

## ARTICLE

# Rethinking the Criminal Responsibility of Minors: A Comparative and Interdisciplinary Analysis

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## Abstract

**Background:** The criminal responsibility of minors remains a pressing issue in contemporary legal studies because it lies at the intersection of justice, child protection, and societal security.

**Purpose:** The aim of this paper is to critically analyze the legal and conceptual foundations of juvenile criminal responsibility, with particular attention to international human rights standards and comparative practices across jurisdictions.

**Methods:** the study adopts a doctrinal and critical comparative approach, examining statutory frameworks, judicial interpretations, and scholarly debates while integrating insights from developmental psychology.

**Findings:** The results reveal substantial inconsistencies in the age of criminal responsibility, limited compliance with the UN Convention on the Rights of the Child, and inadequate consideration of psychological maturity in determining culpability.

**Theoretical and Practical Implications:** the study contributes to debates on the relationship between law, developmental science, and human rights in shaping juvenile justice frameworks. Practically, the findings underscore the need for policies that integrate restorative justice principles, prioritize rehabilitation over punitive measures, and harmonize domestic laws with international standards.

**Originality/Novelty:** The originality of this research lies in its interdisciplinary critique that combines legal analysis, psychological insights, and human rights frameworks to propose an evidence-based recalibration of juvenile criminal responsibility.

## INTRODUCTION

The criminal responsibility of minors has long been a matter of concern in both national and international legal discourse. Unlike adults, children and adolescents are still undergoing significant psychological, emotional, and social development, which directly affects their capacity to make rational decisions and appreciate the consequences of their actions. These developmental differences raise complex questions about justice, fairness, and the extent to which minors should be held accountable within criminal law. Historically, juvenile justice systems were designed to emphasize correction and reintegration rather than punishment, reflecting the recognition that minors should not be treated as fully responsible individuals. However, in recent decades, the rise of serious youth crimes has prompted some jurisdictions to adopt more punitive measures, including the prosecution of minors in adult courts. This global trend has reignited debates about the proper balance between accountability and protection in the treatment of young offenders.

A substantial body of scholarship has addressed the statutory provisions, judicial practices, and international frameworks governing juvenile justice. The United Nations Convention on the Rights of the Child (UNCRC) provides broad guidance by encouraging states to set a minimum age of criminal responsibility (MACR) that reflects children's maturity levels and to prioritize rehabilitation over punitive sanctions. Nevertheless, implementation remains highly uneven, with MACRs ranging from as low as seven years in some jurisdictions to eighteen years in others. While comparative legal studies have examined this variation, they often stop at descriptive analysis and fail to engage critically with the implications of such inconsistencies. Moreover, limited attention has been paid to the integration of psychological and neuroscientific findings into the assessment of minors' culpability. This gap has left unresolved the tension between legal norms that emphasize accountability and scientific evidence that underscores children's developmental immaturity.

The lack of consensus regarding the age of criminal responsibility and the treatment of minors in criminal justice systems creates significant challenges for both theory and practice. On one hand, punitive approaches claim to deter youth crime, yet empirical studies show that harsh sentencing often fails to reduce recidivism and may reinforce criminal behavior. On the other hand, rehabilitative approaches are criticized for being overly lenient and insufficiently protective of public safety in cases involving serious juvenile offenses. These conflicting models highlight fundamental questions about fairness, consistency, and the ethical treatment of young offenders. The divergence in global practices undermines the universality of child rights standards and generates policy uncertainty for lawmakers and practitioners. Without a coherent framework that reconciles legal, psychological, and human rights perspectives, debates on juvenile justice reform risk remaining fragmented and ineffective.

Against this backdrop, the present study seeks to critically analyze the concept of criminal responsibility for minors by examining its legal foundations, international obligations, and jurisdictional variations. It employs a doctrinal and comparative methodology, while also integrating insights from developmental psychology to assess the adequacy of existing frameworks. The study specifically explores the tensions between punitive and rehabilitative approaches, evaluates the effectiveness of current policies, and considers how socio-economic factors influence juvenile delinquency. By addressing the gap between legal norms and scientific evidence, this paper contributes theoretically to debates on culpability, justice, and child development. At the same time, it offers practical implications by advocating for policies that harmonize domestic laws with international human rights

standards and prioritize restorative justice and rehabilitation. The originality of this research lies in its interdisciplinary critique, which combines law, psychology, and human rights to propose a recalibrated framework for juvenile criminal responsibility that is both ethically justifiable and socially effective.

## LITERATURE REVIEW

### 1. Legal Foundations & Jurisdictional Variations

Legal systems around the world diverge significantly in defining the minimum age of criminal responsibility (MACR). Such variations reflect differences in legal traditions, societal values, and interpretations of childhood. International law, especially the UN Committee on the Rights of the Child's General Comment No. 24, encourages higher MACR thresholds that consider developmental maturity (Committee on the Rights of the Child, 2019). These guidelines advocate for a rehabilitative, child-centered approach rather than punitive responses. Comparative legal scholars analyze how states interpret and implement these standards. In practice, disparities remain profound, with MACR ranging from as low as seven in some jurisdictions to sixteen or eighteen in others. Cross-jurisdictional inconsistencies thus raise questions of equity, legal coherence, and human rights compliance.

Theoretical discussions question whether legal systems sufficiently incorporate developmental science when setting MACR. Traditional doctrines often fail to distinguish between chronological age and cognitive maturity. Empirical studies expose this gap, demonstrating that adolescents' capacity for impulse control and foresight is still evolving (Toenders et al., 2024). Law may inappropriately equate age with agency, leading to misjudged culpability. Scholars call for recalibration of doctrine around developmental thresholds, not fixed ages. Incorporating neuroscientific evidence can provide more nuanced standards. Without such integration, legal frameworks risk unfairly punishing youth based on outdated perceptions of maturity.

Comparative empirical research has begun to map how MACR and legal practices impact youth outcomes. One quasi-experimental study used Denmark's temporary MACR reduction from 15 to 14 to analyze trends in juvenile crime (Damm et al., 2025). Results indicated no deterrent effect for younger teens and even some increases among repeat offenders. Such findings directly challenge rationales for lowering MACR for punitive gains. They reinforce arguments for policies grounded in evidence showing that criminalizing younger children may harm more than protect. Legal reforms must therefore critically engage with these outcome-based insights.

Furthermore, comparative analyses underscore challenges in aligning domestic law with international obligations. Some jurisdictions formally ratify the UNCRC but maintain lower MACR in practice, creating legal dissonance. These discrepancies often stem from political resistance or public pressure rather than scientific or human rights rationale. Legal scholars argue that implementation should prioritize developmental appropriateness over symbolic compliance. Cross-border dialogue and peer review of policy could promote more alignment. Harmonization efforts are further supported by comparative data demonstrating better youth outcomes under more rehabilitative systems.

Finally, studies show public attitudes toward juvenile justice can shift with access to developmental and empirical information. Survey experiments reveal that knowledge of adolescent brain development increases support for raising MACR (Rock et al., 2025). They also reduce punitive bias driven by moral panic or media sensationalism. These findings

offer policymakers room to engage in constructive dialogue about reform. Evidence-informed advocacy can thus align public opinion with rights-based policy. In turn, this may pave the way for legal systems to modernize juvenile culpability frameworks.

## 2. *Punitive vs. Rehabilitative Approaches in Juvenile Justice*

The debate between punitive and rehabilitative juvenile justice approaches has evolved substantially over recent decades. Historically, youth systems aimed to correct and reintegrate rather than punish. However, rising public anxiety over violent youth crimes triggered a shift toward harsher punitive policies in some places. Meta-analyses now systematically compare the outcomes of these divergent approaches. Reintegration-focused interventions, such as restorative justice and family therapy, consistently show better recidivism reduction. This mounting empirical evidence strengthens calls for rehabilitative models as more effective and humane.

A pivotal meta-review by Pappas et al. (2021) examined over forty years of juvenile justice programs. It concluded that well-implemented rehabilitative interventions yield significantly better outcomes than punitive sanctions alone. The analysis highlighted that program fidelity, risk-need-responsivity, and supportive environments are critical success factors. Conversely, punitive measures rarely demonstrated sustained reductions in reoffending. This meta-review thus underscores the importance of evidence-based intervention design. It also legitimizes the investment in community and therapeutic programs over incarceration.

Restorative justice programs, now well-supported by rigorous studies, offer promising alternatives to traditional adjudication. Kimbrell et al. (2023) conducted a meta-analysis revealing consistent reductions in juvenile recidivism associated with restorative justice. Important benefits included improved victim satisfaction and offender accountability without stigmatizing punishment. The effectiveness varied depending on implementation quality and community context. Nevertheless, the general trend favors restorative justice as a rehabilitative approach. These findings inform policy moves toward diversified response models.

Family-based therapeutic models—such as Multisystemic Therapy (MST) and Functional Family Therapy (FFT)—exhibit robust outcomes across different settings. Hunkin et al. (2025) report that MST and FFT reduce reoffending and out-of-home placements. These interventions help rebalance system responses by addressing underlying family and community dynamics. They also produce positive social, academic, and psychological spillovers. Implementation context and dosage remain critical for efficacy. When properly supported, these models outperform punitive detention in both short- and long-term outcomes.

Critically, evidence from cross-jurisdictional studies and meta-reviews consistently shows that punitive policy shifts—such as lowering MACR—fail to deliver deterrence or rehabilitative gains. Rehabilitation-oriented practices, in contrast, maintain offender accountability while reducing recidivism. By focusing on underlying causes and integrating evidence-based design, they offer sustainable benefits. Societies prioritizing rehabilitative models also align better with human rights principles. This constitutes a normative shift in juvenile justice—toward empathy and effectiveness.

## 3. *Psychological, Developmental & Socio-Economic Dimensions of Juvenile Offending*

Developmental neuroscience has fundamentally informed modern understandings of juvenile culpability. Research demonstrates that key brain regions related to impulse control

and moral reasoning mature through the mid-twenties. Adolescents therefore exhibit heightened impulsivity, reward sensitivity, and reduced foresight (Toenders et al., 2024). This neurodevelopmental profile challenges legal presumptions of adult-equivalent accountability. Law has responsive but unevenly integrated this science. Recognizing developmental immaturity can foster fairer, more effective juvenile justice policies. However, policymakers must balance science with legal standards.

Court systems increasingly encounter neuroscience evidence in adjudicating juvenile cases. Maslowsky et al. (2024) outline how appellate courts reference brain development data when considering culpability. Yet they caution against oversimplified inferences from imaging to intent. Courts must interpret neuroscientific evidence within context—not as absolute determinants. Accurate expert testimony and procedural safeguards are essential. The interplay between law and neuroscience thus remains delicate. This underscores the need for both judicial education and methodological rigor.

Translational scholarship now advocates participatory, developmentally congruent approaches to juvenile policy design. Toenders et al. (2024) propose frameworks that include youth perspectives in crafting age-appropriate legal norms. They argue participatory methods enhance legitimacy and external validity of reforms. Such models acknowledge that lived experience informs better calibration of policy. They also bridge the gap between doctrine and implementation. Youth participation thus enriches system responsiveness and fairness.

Trauma, poverty, and social inequality significantly amplify developmental vulnerabilities linked to delinquency. Adverse childhood experiences are shown to disrupt neurodevelopment, especially in regulatory circuits (Duan et al., 2023). These disruptions elevate risk of justice system contact absent therapeutic support. Notably, justice systems often criminalize survival behaviors shaped by deprivation. Intersectional frameworks emphasize the need to address trauma and socio-economic roots in policy. Otherwise, interventions remain superficial and ineffective.

Integrated multidisciplinary approaches—melding neuroscience, social welfare, and developmental psychology—offer the strongest foundation for juvenile justice reform. Evidence indicates that addressing trauma and vulnerability via psychosocial interventions reduces offending. These models support youth resilience and protective developmental trajectories. They also align with UNCRC emphasis on rehabilitation and well-being. Law reform should therefore embed supportive, not punitive, mechanisms at every stage of juvenile justice. This holistic shift can deliver ethical and effective outcomes

## RESEARCH METHOD

This study adopts a qualitative research design that combines doctrinal legal analysis with socio-legal comparative inquiry to critically examine the concept of criminal responsibility of minors across jurisdictions. Doctrinal legal research systematically analyzes statutory provisions, judicial decisions, and normative instruments such as the UN Convention on the Rights of the Child (UNCRC), enabling precise reconstruction of legal reasoning and doctrinal trends (Taekema & van der Burg, 2024). The socio-legal component situates these legal norms within broader psychological, societal, and neuroscientific contexts to assess their applicability in real-world settings (Christiani, 2016). This interdisciplinary approach aligns with contemporary methodological standards emphasizing law-in-context and empirical orientation in comparative legal scholarship (Renner, 2015). By integrating normative and empirical data, the study bridges theoretical

coherence with pragmatic relevance to policy debates. The qualitative nature allows for in-depth interpretation and nuanced critique of both legal texts and empirical findings. Together, this design provides a robust analytical framework to illuminate how legal systems conceptualize and operationalize juvenile criminal responsibility.

The doctrinal component involves a systematic examination of legal materials, including national statutes, judicial rulings, and international instruments such as UNCRC norms, with particular attention to minimum ages of responsibility and sentencing principles. This method includes doctrinal reconstruction – identifying core concepts, legal categories, and underlying rationales – which allows for critical evaluation of doctrinal coherence and gaps (Taekema & van der Burg, 2024). It also supports comparative analysis by mapping similarities and differences across legal systems. Doctrinal analysis ensures conceptual clarity and scholarly precision in assessing how legal obligations regarding juvenile offenders are articulated. The method supports the formulation of doctrinal critiques and normative recommendations grounded in textual and precedential evidence. By explicitly centering legal reasoning and structure, this component addresses theoretical facets of culpability. It complements socio-legal insights by anchoring them in codified legal doctrine.

Complementing doctrinal work, the socio-legal comparative analysis examines how psychological evidence, neuroscientific findings, and justice outcomes interact with legal norms across jurisdictions. Drawing on law-in-context methodology, this approach interrogates how legal frameworks reflect or resist insights from developmental science and rehabilitation theory (Renner, 2015). It also facilitates functional comparative assessment – how different systems solve the problem of juvenile culpability and rehabilitation in diverse cultural and institutional contexts. Empirical studies on juvenile outcomes inform this dimension, especially regarding the effectiveness of punitive versus rehabilitative interventions. By comparing models across common law and civil law systems, the study identifies legal designs conducive to fair and developmentally appropriate juvenile justice. Such cross-jurisdictional comparison also reveals systemic strengths and weaknesses in incorporating science into law. Overall, the socio-legal method deepens understanding of the gap between normative expectations and lived outcomes in juvenile justice systems.

Primary data include legislative instruments, judicial decisions, and international legal texts, allowing for detailed doctrinal reconstruction. Secondary data are drawn from peer-reviewed journal articles, books, policy reports from UN bodies (e.g., UNICEF, UNODC), and empirical studies on juvenile justice effectiveness. The study prioritizes sources published within the last decade to ensure relevance and contemporary rigor. Comparative legal materials include case studies and statutes from selected jurisdictions representing diverse legal traditions. Data collection also included government white papers, NGO evaluations, and academic reviews elucidating contextual implementation. Sources were selected purposively based on conceptual relevance and availability of comparative data. This comprehensive approach ensures a balanced and multi-layered evidence base across legal, psychological, and social domains.

Data analysis proceeds through thematic content analysis and comparative legal mapping. Thematic analysis identifies recurring ideas – such as developmentally informed culpability, restorative justice, and inconsistent MACR policies – across doctrinal and empirical literature. Coding of semantic themes allows organizational clarity and critical cross-sectional synthesis. Comparative mapping then contrasts legal features, implementation practices, and alignment with scientific insights across systems. The process enables identification of best practices, normative gaps, and policy inconsistencies. This method promotes triangulation of doctrinal, psychological, and empirical data for more

robust conclusions. The analytical steps are transparent and replicable, enhancing the study's academic rigor and policy utility.

This study focuses on international legal norms and selected jurisdictions—representative of both common law and civil law traditions—to illustrate variation in juvenile responsibility frameworks and reform trajectories. While it does not include interviews or field observations, the doctrinal and socio-legal synthesis offers rich theoretical and policy insights. Limitations include potential over-reliance on published and accessible sources and limited attention to informal or local justice practices. Nonetheless, the interdisciplinary approach enables a unique contribution by integrating law, developmental science, and comparative justice perspectives. It offers policy-relevant recommendations grounded in scholarly analysis and empirical evidence. Ultimately, the methodology lays a foundation for evidence-based legal reform that harmonizes child rights, developmental science, and justice.

## RESULTS

The findings reveal that the minimum age of criminal responsibility varies significantly across jurisdictions, reflecting diverse cultural, legal, and social contexts. In some countries, such as England and Wales, the age is as low as 10 years, while in Scandinavian nations, it is set at 15 or higher (Hodgkinson, 2019). This disparity underscores the absence of global consensus despite the guiding framework of the United Nations Convention on the Rights of the Child (UNCRC). The analysis of statutes and case law demonstrates a growing recognition of developmental psychology in shaping legal policies. For instance, courts in several jurisdictions increasingly reference adolescent brain science in rulings involving young offenders (Steinberg, 2020). Moreover, trends indicate a gradual shift from punitive to rehabilitative models, particularly in Europe and parts of Asia. These results highlight both convergence and divergence in how states conceptualize juvenile culpability.

The doctrinal analysis of legal instruments reveals three dominant models of juvenile justice: punitive, welfare-based, and restorative. Punitive systems emphasize deterrence and retribution, often lowering the threshold for prosecution of minors. Welfare-based models, by contrast, focus on protection and rehabilitation, integrating minors into society rather than isolating them in correctional institutions (Cipriani, 2020). Restorative justice approaches, gaining traction in various jurisdictions, prioritize reconciliation and repairing harm over punishment. Comparative findings suggest that restorative models report lower recidivism rates and higher victim satisfaction (Bazemore & Umbreit, 2019). However, in regions with high crime rates, punitive frameworks still dominate due to public demand for security. This variety illustrates the tension between societal protection and child-centered justice.

Empirical evidence drawn from secondary sources shows that psychological immaturity plays a significant role in shaping legal responsibility for minors. Studies on adolescent neurodevelopment reveal that minors possess reduced capacity for impulse control, risk assessment, and long-term decision-making (Casey et al., 2019). This scientific evidence has been increasingly incorporated into judicial reasoning, leading to reforms in sentencing practices. For example, U.S. Supreme Court decisions have cited neuroscientific findings to abolish mandatory life sentences for juveniles (Scott et al., 2020). Similar trends are observed in Latin America, where new legal frameworks emphasize psychosocial evaluation before imposing sentences.

Nevertheless, not all jurisdictions integrate this evidence consistently, resulting in uneven protection of minors' rights. The findings suggest that legal systems acknowledging psychological immaturity provide more just and effective outcome

## DISCUSSION

The results demonstrate that age thresholds for criminal responsibility are not merely legal constructs but also reflect broader sociocultural and political values. Countries with lower age thresholds often justify them based on crime control policies and public expectations of accountability. However, this approach risks undermining child rights and developmental considerations (Arthur, 2020). By contrast, higher thresholds, while protecting children, raise debates about societal safety and victim rights. The tension between accountability and protection requires nuanced policy responses. A comparative perspective shows that jurisdictions adopting higher thresholds generally invest more in welfare and rehabilitation infrastructures. Thus, age determination is inseparable from wider social policy frameworks.

The findings on juvenile justice models suggest that restorative approaches are more consistent with international human rights standards and contemporary psychological research. Restorative justice fosters active participation of victims, offenders, and communities in resolving conflict, making it a more holistic approach (Zehr, 2019). Despite positive outcomes, its global implementation remains uneven due to political, cultural, and institutional barriers. In societies with punitive traditions, restorative models face skepticism regarding their effectiveness in addressing serious crimes. Yet, studies consistently show lower recidivism and better reintegration outcomes under restorative systems (Daly, 2020). This supports arguments that juvenile justice should prioritize restoration over retribution. The discussion affirms the potential of restorative frameworks as a sustainable alternative.

The integration of neuroscientific findings into legal practices represents a critical advancement in aligning law with contemporary science. Recognizing that minors lack the same cognitive maturity as adults challenges traditional notions of equal culpability (Steinberg, 2020). However, reliance on science also poses ethical and practical questions regarding uniform application across jurisdictions. Some critics argue that overemphasis on immaturity could diminish personal responsibility and erode deterrent effects. Nonetheless, empirical evidence suggests that developmental considerations enhance fairness without eliminating accountability (Casey et al., 2019). Courts and policymakers must strike a balance between scientific insights and normative legal principles. Therefore, the dialogue between neuroscience and law continues to shape the evolution of juvenile responsibility.

The comparative analysis highlights both progress and persistent gaps in the protection of minors within criminal justice systems. While many jurisdictions have embraced international norms, disparities in implementation reflect political will, resource availability, and cultural attitudes. For instance, countries with strong welfare traditions are more likely to adopt rehabilitative measures, while resource-constrained states often default to punitive policies (Cipriani, 2020). This divergence underscores the importance of contextualizing reforms within local realities. At the same time, international cooperation and knowledge-sharing can foster convergence toward best practices. The findings contribute to ongoing debates about harmonizing global juvenile justice standards. Ultimately, the discussion emphasizes the need for child-sensitive, rights-based, and contextually adaptable legal frameworks

The study contributes to the theoretical understanding of criminal responsibility of minors by integrating legal doctrine with developmental psychology. Traditional legal theories emphasize rational choice and culpability, but these assumptions are increasingly challenged by evidence of adolescent immaturity (Steinberg, 2020). By examining cross-national practices, this research enriches the comparative legal scholarship on how different societies interpret culpability. The findings suggest that theories of responsibility must be reconceptualized to incorporate age-sensitive thresholds. This reconceptualization supports a hybrid model of juvenile justice that balances accountability with protection. Such an approach aligns with child rights theories under the UNCRC framework. Consequently, the study strengthens the theoretical foundation for advancing child-centered criminal law.

From a criminological perspective, the research advances theories of rehabilitation and desistance by situating juvenile offending within psychosocial development. Desistance theory posits that offenders gradually outgrow criminal behavior through maturation, which aligns with neuroscientific evidence of adolescent brain development (Scott et al., 2020). This reinforces the argument that punitive interventions may disrupt natural processes of maturation and reintegration. By synthesizing psychology, law, and criminology, the study bridges disciplinary gaps often present in juvenile justice scholarship. It provides a theoretical lens for evaluating whether interventions accelerate or hinder desistance trajectories. Moreover, the comparative findings offer a framework for understanding how legal thresholds shape long-term social outcomes. The contribution lies in extending criminological theory to account for age, maturity, and developmental processes.

Theoretically, the study also challenges universalist approaches to juvenile responsibility by emphasizing contextual relativism. Legal pluralism demonstrates that notions of culpability are not universally fixed but shaped by cultural, political, and institutional dynamics (Cipriani, 2020). This insight encourages the refinement of normative theories of juvenile justice to account for cultural variability. Instead of prescribing a one-size-fits-all model, the findings highlight the need for flexible, context-sensitive theories of responsibility. Such pluralism strengthens interdisciplinary debates on human rights, justice, and development. It also contributes to international law theory by showing how global norms are localized in diverse settings. Therefore, the research enriches theoretical debates by situating juvenile justice within both universal principles and cultural relativism

Practically, the findings provide a roadmap for policymakers to design child-sensitive legal frameworks. Legislators should consider raising the minimum age of criminal responsibility in line with scientific evidence on adolescent immaturity (Casey et al., 2019). This would harmonize national laws with international human rights standards while ensuring proportionality in legal responses. Judicial systems should also integrate psychosocial assessments before prosecuting minors. Such practices would ensure that interventions are tailored to individual capacities and circumstances. Policymakers are encouraged to adopt restorative approaches to reduce recidivism and enhance reintegration. Therefore, the study offers evidence-based guidance for legal reforms that balance child protection with public safety.

For practitioners, the research highlights the importance of adopting multi-disciplinary approaches in juvenile cases. Lawyers, judges, and probation officers should collaborate with psychologists, social workers, and educators to design holistic interventions (Arthur, 2020). This would ensure that legal decisions are informed not only by legal norms but also by scientific and social insights. Training programs for law enforcement should emphasize child rights, restorative justice, and the developmental limits of minors. Furthermore,

practitioners should encourage diversionary measures, such as community service or counseling, instead of incarceration. Such measures foster rehabilitation and reduce stigmatization associated with formal criminal justice processes. Ultimately, the findings urge practitioners to rethink justice delivery for minors in more humane and effective ways.

At the international level, the study has practical implications for harmonizing global juvenile justice standards. Organizations such as UNICEF and the UN Committee on the Rights of the Child can use these findings to advocate for higher minimum ages of responsibility. International cooperation through treaties, training, and resource-sharing can help states with limited capacity implement child-sensitive systems (Hodgkinson, 2019). Moreover, comparative best practices can be disseminated across jurisdictions to encourage policy transfer. The evidence supports greater investment in rehabilitation centers, diversion programs, and restorative initiatives. Such global collaboration would help reduce disparities in how minors are treated across different legal systems. In this sense, the study contributes not only to national reforms but also to advancing global child rights agendas.

The originality of this study lies in its integration of doctrinal legal research with socio-legal and psychological perspectives on juvenile criminal responsibility. While many previous studies have examined legal frameworks or psychological dimensions separately, few have combined them into a comprehensive interdisciplinary framework. This research uniquely bridges jurisprudence, neuroscience, and comparative law to provide a holistic analysis of juvenile culpability. The novelty emerges from situating international standards such as the UNCRC alongside empirical insights from adolescent brain development. By doing so, the study challenges the traditional legal assumption of uniform culpability across age groups. This interdisciplinary integration allows for a more nuanced understanding of how law interacts with child development. As a result, the study offers a fresh contribution that advances both theory and practice in juvenile justice.

Another aspect of originality lies in the comparative methodology employed. Previous works often limit their scope to either single jurisdictions or broad international norms without fully juxtaposing them. This study, however, systematically analyzes diverse legal systems, including common law and civil law traditions, to highlight variations in the minimum age of criminal responsibility. The comparative analysis uncovers how cultural, political, and institutional contexts shape distinct models of juvenile justice. By synthesizing these differences, the research identifies not only best practices but also the underlying principles guiding them. This level of cross-jurisdictional comparison is relatively underexplored in the literature. Therefore, the study contributes novel insights into how localized laws and global norms can be reconciled in the field of juvenile justice.

The study's novelty is further underscored by its policy-oriented orientation grounded in interdisciplinary evidence. Rather than focusing solely on legal theory, it translates findings into actionable recommendations for lawmakers, practitioners, and international organizations. This practical relevance distinguishes it from purely doctrinal or empirical studies, ensuring that theoretical insights inform real-world reforms. Additionally, by incorporating neuroscientific research into legal debates, the study introduces an emerging dimension rarely integrated into legal scholarship. The novelty also lies in framing juvenile responsibility within both universal human rights and culturally specific legal traditions. Such a dual focus strengthens the originality of the contribution by balancing global and local perspectives. Overall, this research fills a critical gap by offering a comprehensive, interdisciplinary, and policy-relevant account of juvenile criminal responsibility.

## CONCLUSION

This study has critically examined the concept of criminal responsibility of minors through legal, psychological, and comparative perspectives. The findings reveal that age thresholds for criminal responsibility vary significantly across jurisdictions, reflecting diverse cultural and legal traditions. International standards, particularly the UNCRC, emphasize protection and rehabilitation, yet implementation differs widely. Psychological and neuroscientific evidence consistently demonstrates that minors possess limited cognitive maturity, which impacts their culpability. These insights challenge rigid punitive approaches that equate minors' responsibility with that of adults. The research highlights the importance of tailoring legal responses to developmental realities. In doing so, it calls for a paradigm shift toward more child-sensitive and evidence-based justice systems.

From a comparative perspective, the study underscores the diversity of juvenile justice models, ranging from punitive to rehabilitative frameworks. Some jurisdictions maintain a low minimum age of responsibility, while others adopt higher thresholds with strong rehabilitative components. This variation reflects broader socio-political contexts and highlights the complexity of harmonizing international norms with national legal systems. The analysis shows that jurisdictions adopting restorative justice and rehabilitation mechanisms report more positive outcomes in reducing recidivism. Conversely, punitive systems often exacerbate criminal tendencies and hinder reintegration into society. This comparative evidence strengthens the argument for reforming legal systems that remain overly punitive toward minors. It also demonstrates the need for policymakers to adapt justice systems in line with contemporary evidence and international obligations.

The implications of this research extend to both theory and practice in juvenile justice. Theoretically, it advances interdisciplinary scholarship by integrating legal doctrine, social analysis, and neuroscientific evidence into a unified framework. Practically, it offers actionable recommendations for developing child-sensitive justice policies that balance accountability with protection. By advocating for a nuanced approach, the study contributes to the global debate on how societies should respond to juvenile offending. It also emphasizes the role of international cooperation in setting standards while allowing flexibility for cultural and legal diversity. Future research should include empirical fieldwork to complement the doctrinal and comparative analysis presented here. Such efforts would strengthen the evidence base for reform and ensure justice systems remain responsive to the evolving needs of minors. Ultimately, this study reinforces the imperative of justice systems that are rehabilitative, equitable, and grounded in both law and child development.

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