequacy. Item validity was assessed using item-total correlation analysis, while reliability was evaluated using Cronbach's alpha coefficient. Instruments were considered reliable when Cronbach's alpha exceeded the recommended threshold of .70 (Hair et al., 2019).

Data Collection Procedure

Data collection was conducted through structured questionnaires distributed directly to respondents and through online platforms. Respondents completed the questionnaire voluntarily after receiving information regarding the objectives of the study, confidentiality procedures, and ethical considerations. Participation was anonymous, and no personally identifiable information was collected. Ethical principles concerning voluntary participation, confidentiality, and informed consent were maintained throughout the study (American Psychological Association, 2020).

Data Analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics were first conducted to summarize participant responses and variable characteristics. Subsequently, validity and reliability analyses were performed to evaluate the quality of the measurement instruments (Field, 2018).

To test the proposed hypotheses, Moderated Regression Analysis (MRA) was employed. MRA was selected because it allows researchers to examine both the direct effect of workload on job stress and the moderating effect of work competence on this relationship (Hayes, 2022). The moderation model was estimated using the following regression equation:

$$Y = \beta_0 + \beta_1 X + \beta_2 M + \beta_3 (X \times M) + \varepsilon$$

where:

- Y = Job Stress
- X = Workload
- M = Work Competence
- X × M = Interaction term between workload and work competence
- ε = Error term

A significant interaction coefficient (β_3) indicates the presence of a moderating effect. Positive coefficients indicate a strengthening effect, whereas negative coefficients indicate a weakening effect of the relationship between workload and job stress (Hayes, 2022).

Results

Validity Test

Prior to the main analysis, the validity of the research instruments was examined to ensure that each questionnaire item accurately represented the intended construct. Item validity was assessed using Pearson Product–Moment correlation by comparing each item score with the corresponding total variable score. An item was considered valid when the obtained correlation coefficient exceeded the critical value of r = .312 (n = 40, α = .05) and the significance level was

below .05.

The workload scale consisted of 12 items representing work targets, operational conditions, and work standards. The item–total correlation coefficients ranged from .880 to .934, with all significance values below .001, indicating that all workload items were valid and suitable for further analysis.

Similarly, the job stress scale comprised 14 items reflecting physiological, psychological, and behavioral symptoms. The correlation coefficients ranged from .731 to .900, and all items demonstrated statistically significant relationships with the total score ($p < .001$). These findings indicate that all items adequately represented the construct of job stress and met the validity criteria.

For the work competence scale, nine items were evaluated. The item–total correlation coefficients ranged from .893 to .942, exceeding the required threshold and demonstrating strong relationships with the total competence score. Therefore, all items were retained for subsequent analyses.

Reliability Test

Reliability analysis was conducted using Cronbach's alpha coefficient to evaluate the internal consistency of the instruments. The job stress scale achieved a Cronbach's alpha value of .968, indicating excellent reliability. The workload scale demonstrated a Cronbach's alpha of .980, while the work competence scale yielded a Cronbach's alpha of .979. All values substantially exceeded the recommended threshold of .70, confirming that the instruments possessed very high levels of internal consistency and were suitable for further statistical analysis. The test results showed that all variables had Cronbach's Alpha values greater than 0.70, indicating that the instruments were reliable.

Normality Test

The normality assumption was examined using both the Kolmogorov–Smirnov and Shapiro–Wilk tests based on the unstandardized residuals of the regression model. The Kolmogorov–Smirnov test produced a significance value of .200, while the Shapiro–Wilk test yielded a significance value of .549. Both values exceeded the criterion of .05, indicating that the residuals were normally distributed. Consequently, the normality assumption was satisfied, allowing the regression analysis to proceed.

Simple Linear Regression Analysis

Simple linear regression analysis was performed to examine the effect of workload on job stress among Special Assistant Teachers.

The resulting regression equation was:

$$Job\ Stress = 19.651 + 0.621(Workload)$$

The regression coefficient for workload was positive ($\beta = .621$), indicating that increases in workload were associated with higher levels of job stress. The model produced an R value of .571 and an R^2 value of .327, suggesting that workload explained 32.7% of the variance in job stress. The remaining 67.3% of variance was attributable to factors not included in the model.

The ANOVA results indicated that the regression model was statistically significant, $F(1, 38) = 18.425$, $p < .001$. Furthermore, workload significantly predicted job stress ($\beta = .621$, $t = 4.292$, $p < .001$), supporting the hypothesis that workload positively affects job stress among Special Assistant Teachers.

Moderated Regression Analysis

Model 2: Direct Effects of Workload and Work Competence

In the second stage of analysis, workload and work competence were entered simultaneously into the regression model after mean-centering both variables to reduce potential multicollinearity.

The model yielded an R value of .580 and an R^2 value of .337, indicating that workload and competence jointly explained 33.7% of the variance in job stress. The model was statistically significant, $F_{(2, 37)} = 9.395$, $p = .001$.

The regression coefficients revealed that workload remained a significant predictor of job stress (β = .712, t = 4.309, p < .001), whereas work competence did not demonstrate a significant direct effect at this stage (β = .168, t = 0.757, p = .454).

Model 3: Moderation Analysis

The final model included the interaction term between workload and work competence to test the moderating effect of competence.

The inclusion of the interaction term substantially improved the explanatory power of the model. The R^2 value increased from .337 to .484, indicating an additional 14.7% of explained variance. The overall model was statistically significant, $F_{(3, 36)} = 11.273$, $p < .001$.

The results demonstrated that work competence significantly predicted job stress (β = 1.517, t = 3.264, p = .002). More importantly, the interaction between workload and competence was statistically significant (β = −.045, t = −3.210, p = .003). The negative interaction coefficient indicates that work competence weakened the positive relationship between workload and job stress.

These findings suggest that work competence functions as a quasi-moderator because it exerts both a direct effect on job stress and a moderating effect on the relationship between workload and job stress.

Discussion

The Relationship between Workload and Job Stress

The findings revealed that workload had a positive and significant effect on job stress among Special Assistant Teachers. This result indicates that higher levels of workload are associated with increased psychological strain, emotional pressure, and occupational stress. In inclusive educational settings, Special Assistant Teachers are required to manage a wide range of responsibilities, including instructional support, administrative duties, behavioral interventions, individualized learning plans, and communication with parents and school personnel. These multiple demands require considerable cognitive, emotional, and physical effort. As workload increases, teachers are more likely to experience fatigue, emotional exhaustion, and psychological distress.

These findings are consistent with previous studies demonstrating that excessive workload contributes to emotional exhaustion, reduced concentration, anxiety, and decreased work performance (Almutairi et al., 2024; Koca, 2024). Similar findings have been reported in educational settings, where increasing job demands are associated with higher levels of occupational stress and lower levels of psychological well-being among teachers (Saleh et al., 2024).

The results also support the Job Demands–Resources (JD–R) Theory, which posits that excessive job demands increase psychological strain when adequate resources are unavailable (Bakker & Demerouti, 2017; Lesener et al., 2020). Within the JD–R framework, workload is considered a job demand that requires sustained physical and psychological effort. When these demands remain high over a prolonged period, individuals become more vulnerable to psychological strain, emotional exhaustion, and reduced well-being.

In the context of inclusive schools, this situation may become more challenging because Special Assistant Teachers are expected not only to provide academic support but also to assist students' social and behavioral development, collaborate with classroom teachers, communicate with parents, and prepare individualized educational programs. The accumulation of these responsibilities may increase occupational stress when adequate organizational support and personal resources are unavailable.

Overall, the findings suggest that workload represents a significant predictor of job stress among Special Assistant Teachers. As job demands increase, teachers become more vulnerable to emotional exhaustion and psychological strain, highlighting the importance of workload management strategies within inclusive educational settings.

The Moderating Role of Work Competence

The moderation analysis demonstrated that work competence significantly weakened the relationship between workload and job stress. This finding indicates that competence functions as a protective factor that enables teachers to manage occupational demands more effectively. Furthermore, work competence was found to exert a direct effect on

job stress while simultaneously moderating the relationship between workload and stress, suggesting that competence functions as a quasi-moderator.

According to the Job Demands–Resources (JD–R) Theory, competence can be conceptualized as a personal resource that enhances an individual's ability to cope with workplace challenges (Bakker & Demerouti, 2017). Similarly, the Conservation of Resources (COR) Theory argues that individuals who possess adequate personal resources are better able to withstand stressful situations and maintain psychological well-being (Hobfoll, 1989).

Teachers possessing higher levels of competence are generally more capable of understanding students' needs, implementing appropriate instructional strategies, managing classroom challenges, and maintaining effective communication with relevant stakeholders (Fernández-Batanero et al., 2022; De Schauwer, 2023). These competencies enable teachers to approach work demands with greater confidence and effectiveness, thereby reducing the likelihood that workload will be perceived as overwhelming or threatening.

The negative interaction coefficient found in this study indicates that the positive relationship between workload and job stress becomes weaker as competence increases. In other words, competent teachers are better able to maintain psychological stability despite experiencing substantial job demands. This finding suggests that competence serves as a buffering mechanism that protects teachers from the adverse effects of excessive workload.

The findings are consistent with previous studies showing that professional competence reduces emotional exhaustion and enhances occupational resilience among educators (Alhumaid et al., 2024; Guglielmi et al., 2023). Likewise, Zhang et al. (2023) reported that personal resources such as competence and self-efficacy reduce the negative impact of work-related stressors on employee well-being. Within inclusive educational settings, competence may enable teachers to perceive demanding situations as manageable challenges rather than threatening obstacles.

These findings are particularly important because they demonstrate that competence is not merely a technical capability but also a psychological resource that contributes to occupational well-being. Therefore, professional development programs aimed at enhancing teachers' pedagogical, social, and professional competencies may help reduce the negative consequences of excessive workload.

Overall, the results indicate that workload remains an important predictor of job stress; however, its adverse effects can be mitigated through higher levels of professional competence. Strengthening teachers' competencies through continuous professional development, pedagogical training, mentoring programs, and emotional regulation interventions may therefore represent an effective strategy for promoting psychological well-being and improving the quality of inclusive education services.

Conclusion

This study showed that workload has a positive and significant effect on job stress among Special Assistant Teachers in inclusive schools. The higher the job demands received, whether in the form of teaching duties, administrative tasks, or emotional demands, the higher the level of job stress experienced by teachers. This condition indicates that the complexity of tasks carried out by Special Assistant Teachers has the potential to create psychological pressure if it is not balanced with adequate support and work management.

The results also revealed that work competence plays an important role in the relationship between workload and job stress. Competence not only has a direct effect on job stress but also functions as a moderating variable that weakens the effect of workload on job stress. Thus, competence can be categorized as a quasi-moderator. The higher the competence possessed by Special Assistant Teachers, the better their ability to manage job demands, thereby reducing the negative impact of workload on job stress.

Overall, this study emphasizes that workload management and the strengthening of professional competence should become important concerns in the implementation of inclusive education. Efforts such as training, skill development, and institutional support are expected to help Special Assistant Teachers maintain psychological well-being while improving the quality of inclusive education services.

Biodata of Author

Ni'matuzahroh was born on April 12, 2000, in the city of Kediri, which is well known for its yellow tofu specialty. Specifically, the author resides at Permata Hijau Housing Complex Block P-4, RT 45 RW 10, Singonegaran, Kediri City. The author is the first daughter of Mr. Danan Prabandaru and Mrs. Dhien Juningtyas Setyowati, who gave her the full name Fathima Ciptaning Prabandaru. The author began her educational journey at TK Plus Rahmat in 2004, then continued her studies in 2006 at SD Plus Rahmat, an Islamic Full Day School, and graduated in 2012. She then pursued her education at SMP Negeri 2 Kota Kediri until 2015, before continuing to SMA Negeri 6 Kota Kediri. After graduating from senior high school, the author continued her studies at the State Islamic Institute (IAIN) Kediri in 2018 to pursue a Bachelor's degree. At the time of writing this thesis, the author is still registered as an active undergraduate student in the Islamic Psychology study program.

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Research Article

A comparative analysis of Norwegian and Finnish regulations on the concept of safe school within the axis of child's social development

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Abstract

This study provides a comparative analysis of the Norwegian-origin Olweus Bullying Prevention Programme (OBPP) and the Finnish-origin KiVa models—both globally recognised as benchmarks for establishing safe learning environments in educational institutions—in the light of current strategies for 2026. Conducted using the multiple-case study design within qualitative research methods, the study examines Norway's climate-focused approach, which is based on 'relational leadership' and a disciplinary framework characterised by supportive rather than punitive attitudes and clear boundaries. In contrast, Finland's KiVa model defines bullying as a "group process" fuelled by social rewards and extends the intervention to the entire group by transforming peer roles (assistant, reinforcer, defender). The research discusses the limits of technology in the 2026 educational ecosystem through the findings of the "Digital Paradox", highlighting the inadequacy of the traditional "repetition" criterion in defining cyberbullying. The findings indicate that bullying must be redefined not so much by the frequency of incidents but through the student's "subjective sense of security" and "legal rights". Consequently, the study proposes a hybrid model synthesising Norway's legal framework and disciplinary resolve with Finland's empathetic peer management and digital integration. For Turkey's educational vision, the integration of AI-supported early warning systems into platforms and the adoption of the "Relational Leadership" model in teacher training are presented as strategic solutions.

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Introduction

Violence and peer bullying in the school environment are not merely temporary behavioural disorders; they constitute a systematic form of aggression based on power imbalances that directly threaten an individual's academic development and mental health (Olweus, 1993). In the literature, the key criteria for an act to be defined as bullying are that the perpetrator intends to harm the victim, the act is persistent, and there is an asymmetrical power relationship between the parties. Today, bullying extends beyond physical and verbal attacks to include relational manipulation such as social exclusion and spreading rumours, as well as cyberbullying, which occurs via technology due to the impact of digitalisation (Limber & Olweus, 2010; Limber et al., 2018).

The Relationship Between Child's Social Development, School Safety, and Peer Bullying

A child's social development is a dynamic process that encompasses the skills to establish healthy relationships with peers, develop empathy, resolve conflicts constructively, and feel a sense of belonging to a community. The school is the

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primary social domain where this development occurs most intensely. However, violence and peer bullying encountered in the school environment are among the greatest risk factors that directly hinder this developmental process and threaten the individual's mental health (Olweus, 1993). The concepts of peer bullying and school safety intersect with the child's social development along the following core dimensions:

***Learning Social Roles*:** As emphasised in Finland's KiVa model, bullying is not merely an isolated conflict between two individuals, but rather a negative "group process" and a form of socialisation that involves the entire class through roles such as assistants, reinforcers, outsiders, and defenders (Salmivalli et al., 1996). Within these peer group dynamics, children either adopt a negative social role fuelled by social rewards like peer pressure and popularity, or they develop prosocial (positive) behaviours by learning to become a "defender" who supports the victim within a safe school environment (Salmivalli et al., 2011).

Sense of Belonging and Security: The "warmth, care, and clear boundaries" specified in Norway's Olweus model serve as a climate-focused protective shield that allows the child to feel safe at school (Limber, 2011). Empirical studies demonstrate that transforming the school climate at a macro level and increasing teachers' capacity to intervene directly enhance students' subjective perceptions of safety (Limber et al., 2018). Without a safe school climate, it is impossible for a child to fill social voids with trust and mutual respect, and consequently, to develop a healthy sense of belonging and community spirit.

Social Justice and Equity: The values of "equity" and "social justice," which form the foundation of Finnish education policy, aim to prevent exclusion brought about by socio-economic disadvantages and cultural privileges (Jantunen et al., 2026). Merely ensuring physical safety at school is insufficient; for the healthy social development of children, the equitable establishment of school management and institutional culture is essential to fundamentally prevent violence and discrimination (Jantunen et al., 2026). Recent research argues that bullying measurements should focus not merely on the frequency of incidents, but on the psychological harm suffered by the student and the compromised sense of trust within this framework of equity (Brisson, 2026).

The Olweus Bullying Prevention Programme (OBPP) and the Climate-Focused Approach

The Olweus model, one of the study's primary foundations, is based on four core philosophical pillars that are 'climate-focused' rather than 'punitive' (Limber, 2011):

Warmth and Care: Demonstrating a supportive attitude towards students.

Clear Boundaries: Setting firm limits against unacceptable behaviour.

Non-Hostile Consequences: Applying responsibility-focused negative consequences rather than punishment.

Role Modelling: Adults representing authority through positive behaviour.

In terms of implementation, the model is summarised under adult principles and school-wide measures from a holistic perspective. It is essential that teachers and school leaders approach students with compassion, and apply corrective measures rather than punishment when rules are broken. Within the scope of school-wide measures, it is recommended to establish a "Coordination Committee" to oversee the school's anti-bullying plan, bring "unsupervised" blind spots such as playgrounds and corridors under supervision to reduce opportunities for bullying, and display standard school rules throughout the premises.

Rather than focusing solely on student behaviour, these strategies offer a holistic approach aimed at fundamentally transforming the school climate to prevent violence. In this model, the key lies in bringing "unattended" areas where bullying might occur under control to reduce opportunities, and in structuring a social environment where bullying is not rewarded as a display of power. In this process, teachers and school leaders position themselves as consistent figures of authority and positive role models who approach students with compassion, set clear boundaries, and apply corrective rather than punitive measures. Ultimately, all these steps aim to fill the social gaps where violence might arise with trust and mutual respect, thereby building a strong sense of community and belonging where students feel valued.

A large-scale empirical study conducted by Limber and Olweus (2018) on the implementation of the OBPP in the US revealed that bullying necessitates a change in the school climate at the macro level rather than relying on individual disciplinary practices. The findings demonstrate the inadequacy of individual disciplinary processes in preventing acts

of violence and the strategic importance of transforming institutional culture. It has been observed that as teachers' willingness and ability to intervene in bullying increase, so too does the proportion of students who feel safe. This research has demonstrated that the success of the Norwegian-originated OBPP model is based on 'sustainability'. According to the research, bullying incidents decrease over time in schools where the programme is implemented and, most importantly, students feel safer at school thanks to teachers' proactive intervention. In short, the research has demonstrated that bullying can be prevented not only on an individual basis but through interventions that encompass the entire school climate, such as coordination committees, the revision of monitoring systems, and standard school rules.

Finland's KiVa Model and the Social Equity Approach

In Finland, it is noted that the pursuit of 'equity' and 'social justice' takes precedence over equality in education policy, and that strategies for preventing violence are built upon these values. In the Finnish model, bullying is defined not merely as a conflict between two individuals, but as a group process fuelled by social rewards (popularity, power) (Salmivalli et al., 1996). KiVa is an abbreviation of the Finnish term "Kiusaamista Vastaan" (against bullying). It was developed in 2006 at the University of Turku in Finland for pupils aged 7 to 15 (Salmivalli et al., 2011). Within this framework, the KiVa programme spreads the intervention across the entire group by assigning roles within the peer group: assistants, reinforcers, outsiders, and defenders. The programme's operational strength stems from the balance between Universal Actions, which encompass all students, and Focused Actions, which involve case-based intervention (Salmivalli et al., 2014).

The primary aim of KiVa is to eliminate the social rewards that perpetuate bullying (such as popularity and displays of power). Within the programme, the bullying process is defined by the following roles:

Bullies and Assistants: Those who directly perform the bullying actions and those who join in or act together with the bully.

Reinforcers: Those who encourage bullying by laughing or cheering.

Outsiders (Bystanders): Those who distance themselves from the situation or turn a blind eye.

Defenders: Those who support the victim and offer them comfort.

Key Components of the KiVa Programme: The programme is structured around three main pillars:

Universal Actions (Prevention): Aimed at all pupils. These consist of lessons, role-play exercises, and video games covering topics such as empathy, communication skills, and coping with peer pressure.

Targeted Actions (Intervention): These come into play when a suspicion of bullying arises. The school's KiVa team facilitates behavioural change by conducting individual meetings with the victim and the bully.

Monitoring: The school's overall situation and the programme's effectiveness are monitored via annual online surveys (Mäkelä & Catalán, 2018).

In the Finnish education system, the prevention of violence and discrimination is not merely a matter of ensuring physical safety; it is possible only through the establishment of equity and social justice as an institutional culture. For merely offering equal opportunities is insufficient to eliminate the disadvantages created by social privileges and differences in socio-economic status (Jantunen et al., 2026). Although diversity is ideologically accepted in the Finnish model, it is observed that there are still some shortcomings in its full implementation (Jantunen et al., 2026).

Aim of Study

The primary aim of this study is to conduct a comparative analysis of the fundamental philosophies, implementation strategies and effectiveness of the Norwegian-origin Olweus Bullying Prevention Programme (OBPP) and the Finnish-origin KiVa programme. The research aims to demonstrate how the 'school climate-focused' and 'equity-based' approaches offered by these two models can provide solutions to current challenges in the digitalising world of education (cyber and hybrid bullying).

In line with this primary objective, the following questions will be addressed:

- How do the strategies forming the basis of the Norwegian model – "warmth/care, clear boundaries, non-hostile sanctions and serving as a positive role model" – function in preventing violence across the school?

- In the Finnish model, what are the "Universal" and "Targeted" actions aimed at defining bullying as a "group process" and eliminating social rewards (such as assistant or reinforcing roles) within peer groups?
- What is the role of the concepts of "equity" and "social justice" in the Finnish education system, particularly in terms of their establishment as an institutional culture that goes beyond mere physical safety, in preventing bullying?
- With the increasing digitalisation in the second half of the 2020s, what is the capacity of traditional prevention models to adapt to the areas of cyberbullying and hybrid education?
- How are the shortcomings and challenges encountered in the implementation of both models (for example, difficulties in putting diversity into practice) assessed in the light of the literature?

In light of data derived from Scandinavian strategies, how can a sustainable and holistic prevention model be structured for Turkey's educational vision and school safety policies?

The key features distinguishing this study from other research in the literature are: it offers a holistic perspective by synthesising Olweus's 'climate and control' focused approach with Finland's 'equity' based philosophy. It discusses the inadequacy of the traditional 'recurrence' criterion in the context of cyberbullying and redefines bullying not in terms of the number of incidents but through the student's 'right to feel safe'. Furthermore, the study opens up a discussion on the limits of technology by analysing the "Digital Paradox" findings (Valenzuela et al., 2022), which question the impact of the KiVa programme's online game component in the Chilean context. Prepared with a vision for 2026, this study presents a unique model synthesis for Turkey's educational vision. The significance of this research stems from the reality that, particularly in the second half of the 2020s, the full integration of digitalisation into education has led to forms of bullying shifting into cyber and hybrid domains. This transformation necessitates the revision of traditional prevention models and the examination of sustainable, evidence-based models for Turkey's educational vision and school safety policies.

Method

This research is designed using a qualitative research methodology to examine complex educational policies and implementation models in depth.

Research Design

In this study, the multiple case study approach, one of the qualitative research methodologies, has been adopted. The school safety models of Finland and Norway, which form the focus of the research, have been analysed as two separate 'cases' that are independent of one another but comparable.

Documents

The research dataset has been constructed from a longitudinal perspective to track the transformation of education policies in both countries. In this context: Historical Foundations: Core implementation guidelines and theoretical framework documents from before and after 2024, covering the development processes of the KiVa and OBPP models, were examined. Data were systematically collected using document analysis, a technique that enhances reliability in qualitative research.

Data Analysis

A descriptive analysis method was used to analyse the data obtained. During this process, the raw data was summarised and interpreted in line with the research objectives. The findings were structured under the following three main themes to facilitate comparative analysis. Theoretical Framework: The philosophical foundations underpinning the models, and the theoretical framework of 'equity' and 'climate'-focused approaches. Intervention Tools: Measures taken across the school, individual intervention techniques, and the management of social roles. Technology Integration: Strategies for combating cyberbullying in digitalised educational environments and implementation methods in hybrid settings. Cultural and Social Adaptation: Inclusive social networks, socio-economic barriers, and harm-focused measurement

Findings

The findings regarding the Norwegian (Olweus/Relational Leadership) and Finnish (KiVa) models examined within the scope of the research are presented in a comparative manner in the thematic table below, based on theoretical foundations and implementation outcomes.

Table 1. Thematic comparative analysis of violence prevention strategies

Themes	Norway (Lund, 2024; Olweus) Findings	Finland (KiVa/Chile/New Zealand) Findings	Discussion and Critical Perspective (Brisson, 2026)
Theoretical Framework and Leadership	**Relational and Democratic Leadership:** Trust and dialogue are fundamental, rather than punishment. Based on the principle of 'likhet' (equality), the leader stands on an equal footing with the student.	**Fairness and Social Justice:** Social justice is emphasised as an institutional culture. Bullying is addressed as a group process.	**Legal Rights and Safety:** In 2024, Norway defined school safety as a "legal right"; it has combined physical and digital safety.
Intervention and Implementation Outcomes	**Restorative Processes:** These aim to repair social bonds and ensure the perpetrator takes pedagogical responsibility. Partnerships established with refugee families prevent social exclusion.	**Statistical Success (New Zealand):** The sense of safety at school has risen from 82.4% to 84.2%. Victimisation among girls and younger boys has decreased significantly.	**Invisible Victims:** The traditional criterion of 'occurring 2–3 times a month' results in the group experiencing bullying 'once or twice' being excluded from the analysis and thus remaining invisible.
Technology and Digitalisation	**Digital Security Protocols:** In line with the 2026 vision, physical surveillance has been integrated with digital measures.	**Digital Paradox (Chile):** It has been found that the "Full KiVa" group, which includes online games, is less effective than the group without games. Digital rewards can weaken human motivation.	**Cyberbullying Paradox:** Whilst a single cyber act can reach thousands of people, the 'repetition' criterion is insufficient to explain this form of violence.
Cultural and Social Adaptation	**Inclusive Social Network:** The aim is to build social well-being through school-family collaboration.	**Socio-economic Barriers:** In Chile, success has lagged behind that of Finland; adapting the model to the deep-seated social problems in Latin America is difficult.	**Harm-Focused Measurement:** Rather than the frequency of bullying, it should be measured using more sensitive methods based on the harm and loss of trust experienced by the student.

It can be seen at Table 1, violence prevention strategies in the Norwegian education system are built upon 'relational leadership' and democratic values, as defined by Lund (2024). In this system, leadership adopts a management approach based on mutual trust and dialogue rather than traditional punishment-focused approaches; in resolving conflicts, responsibility is shared rather than relying on the use of hierarchical power. In accordance with the principle of "equality" (likhet), a fundamental aspect of Scandinavian culture, the leader positions themselves on an equal footing with students and staff; this naturally leads to restorative processes that aim to repair social bonds rather than impose punishment in response to misconduct. This approach institutionalises the process of the perpetrator taking responsibility for their actions—the fundamental aim of restorative justice—as a pedagogical practice. In the Norwegian education system, the fight against violence is internalised not only through external rules but also through the concepts of 'horizontal hierarchy' and 'democratic leadership' within school management. As noted by Lund (2024a), Norwegian educational leaders use authority not as a tool of coercion but to build a school climate based on trust and equality. This 'relational leadership' model lays the groundwork for resolving conflicts through pedagogical dialogue before they escalate into violence. In the Norwegian education system, the fight against violence is based on the creation of an inclusive social network from the early childhood period onwards. Research by Lund (2024b) demonstrates that the partnership established between refugee families and education professionals, focused on 'providing a good life', eradicates the root

causes of violence by preventing social exclusion. In this model, violence prevention strategies are not limited to school rules alone but evolve into the construction of social well-being and trust through school-family collaboration.

Norway has defined school safety as a "legal right" in its legislation updated in 2024. The Olweus model's 2026 vision combines physical supervision with digital safety protocols. A study was conducted involving 1,175 pupils aged 6–10 (Years 2 and 6) across seven schools in New Zealand to evaluate the KiVa anti-bullying programme (Green et al., 2020). According to the results of the KiVa programme, by the end of the one-year implementation period, significant decreases were recorded in the rates of self-reported bullying, traditional victimisation and exposure to cyberbullying. Meanwhile, the proportion of children who felt safe at school rose from 82.4% to 84.2%, and teachers' involvement in the process was perceived as more visible by the pupils. The programme's impact varied according to demographic variables; more pronounced success was achieved in reducing victimisation among girls and younger boys. When analysed by year group, victimisation decreased significantly among girls in Years 2, 3, 5 and 6, and among boys in Year 2, whilst it was found that the rates of bullying among boys in Years 2 and 3—who had shown a higher tendency towards bullying prior to the intervention—and among girls in all year groups except Year 4 had decreased significantly.

The KiVa study conducted in Chile (Valenzuela, 2022) presents important findings regarding 'cultural adaptation' and 'the effectiveness of digital tools' in the anti-bullying literature. The results of the Chilean study highlight a "digital paradox" that challenges the limits of technology and cultural adaptation in anti-bullying efforts; the most surprising finding was that the "Full KiVa" group, which included an online game, was less effective than the "Partial KiVa" group, which did not use the game. This situation is interpreted as suggesting that artificial rewards in the virtual environment may have weakened students' natural and human motivations to stand up against bullying, and that digital tools, by failing to replace face-to-face education and classroom interaction, have taken time away from these processes. The fact that the 40% success rate observed in Finland is not replicated at the same level in Chile's socio-economically disadvantaged schools calls into question the universality of the models; highlights the difficulty of adapting a model developed in a high-welfare country like Finland to the social fabric of Latin America, which harbours deeper social issues such as inequality, domestic violence and drug trafficking. Furthermore, whilst the fact that school management and teachers in the non-programme group took greater ownership of the programme and demonstrated higher engagement in education demonstrates the importance of the 'school commitment' factor, it is assessed that having lessons delivered by external experts rather than the school's own teachers may have weakened the trust-based bonds that could have been established with the pupils (Valenzuela et al., 2022).

Conclusion and Recommendations

The findings of the study indicate that the Norwegian and Finnish models differ in the depth of their implementation regarding violence prevention. Whilst the Norwegian model focuses more on strengthening adult authority and the legal framework, the Finnish model aims to transform the social dynamics of peer groups. This strategic divergence is summarised in Table 2.

Table 2. Strategic ımplementation differences between the Norwegian and Finnish models

Feature	Norway (Olweus/OBPP)	Finland (KiVa+)
Main Focus	Adult authority and relational leadership.	Peer group dynamics and social roles.
Method	Clear boundaries and restorative sanctions.	Removal of social rewards and empathy training.
Definition of Safety	A legal right and physical/digital monitoring.	A corporate culture and social justice.
Target Audience	School climate and authority figures.	The whole class (particularly spectators).

As shown in Table 2, the Norwegian model's emphasis on 'adult authority' is directly linked to current legislation that defines school safety as a legal right. In contrast, KiVa+ offers a more dynamic framework based on breaking the 'bystander' effect in situations such as cyberbullying and peer pressure. The methods used by both countries to prevent violence are criticised from the following perspectives. In traditional methods (the Olweus criterion), an incident is only

classified as bullying if it is repeated "at least 2–3 times a month". However, Brisson (2026) notes that this rule fails to fully account for forms of violence, such as cyberbullying, which can reach thousands of people in a single instance. Research indicates that students who state in surveys that they have "been bullied once or twice" are generally excluded from the analysis. According to the research, this situation results in a large group of students who actually need help remaining 'invisible' (Brisson, 2026). Brisson (2026) argues that rather than measuring bullying solely by how many times it occurs, the focus should be on how much harm the student has suffered as a result of the incident and how safe they feel. If a student experiences violence even once, this deprives them of their right to feel safe at school. For this reason, it is recommended that countries combating bullying (such as Finland and Norway) refine their measurement methods to make them more sensitive

The multi-case analysis conducted within the scope of this research has highlighted the complementary strengths of two major Scandinavian-origin models. The Norwegian model's success in establishing a disciplinary and legal framework, combined with the Finnish model's superiority in peer dynamics and technological integration, offers a hybrid set of solutions for modern education systems.

The research findings indicate that two fundamental pillars must be established simultaneously in the fight against bullying:

Relational Leadership (Norway/OBPP): Adults must adopt a supportive attitude centred on 'warmth and care', whilst setting 'clear boundaries' against unacceptable behaviour; this forms the foundation of disciplinary processes.

Social Responsibility and Peer Management (Finland/KiVa+): Eliminating the social rewards that fuel bullying and transforming "bystander" roles from passive witnessing to proactive advocacy ensures the collective rejection of violence.

Data presented by Limber et al. (2018) regarding the prevalence of bullying demonstrates that interventions at primary and lower secondary school levels should focus on frequency, whilst at upper secondary school level, the strategic depth of interventions is paramount.

Within the framework of the 2026 education vision, a fundamental paradigm shift is required in our methods of measuring violence. As emphasised by Brisson (2026), interpreting bullying solely through statistical recurrence (frequency) is insufficient to account for types such as cyberbullying, which can cause significant harm even in a single instance. In accordance with the principle of 'equity'. The student's subjective sense of safety and the psychological impact of a single incident of violence on the individual must be made the primary criteria in disciplinary processes. Measurements of bullying must shift from the question "how many times did it happen?" to "to what extent were the individual's right to education and safety compromised?"

Conclusions on the Axis of Child's Social Development

Redefining Socialization via Peer Dynamics: The study concludes that school safety policies must shift from individualistic disciplinary actions to systemic interventions; by transforming peer roles from passive bystanders into active defenders, models like KiVa fundamentally restructure the classroom environment into a prosocial space that fosters the child's healthy social development, empathy, and collective responsibility.

The Interdependence of Climate, Equity, and Belonging: The research demonstrates that a child's social development cannot be isolated from the macro-level institutional culture; synthesizing Norway's relational leadership and clear boundaries with Finland's commitment to social equity creates a secure school climate where social voids are filled with mutual trust, thereby guaranteeing the child's subjective sense of safety and right to education.

Policy Recommendations for Turkey

In light of the research findings, the following recommendations are put forward for Turkey's educational safety policies:

- The technological success of the Finnish model must be adapted to local educational platforms through a Learning Management System (LMS), and AI-supported early warning systems must be integrated into the school environment.

- As in the Norwegian example, the right to school safety and protection from violence should be defined in legislation as more explicit and protective 'legal rights'.
- "Relational Leadership" training, which equips school leaders to use their authority not as a tool of coercion but to foster a dialogue-based environment, should be incorporated into teacher and management development programmes.

Ultimately, the social voids where violence thrives can only be filled by synthesising Norway's firm disciplinary boundaries with Finland's empathetic peer culture, based on trust and mutual respect.

Updating the Measurement Paradigm

It has been observed that the criterion traditionally used in bullying research—'occurring at least 2–3 times a month' (the Olweus criterion)—excludes cases of cyberbullying, particularly those where a single post can reach thousands of people. Researchers should design measurement methods not so much around the frequency of incidents, but rather around the psychological harm suffered by the student, their subjective perception of safety, and the extent to which their right to education has been compromised.

Examining the "Digital Paradox" and the Limits of Technology

The "Digital Paradox" finding—observed in the Chilean implementation of the Finland-based KiVa model, where groups incorporating online games proved less effective than those without—should be investigated in depth. Researchers should examine how digital rewards and virtual tools affect students' human motivation to stand up against bullying and how they transform the pedagogical value of face-to-face interaction.

Focusing on the "Invisible Victims" Group

The group of students who responded in surveys that they had "been bullied once or twice" – and who are generally excluded from statistical analyses – must be examined as "invisible victims". As excluding this group from analysis effectively deprives a large population in need of intervention from support systems, it is recommended that researchers develop new data analysis techniques targeting these "grey-area" forms of violence.

Analysing Cultural Adaptation and Socio-Economic Variables

The adaptation of models successful in regions with high levels of welfare and equality, such as the Nordic countries, to contexts with deep-seated social issues (drug abuse, domestic violence, economic inequality), such as those in Latin America, is a critical area of study. Researchers should question the universality of these models and investigate the correlation between violence prevention strategies and the established level of a societal culture of 'fairness' and 'social justice', rather than relying solely on school rules.

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Research Article

The role of emotion regulation in mitigating work stress among shadow teachers in inclusive schools

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Abstract

Shadow teachers play a vital role in supporting students with special educational needs in inclusive schools. High job demands, intensive emotional involvement, and continuous support responsibilities may increase their vulnerability to work-related stress. This study aimed to examine the effect of emotion regulation on work stress among shadow teachers in inclusive schools. A quantitative non-experimental correlational design was employed. Participants consisted of 255 shadow teachers who actively supported students with special educational needs and were selected using purposive sampling. Data were collected using an Emotion Regulation Scale based on Gross's theory and the Job Stress Scale adapted from Parker and DeCotiis. Data were analyzed using simple linear regression. The results indicated that emotion regulation significantly predicted work stress among shadow teachers ($\beta = .541$, $t = 10.228$, $p = .001$). The coefficient of determination ($R^2 = .293$) showed that emotion regulation accounted for 29.3% of the variance in work stress, while the remaining 70.7% was explained by other factors outside the study. Descriptive findings revealed that most participants reported moderate levels of emotion regulation (60%) and work stress (66%). These findings suggest that emotion regulation plays an important role in the work stress experienced by shadow teachers. Therefore, strengthening emotion regulation competencies and providing psychological support within inclusive schools may help improve the well-being and professional effectiveness of shadow teachers.

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Introduction

Inclusive education has become a global educational priority aimed at ensuring equitable access to quality education for all learners, including students with special educational needs (SEN). The successful implementation of inclusive education requires not only inclusive policies and accessible learning environments but also adequate educational personnel capable of addressing students' diverse academic, behavioral, and socio-emotional needs. Among these professionals, shadow teachers play an important role in supporting students with SEN by facilitating classroom participation, managing behavioral challenges, promoting social interaction, and assisting students in adapting to school routines. As a result, shadow teachers are required to maintain intensive interactions with students and provide continuous individualized support throughout the learning process (Hriday et al., 2024).

Teaching has long been recognized as an emotionally demanding profession. The challenges become more complex in inclusive educational settings where teachers and support personnel must respond to diverse student characteristics and needs. Shadow teachers often encounter emotionally challenging situations, including behavioral problems,

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communication difficulties, emotional outbursts, and learning barriers experienced by students with SEN. These conditions require sustained emotional involvement and may increase vulnerability to occupational stress (Sessiani & Syukur, 2020).

Occupational stress refers to a psychological condition that arises when perceived job demands exceed an individual's resources and coping capacities. In educational contexts, prolonged occupational stress may negatively affect psychological well-being, job satisfaction, teaching effectiveness, and professional performance. High levels of stress have also been associated with emotional exhaustion, burnout, and increased intentions to leave the profession, making occupational stress a significant concern for educational institutions (McLean et al., 2023).

One psychological factor that may help individuals cope with workplace demands is emotion regulation. Gross (1998) defined emotion regulation as the processes through which individuals influence which emotions they experience, when they experience them, and how they express those emotions. According to the Process Model of Emotion Regulation, individuals regulate emotions through several strategies, including situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Effective emotion regulation enables individuals to manage negative emotional reactions and adapt more successfully to stressful situations (Gross, 1998, 2002).

Emotion regulation has received increasing attention in educational research because of its contribution to teacher well-being and professional effectiveness. Teachers who possess effective emotion regulation skills tend to demonstrate greater resilience, higher occupational well-being, and lower levels of stress and burnout. Conversely, difficulties in regulating emotions are associated with psychological distress and reduced professional functioning. A recent meta-analysis found that adaptive emotion regulation strategies are positively associated with teacher well-being, motivation, and teaching effectiveness, whereas maladaptive strategies tend to predict poorer outcomes (Wang et al., 2023).

For shadow teachers, emotion regulation is particularly important because their professional responsibilities extend beyond academic assistance. They are expected to support students in managing behavioral difficulties, emotional challenges, attention problems, and social interaction barriers while simultaneously maintaining constructive relationships with classroom teachers, parents, and school administrators. These responsibilities expose shadow teachers to emotionally demanding situations that require patience, empathy, flexibility, and self-control. Consequently, emotion regulation may serve as an important psychological resource that helps shadow teachers cope with occupational stress and maintain professional effectiveness (Hriday et al., 2024; Sessiani & Syukur, 2020).

Previous studies have reported significant associations between emotion regulation and occupational well-being among teachers and educational professionals. Research has consistently shown that individuals with stronger emotion regulation abilities experience lower levels of stress, burnout, and psychological distress while demonstrating better coping capacities and overall well-being (Gross, 2002; Wang et al., 2023). However, empirical studies specifically examining the relationship between emotion regulation and occupational stress among shadow teachers remain limited. Existing research has predominantly focused on general education teachers, special education teachers, or educators in inclusive settings without specifically addressing the unique experiences of shadow teachers (Hriday et al., 2024).

This limitation is important because shadow teachers occupy a distinctive position within inclusive education. Unlike classroom teachers, shadow teachers provide individualized and intensive support to specific students with SEN, exposing them to unique emotional and occupational demands. Understanding factors that contribute to their occupational well-being is therefore essential for enhancing both the quality and sustainability of inclusive education services.

Therefore, this study aims to examine the relationship between emotion regulation and occupational stress among shadow teachers working in inclusive schools. The findings are expected to contribute to the literature on inclusive education and teacher well-being by providing empirical evidence regarding the role of emotion regulation as a protective psychological resource for managing occupational stress among shadow teachers.

Method

Research Design

This study employed a quantitative, non-experimental correlational design to examine the relationship between emotion regulation and occupational stress among shadow teachers working in inclusive schools. A correlational approach was considered appropriate because the study aimed to investigate naturally occurring relationships between variables without manipulating or controlling participants' experiences (Creswell & Creswell, 2018). In addition, simple regression analysis was used to examine the predictive role of emotion regulation in occupational stress.

Participants

The participants were 255 shadow teachers who actively provided educational support to students with special educational needs (SEN) in inclusive schools. Participants were selected using purposive sampling, a non-probability sampling technique in which respondents are chosen based on specific characteristics relevant to the research objectives (Sugiyono, 2022).

To be eligible for participation, individuals had to meet two inclusion criteria: (a) actively serve as a shadow teacher in an inclusive school and (b) have a minimum of six months of work experience. The sample size was determined based on the recommendation of Hair et al. (2010), which suggests a minimum sample size of five respondents per measurement item in multivariate research. Given that the instruments consisted of 51 items in total, the minimum required sample size was 255 participants.

Data were collected using both online and offline methods. Offline data collection was conducted directly in several inclusive schools, while online data were gathered through Google Forms distributed via social media platforms, including WhatsApp, Instagram, Facebook, and TikTok.

Data Collection Tools

Emotion Regulation Scale

Emotion regulation was measured using a scale developed based on Gross's (2014) emotion regulation framework and adapted by Sari and Naqiyah (2023). The instrument assesses four dimensions of emotion regulation: (1) strategies to emotion regulation, (2) engaging in goal-directed behavior, (3) control of emotional responses, and (4) acceptance of emotional responses.

The scale consists of 38 items, including 19 favorable and 19 unfavorable statements. Participants responded using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Unfavorable items were reverse-scored. Higher scores indicate higher levels of emotion regulation.

Previous research reported excellent reliability for the scale (Cronbach's α = .979; Sari & Naqiyah, 2023). In the present study, the instrument demonstrated excellent internal consistency with a Cronbach's alpha coefficient of .950. Item-total correlation coefficients ranged from .138 to .711. An example item is: "I clearly understand my own feelings."

Occupational Stress Scale

Occupational stress was measured using the Job Stress Scale developed by Parker and DeCotiis (1983) and adapted into the Indonesian context by Hadiyanti and Sari (2025). The instrument consists of 13 items representing two dimensions: time stress and anxiety.

Participants responded using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate higher levels of occupational stress. The scale demonstrated high internal consistency in the present study, with a Cronbach's alpha coefficient of .907.

Procedure

Participants were informed about the objectives of the study and assured that their participation was voluntary and confidential. Informed consent was obtained before data collection. The questionnaires were administered through both paper-based and online formats to facilitate broader participation among shadow teachers working in inclusive schools.

Data Analysis

Data were analyzed using IBM SPSS Statistics. Descriptive statistics were calculated to summarize participant characteristics and study variables. Prior to hypothesis testing, a normality test was conducted to examine the distribution of the data. Pearson correlation analysis was used to assess the relationship between emotion regulation and occupational stress, while simple linear regression analysis was performed to determine the predictive contribution of emotion regulation to occupational stress. Statistical significance was established at $p < .05$ (Field, 2018).

Results

Descriptive Analysis

Table 1. Distribution of emotion regulation and work stress levels among shadow teachers

Variable	Category	f	%
Emotion Regulation	High	50	19
	Moderate	152	60
	Low	53	21
	Total	255	100
Work Stress	High	47	18
	Moderate	167	66
	Low	41	16
	Total	255	100

As presented in Table 1, the majority of shadow teachers demonstrated a moderate level of emotion regulation, accounting for 152 participants (60%). This was followed by low emotion regulation (21%) and high emotion regulation (19%). Similarly, most participants reported a moderate level of work stress (66%), whereas 18% experienced high work stress and 16% reported low work stress. These findings suggest that, overall, shadow teachers in inclusive schools tend to exhibit moderate levels of both emotion regulation and work-related stress.

Regression Analysis

Table 2. Results of simple linear regression analysis

Predictor Variable	R	R^2	B	β	t	p
Emotion Regulation	0.541	0.293	0.204	0.541	10.228	0.001

The results of the simple linear regression analysis revealed a correlation coefficient (R) of 0.541 and a coefficient of determination (R^2) of 0.293. These findings indicate that emotion regulation explained 29.3% of the variance in work stress among shadow teachers, while the remaining 70.7% was attributable to other factors not examined in the present study.

Furthermore, the standardized regression coefficient showed a significant effect of emotion regulation on work stress ($\beta = 0.541$, $t = 10.228$, $p = .001$). Therefore, emotion regulation was found to be a significant predictor of work stress among shadow teachers working in inclusive schools. Accordingly, the research hypothesis was supported.

Hypothesis Testing

The findings demonstrate that emotion regulation significantly influences work stress among shadow teachers in inclusive educational settings. The regression model indicates that emotion regulation contributes substantially to explaining variations in work stress levels. Consequently, individuals with better emotion regulation abilities are likely to experience different levels of work stress compared to those with poorer emotion regulation skills, confirming the proposed hypothesis.

Discussion

The present study found that emotion regulation had a significant positive effect on work stress among shadow teachers working in inclusive schools. This finding differs from the majority of previous studies, which generally report that effective emotion regulation is associated with lower levels of stress and better psychological well-being (Gross, 2015; Aldao et al., 2010). The positive relationship observed in this study may be explained by the unique occupational

characteristics of shadow teachers, whose roles require intensive emotional involvement and continuous interaction with students with special educational needs (SEN).

Shadow teachers are expected to provide individualized support, manage students' behavioral and emotional challenges, and facilitate communication between students, classroom teachers, and parents. Such responsibilities require substantial emotional investment and constant adaptation to complex educational situations. Consequently, individuals experiencing higher levels of occupational demands may engage more frequently in emotion regulation strategies as a means of coping with workplace stressors. In this context, higher emotion regulation scores may reflect greater efforts to manage emotional strain rather than indicating the absence of stress. Similar findings have been reported among special education professionals, where emotion regulation functions as a coping mechanism in response to demanding work environments (Mulyani et al., 2021).

Within inclusive educational settings, the role of shadow teachers extends beyond academic assistance. They are responsible for supporting students' social participation, behavioral adjustment, emotional development, and successful integration into classroom activities. According to Kadriu et al. (2024), support assistants for students with special educational needs play a crucial role in promoting student engagement and educational success in inclusive schools. However, the complexity of these responsibilities may simultaneously increase emotional burden and contribute to elevated levels of occupational stress. Therefore, the positive association identified in this study may indicate that shadow teachers who encounter greater workplace challenges are also required to employ more extensive emotion regulation strategies.

The descriptive findings revealed that most participants demonstrated moderate levels of both emotion regulation and work stress. This pattern suggests that shadow teachers possess a relatively adequate capacity to manage their emotional experiences while continuing to face occupational pressures associated with their professional responsibilities. These findings further indicate that emotion regulation is not the sole determinant of work stress. Previous research has shown that occupational stress is influenced by multiple psychological and environmental factors, including self-compassion, emotional labor, resilience, social support, and other psychological resources (Hu, 2023). Additionally, work experience, collegial support, positive relationships with students, and supportive school environments may contribute to teachers' ability to cope effectively with professional demands.

Although most respondents reported moderate levels of work stress, the presence of individuals experiencing high levels of occupational stress warrants particular attention. Research has consistently demonstrated that special education professionals are vulnerable to psychological strain resulting from job demands, student characteristics, and organizational factors (McGrew et al., 2023). For shadow teachers, stress may arise from prolonged interactions with students who require intensive support, expectations to provide optimal assistance, and pressures from both schools and parents. If such demands persist without adequate institutional support, they may negatively affect job satisfaction, concentration, professional performance, and overall psychological well-being.

The significant contribution of emotion regulation to work stress identified in this study highlights the importance of emotional competencies among shadow teachers. In practice, emotion regulation can be reflected in teachers' ability to manage emotional reactions, respond adaptively to stressful situations, and maintain constructive interactions with students and other educational stakeholders. Furthermore, intervention studies suggest that mindfulness-based programs may help educational professionals enhance emotional awareness and reduce occupational stress (Hidajat et al., 2023). Therefore, strengthening emotion regulation skills through professional development programs, psychological support services, and stress-management interventions may be beneficial for improving the well-being and effectiveness of shadow teachers in inclusive educational settings.

Overall, the present findings contribute to the growing literature on occupational well-being among inclusive education professionals by demonstrating that emotion regulation is significantly associated with work stress among shadow teachers. Future research should explore additional psychological and contextual factors that may influence occupational stress, including self-efficacy, resilience, organizational support, workload, and burnout, in order to

develop a more comprehensive understanding of psychological functioning among professionals working in inclusive education.

Conclusion

This study examined the effect of emotion regulation on work stress among shadow teachers working in inclusive schools. The findings revealed that emotion regulation significantly predicted work stress, supporting the proposed hypothesis. Specifically, a positive relationship was identified, indicating that higher levels of emotion regulation were associated with higher levels of work stress among shadow teachers.

This finding suggests that shadow teachers who experience greater occupational demands may engage more intensively in emotion regulation strategies to manage the emotional challenges arising from their professional responsibilities. Given the complex nature of their role, which involves continuous support for students with special educational needs, communication with teachers and parents, and behavioral management, emotion regulation may function as an adaptive response to demanding work conditions rather than solely as a protective factor against stress.

Furthermore, the descriptive results indicated that most participants reported moderate levels of both emotion regulation and work stress. This pattern suggests that shadow teachers generally possess adequate emotional management skills; however, they continue to encounter moderate levels of occupational stress due to the complexity and intensity of their work. Therefore, emotion regulation should not be considered the sole determinant of work stress, as other psychological, interpersonal, and organizational factors may also contribute to occupational well-being among shadow teachers.

Overall, this study contributes to the growing body of literature on inclusive education by highlighting the significant role of emotion regulation in understanding work stress among shadow teachers and emphasizing the importance of supporting their psychological well-being within inclusive educational environments.

Recommendations

Practical Implications

The findings underscore the importance of strengthening emotion regulation competencies among shadow teachers. Educational institutions and inclusive schools are encouraged to provide professional development programs that focus on emotional competence, stress management, mindfulness practices, and psychological well-being. Establishing supportive work environments through peer support, supervision, and access to mental health resources may also help shadow teachers cope more effectively with occupational demands and reduce the risk of prolonged work-related stress.

Future Research Directions

Future studies are encouraged to investigate additional factors that may influence work stress among shadow teachers, including self-compassion, emotional labor, resilience, social support, self-efficacy, and organizational support. Moreover, longitudinal and mixed-methods research designs may provide a more comprehensive understanding of the dynamic relationship between emotion regulation and occupational stress in inclusive educational settings.

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